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## Patterns in Admission Delays to Outpatient Methadone Treatment in the United States

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### Abstract

Waiting lists for methadone treatment have existed in many U.S. communities, but little is known nationally about what patient and service system factors are related to admission delays that stem from program capacity shortfalls. Using a combination of national data sources, this study examined patterns in capacity-related admission delays to outpatient methadone treatment in 40 U.S. metropolitan areas ( $n=28,920$ ). Patient characteristics associated with admission delays included racial/ethnic minority status, lower education, criminal justice referral, prior treatment experience, secondary cocaine or alcohol use, and co-occurring psychiatric problems. Injection drug users experienced fewer delays, as did self-pay patients and referrals from healthcare and addiction treatment providers. Higher community-level utilization of methadone treatment was associated with delay, whereas delays were less common in communities with higher utilization of alternative modalities. These findings highlight potential disparities in timely admission to outpatient methadone treatment. Implications for improving treatment access and service system monitoring are discussed.

### Keywords

methadone; treatment access; admission delays; waiting lists; disparities; program capacity

### 1. Introduction

Methadone maintenance, delivered in outpatient specialty clinics, has been used as a pharmacological modality for the treatment of heroin dependence in the United States for four decades. Methadone is effective in retaining patients in treatment and reducing opiate use, and some studies have also shown improvements in criminal activity and risk behaviors for HIV transmission (Amato et al., 2005; Gibson, Flynn, & McCarthy, 1999; Marsch, 2002; Metzger et al., 1993; NIH Consensus Development Panel, 1998; Wilson, Schwartz, O'Grady, & Jaffe, 2010). Likewise, economic analyses have shown methadone treatment to have a favorable cost-effectiveness profile (Barnett & Hui, 2000; Zaric, Barnett, &

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Brandeau; 2000; Zaric, Brandeau, & Barnett, 2000). However, demand for publicly-funded methadone treatment in many communities has over the decades eclipsed available treatment capacity, resulting in waiting lists and delays in admission (Des Jarlais, Paone, Friedman, Peyser, & Newman, 1995; Friedmann, Lemon, Stein, & D'Aunno, 2003; Glasscote, Sussex, Jaffe, Ball, & Brill, 1972; Gryczynski, Schwartz, Jaffe, & O'Grady, 2009; Lewis, 1999; Schwartz et al., 2006; Yancovitz et al., 1991).

When programs are at capacity, they may either turn applicants for treatment away or place them on a waiting list when they request services. Research has found that program bureaucracies and delays in admission are perceived by drug users as important barriers to treatment access (Appel, Ellison, Jansky, & Oldak, 2004; Peterson et al., 2010; Redko, Rapp, & Carlson, 2006). Delayed access to treatment can have detrimental clinical and public health consequences, as continued opiate use increases exposure to risks for arrest (Schwartz et al., 2009), infectious diseases including HIV (Cooper, 1989), overdose death (Darke & Hall, 2003; Warner-Smith, Darke, Lynskey, & Hall, 2001), and a range of physical and mental health problems (Hser, Hoffman, Grella, & Anglin, 2001). One study found that opiate-dependent individuals who receive accelerated admission to methadone treatment had superior outcomes in terms of retention and heroin use than those who successfully accessed treatment through typical prolonged intake procedures (Bell, Caplehorn, & McNeil, 1994). Other studies demonstrate that rapid access to methadone even without psychosocial services produces better treatment entry and drug use outcomes than standard admission procedures that involve waiting lists (Schwartz et al., 2006; Schwartz, Jaffe, Highfield, Callaman, & O'Grady, 2007; Yancovitz et al., 1991).

Given the staggering economic costs of untreated heroin addiction (Mark, Woody, Juday, & Kleber, 2001), ensuring timely admission to treatment should be a goal of any well-functioning substance abuse treatment system. This goal has long been articulated in U.S. drug treatment policy for certain groups of drug users (injection drug users, pregnant women). In response to the central role of injection drug use in fueling the HIV/AIDS epidemic, the Anti-Drug Abuse Act of 1988 tied a provision to states' receipt of drug abuse treatment block grants which prioritized admission for injection drug users (IDUs). States were to ensure admission for IDUs in drug abuse treatment programs within 7 days of request "to the maximum extent practicable", or provide interim services in the event that prompt admission was not possible. In 1990, the United States General Accounting Office (GAO, 1990) issued a report that documented lack of compliance with these statutory obligations by some programs. States and treatment programs had apparently interpreted this aspect of the legislation as a loose goal to strive for rather than as a requirement. The GAO also criticized monitoring systems as inadequate to measure states' progress towards fulfilling the requirement. Prompt admission for IDUs is still included in the Code of Federal Regulations (45 CFR 96.126) as a condition of obtaining block grant funding, although the time frame for admission is now within 14 days of request for treatment. States are required to ensure that treatment programs establish a waiting list management system for IDUs, keep records of IDUs seeking treatment, and provide interim services when admission within 14 days is not possible.

There are a multitude of factors that could impact the ability of providers to offer prompt admission to individuals seeking treatment. Patients may find themselves on different admission timetables based on how their treatment is paid for. For example, a treatment provider may have a certain number of fixed treatment "slots" for which they receive public funding, but may also accept patients who can pay out-of-pocket or have their treatment paid for by health insurance. Different reimbursement rates for services may further create divergent admission tracks based on whether a patient has private or public insurance coverage. Some private for-profit clinics that do not accept uninsured, indigent patients may

turn such people away rather than placing them on a waiting list. Waiting times may also be impacted by features of the broader service system, such as demand and the availability of methadone as well as alternative modalities.

Certain characteristics of patients, such as IDU status, pregnancy, or source of referral, may also have a bearing on waiting times. Studies from national evaluations of substance abuse treatment, such as the Treatment Outcomes Prospective Study (TOPS) and the Drug Abuse Treatment Outcomes Study (DATOS), show that characteristics of admissions can vary considerably over time as new cohorts of drug users seek treatment (Craddock, Rounds-Bryant, Flynn, & Hubbard, 1997; Fletcher, Tims, & Brown, 1997), and that patient characteristics can differ across modalities. For example, admissions to methadone treatment tend to have more previous treatment exposure than admissions to other modalities (Anglin, Hser, & Grella, 1997).

Previous studies have examined predictors of treatment entry among out-of-treatment drug users (Davey, Latikin, Hua, Tobin, & Strathdee, 2007; Corsi, Kwiatkowski, & Booth, 2007; Booth, Corsi, & Mikulich, 2003; Booth, Kwiatkowski, Iguchi, Pinto, & John, 1998) and those who have requested services and are waiting to access treatment (Carr et al., 2008; Chun, Guydish, Silber, & Gleghorn, 2008; Festinger, Lamb, Kountz, Kirby, & Marlowe, 1995; Gryczynski et al., 2009; Hser, Maglione, Polinsky, & Anglin, 1998). However, all of these studies have been conducted in distinct localized treatment systems. There has been less research on admission delays in the broader substance abuse treatment system at the national level (two exceptions can be found in Friedman et al., 2003 and McCaughrin & Howard, 1996). Little is known about systemic disparities in admission delays for different population groups attempting to access outpatient methadone treatment in the U.S.

The purpose of the present study was to examine patterns in admission delays to publicly-funded outpatient methadone treatment in the United States. Understanding such patterns can be useful for monitoring treatment system performance and identifying patient subgroups that are disproportionately likely to experience delays. The primary focus of the study is on examining admission delays among special populations, including injection drug users, racial/ethnic minorities, drug users with co-occurring psychiatric disorders, and opiate users who also use cocaine. The role of community-level treatment services utilization is also examined.

## 2. Methods

### 2.1. Data Sources

Information on the characteristics of treatment admissions was obtained from the 2007 Treatment Episode Data Set (TEDS), accessed through the Inter-University Consortium for Political and Social Science Research (ICPSR). TEDS is an administrative data system maintained by the Substance Abuse and Mental Health Services Administration (SAMHSA), and includes annual data on the characteristics of admissions to substance abuse treatment programs that receive public funding in the U.S. Information in TEDS pertains to *admissions* to treatment rather than *individuals* in treatment; an individual may be admitted to treatment more than once in a year cycle and would be counted as separate admissions. The public use datafile excludes those admissions known to be transfers from one level of care to another at the same service provider within a single treatment episode. More detailed information on TEDS can be found elsewhere (SAMHSA, 2002; ICPSR, 2008a).

Data on community treatment system utilization was derived from the 2007 National Survey of Substance Abuse Treatment Services (N-SATTS). The N-SATTS is an annual survey of

all substance abuse treatment facilities in the United States known to SAMHSA. N-SSATS collects data on a range of facility characteristics and services offered. In addition, facilities are asked to provide counts for the number of clients enrolled in various service modalities on a uniform index date (March 31, 2007). Providers are instructed to count each client only once. The survey had a 94.5% response rate among eligible facilities, and data on client counts was available for 13,648 facilities, of which 1,461 reported providing methadone pharmacotherapy. More information on the methodology of N-SSATS can be found in ICPSR (2008b).

N-SSATS data was linked to TEDS by Core-Based Statistical Area (CBSA), the most precise common geographic unit. Data on population size in each CBSA in 2007 was obtained from the Census Bureau's Population Estimates Division (U.S. Census Bureau, 2009).

## 2.2. Sample

Admissions to outpatient methadone treatment were classified as such if the admission was to an outpatient modality and methadone was planned as part of the treatment. Outpatient admissions for short-term detoxification only were not included, as such detoxification alone is distinct from longer-term maintenance treatment in terms of evidence base and service delivery considerations. The current analysis focuses on outpatient methadone treatment for adults aged 18 and older. Cases with missing values on the key variables of interest were dropped (described below), resulting in a final main analysis sample of  $n=28,920$  in 40 U.S. communities.

## 2.3. Measures

**Delay in Admission**—The dependent variable of Delay in Admission was derived from information on the number of days between first patient contact or request for services and delivery of the first clinical service following formal admission. This information is collected as part of the TEDS Supplemental Admissions Dataset, which States are encouraged, but not required, to report. Programs are instructed during reporting not to count delays that were due to something other than program requirements or a shortfall in the program's capacity to absorb the client. Delays resulting from the client failing to keep intake appointments or otherwise not complying with admission requirements are not included (SAMHSA, 2010). Therefore, this variable can be seen as capturing delays in admission stemming from program shortfalls in capacity, as opposed to *all-cause* admission delays. As such, it is a reasonable indicator of program deficiencies in providing timely admission to care. The dichotomous dependent variable for this study indicated whether the patient experienced a delay in admission to outpatient methadone treatment of at least one day (1=yes; 0=no). All data is on successful admissions; TEDS does not provide information on individuals who sought services but were never admitted.

**Individual-Level Characteristics of Admissions Variable Set**—Characteristics of treatment admissions examined in this study included demographic characteristics (age, gender, race, ethnicity, educational attainment); drug use and mental health variables (injection drug use, cocaine use reported at admission, alcohol use reported at admission, co-occurring psychiatric problems, number of previous treatment episodes for substance abuse); and referral source for the treatment episode (self/individual, alcohol/drug abuse treatment program, healthcare provider, criminal justice system, and other).

Unfortunately, there is substantial missing data in TEDS on variables that relate to source of payment for the treatment episode, as this information is reported on an entirely voluntary basis. Given its conceptual importance, an indicator of expected payment source (self-pay/

other payment, insurance, government payments, treatment free of charge) was included in a supplementary analysis (with the much smaller subset of admissions for which this information was available) for the purposes of determining its role in admission delays and whether adjusting for payment source alters the relationships found for other explanatory variables.

**Community-Level Treatment Service Utilization**—Local treatment system characteristics, such as program capacity or utilization of outpatient methadone and alternative modalities of care, could potentially impact admission delays through market forces of consumer demand and competition. Methadone patients in communities with more alternative modalities may experience fewer admission delays in the face of increased competition between programs. Higher demand for alternative modalities could also free up capacity in methadone programs, while higher demand for methadone might result in methadone programs being filled to capacity and less able to rapidly accommodate new admissions. Information from N-SSATS was used to determine local community treatment utilization at the CBSA level (the most precise geographic unit available in TEDS) based on facility client counts on the survey index date for outpatient methadone, outpatient non-methadone, residential, and hospital inpatient modalities. Client counts for alternative modalities were collapsed into a single variable tapping total non-outpatient methadone service utilization. Two treatment system utilization variables were computed for each CBSA, defined as the number of clients in (a) outpatient methadone and (b) alternative modalities, per 100,000 in the population.

Many of the CBSAs in the dataset included information on only a small number of admissions (for example, 23 CBSAs in the analysis sample had fewer than 10 recorded outpatient methadone admissions). Thus, the analysis was limited to larger CBSAs, excluding those in the bottom 5% in terms of number of outpatient methadone admissions. The 40 CBSAs that were retained had information on at least 81 admissions (Davenport-Moline-Rock Island, IA-IL Metro Area), up to 4,892 admissions (Los Angeles Metro Area).

#### 2.4. Statistical Analysis

Relationships between admission delays and characteristics of admissions were examined using bivariate measures of association. Additionally, multivariate logistic regression was used to model the relationship between the explanatory variables and admission delays. Because of the possibility that the experience of admission delays would be correlated for those seeking services in the same local treatment system, a random-effects specification was used to account for clustering of admissions within CBSAs. This approach also permits estimation of the effects of the community treatment utilization variables, which are constant within CBSA. The appropriateness of the random effects model was supported by the Hausman test diagnostic. Analyses were conducted in Stata version SE/10.

### 3. Results

Programs reported that 34.4% of admissions to outpatient methadone treatment experienced a delay in treatment entry. Table 1 shows characteristics of admissions that did and did not experience a delay. There was a statistically significant association between each class of variables and admission delay ( $p < .001$  for all), revealing substantial patterning of delays based on characteristics of admissions. Subpopulations that experienced fewer delays included older admissions, Hispanics, more educated admissions, injection drug users, referrals from a healthcare or substance abuse treatment provider, and admissions that did not use cocaine, alcohol, or have a co-occurring psychiatric disorder.

While bivariate associations provide a useful overview of admission delay patterns, they are unable to convey information on the conditional relationships between explanatory variables and admission delays, net of other characteristics of admissions. To examine such relationships, findings from the multivariate random-effects logistic regression analysis are presented in Table 2. As expected, a significant degree of the variance in the propensity to experience admission delays could be attributed to the CBSA component ( $p = .384$ ;  $p < .001$ ).

The model shows that gender differences in admission delays were negligible. Likewise, age group was not associated with admission delay. Relative to non-Hispanic Whites, Blacks had higher odds of experiencing admission delays ( $OR = 1.358$ ;  $p < .001$ ). In contrast to the findings of the naïve bivariate analysis, Hispanics also had higher odds of experiencing delays relative to non-Hispanic Whites ( $OR = 1.170$ ;  $p < .01$ ). Those with less than a high school education had higher odds of experiencing admission delays relative to their high school-educated counterparts ( $OR = 1.106$ ;  $p < .01$ ), but educational attainment beyond high school was not associated with admission delays. Referral source was a potent predictor, with those referred from a substance abuse treatment provider or a healthcare provider having substantially lower odds of delay compared to self-referrals ( $OR = .478$  and  $OR = .362$ , respectively;  $p < .001$  for both), while those referred from the criminal justice system were more likely to experience a delay in admission ( $OR = 1.698$ ;  $p < .001$ ). The negative association between injection drug use and admission delays was attenuated, but still significant in the multivariate model ( $OR = .917$ ;  $p < .05$ ). Number of previous treatment episodes for substance abuse was associated with delay ( $OR = 1.051$ ;  $p < .001$ ). Admissions who used alcohol ( $OR = 1.226$ ;  $p < .001$ ) and cocaine ( $OR = 1.115$ ;  $p < .01$ ) had higher odds of delay, as did those with a co-occurring psychiatric problem ( $OR = 1.197$ ;  $p < .001$ ).

Finally, as expected, community treatment system utilization played a role in predicting between-CBSA variation in admission delays. Higher levels of community outpatient methadone utilization was associated with admission delays to this modality ( $OR = 1.006$ ;  $p < .05$ ). On the other hand, there was a negative association between admission delays and community-level utilization of key alternative modalities ( $OR = .995$ ;  $p < .01$ ).

### 3.1. Supplementary Analysis Including Payment Source

Expected source of payment, a variable of considerable conceptual import, is asked directly on the TEDS voluntary reporting form, but there is substantial missing data for this variable. Including payment source in the model reduced the sample by over 75%, to 7,055 admissions in 15 communities. In this model, every type of payment source was positively associated with admission delay relative to self-payment, including insurance coverage ( $OR = 2.023$ ; 95% CI = 1.681, 2.434;  $p < .001$ ), non-insurance government payments ( $OR = 1.752$ ; 95% CI = 1.470, 2.089;  $p < .001$ ), and treatment provided free of charge ( $OR = 3.698$ ; 95% CI = 2.497, 5.476;  $p < .001$ ).

Compared to the initial analysis, Hispanic ethnicity, black race, educational attainment, cocaine use, and community-level outpatient methadone utilization were no longer significantly associated with admission delays. Psychiatric comorbidity, positively associated with delay in the preceding analyses, was slightly negatively associated with delay in this model ( $OR = .841$ ; 95% CI = .718, .985;  $p < .05$ ). The patterns for other variables continued to hold. Compared to the main analysis, injection drug use had a stronger negative association with delay ( $OR = .719$ ; 95% CI = 0.626, 0.825;  $p < .001$ ). Importantly, none of the differences with the main analysis can be attributed to adjustment for payment source, as patterns of delay in this subsample were consistent whether controlling for payment source or not.

## 4. Discussion

The findings presented here suggest the presence of some systematic disparities in admission delays to outpatient methadone treatment. While this study cannot provide a direct assessment of the policy to prioritize admission for injection drug users, the data is consistent with the goals of that policy as injection drug users were less likely to experience delays than their non-IDU counterparts. From a public health perspective, this is a welcome finding. However, other population subgroups that could be considered to be more vulnerable or to have special clinical needs were shown to be overrepresented in delayed admission. For example, admissions who also used alcohol or cocaine, as well as those who had a co-occurring psychiatric diagnosis, were disproportionately impacted by admission delays. Likewise, African Americans and those with less than a high school education tended to have higher rates of experiencing admission delays. Admissions referred from the criminal justice system were more likely to experience delays, while those referred from other substance abuse treatment providers or through the healthcare system enjoyed more prompt admission compared to those seeking treatment on their own without referral. While the ultimate public health implications of these delays are unknown, it is clear that disparities exist and that delay is generally more common for populations that may be considered socially and/or medically disadvantaged (e.g., African Americans, admissions with more complex substance use patterns, those with psychiatric problems, those involved in the criminal justice system).

It is plausible that larger population differences in insurance coverage, government assistance, and ability to pay may form the root of some disparities, but the results here are inconclusive. The findings from the supplementary analysis showed that payment source is certainly a strong predictor, and those who can pay out-of-pocket enjoy rapid access. However, the supplementary analysis also highlighted several uncertainties with the data. While many of the patterns found in the main analysis continued to hold in the smaller sample of admissions with available information on payment source, racial and ethnic disparities were not found, and were not present in this subsample regardless of adjustment for expected source of payment. Thus, differences between the main and supplementary analyses do not necessarily reflect the explanatory power of payment source, but rather differences in the samples. More than anything, these differences illustrate the tenuous nature of some of the patterns found. Given the spotty coverage of payment source and other important variables in TEDS, more research is needed on the factors that underlie disparities in timely access to treatment.

The findings of this study indicate that community treatment utilization for various modalities may play a role in determining whether patients experience delays in admission. As different modalities represent alternatives to outpatient methadone and to one another, community treatment systems should take care to offer the proper mix of modalities based on an evidence-driven determination of the population's drug use patterns and treatment needs. The results from the random effects model confirmed a significant degree of geographical clustering at the CBSA level. Local treatment systems have unique patterns with respect to treatment access, and policies attempting to minimize admission delays must consider the local context. Previous research has shown geographic variation in substance use patterns and need-access disparities (McAuliffe & Dunn, 2004). Coordination between local systems of care and resources at the federal and state levels is likely to be important in streamlining treatment access and reducing admission delays. Program-level performance improvement efforts may also reduce waiting time by increasing the efficiency of the admission process (McCarty et al., 2009).

Although understanding admission delays resulting from program capacity limits is important for improving the treatment system, it would also be informative to know the characteristics of those individuals who sought treatment but did not receive it. Unfortunately, this type of information is not known at a national level, but studies conducted in single communities have documented that those who do not enter substance abuse treatment represent a significant proportion of treatment-seekers placed on waiting lists, on the order of 30% (Donovan et al., 2001) to 38% (Hser et al., 1998) to 80% (Gryczynski et al., 2009). This is a wide range, but it is clear that many who seek treatment are not admitted. The longer a person has to wait for admission, the more likely programs will miss a vital window of opportunity for engaging the prospective patient in potentially life-saving care (Festinger et al., 1995).

Targeted efforts may be necessary to reduce disparities in admission delays and to improve access to outpatient methadone throughout systems of care in the United States. Individual-level interventions delivered prior to treatment admission represent one approach. Studies have generally found that interventions to enhance patient motivation are not effective in improving entry into substance abuse treatment (Booth et al., 1998; Donovan et al., 2001; Rapp, Otto, Lane, Redko, McGatha, & Carlson, 2008). However, simple interventions to reduce barriers by providing transportation assistance or vouchers for free treatment are quite effective (Booth et al., 1998; Booth et al., 2003; Strathdee et al., 2006; Sorensen et al., 2005). Likewise, there is evidence from randomized trials that case management can improve entry into methadone treatment among those previously discharged (Coviello, Zanis, Wesnoski, & Alterman, 2006), as well as those referred from needle exchange programs (Strathdee et al., 2006) and hospital settings (Sorensen et al., 2005). The effectiveness of strengths-based case management in promoting treatment entry was reaffirmed in another randomized study with individuals requesting treatment at a centralized intake unit, although sub-analyses showed that the benefits of this approach were concentrated in regular outpatient treatment and not methadone maintenance (Rapp et al., 2008).

Other strategies for promoting treatment entry and reducing admission delays involve changes at the program level. One effective strategy is interim methadone, in which individuals seeking treatment are provided methadone medication without accompanying psychosocial counseling (which corresponds to a share of the time and cost burden for outpatient methadone programs) on an interim basis until a full-service treatment slot becomes available. Interim methadone has been shown to produce superior outcomes in treatment entry and drug use relative to standard waiting lists (Schwartz et al., 2006; Schwartz et al., 2007), and comparable outcomes to standard methadone (Schwartz, Kelly, O'Grady et al., in press).

Certain policy levers are also available that could improve treatment access and reduce delays in admission. For example, some states are re-allocating their block grant funding to expand eligibility for substance abuse services under public health insurance, which opens the possibility for other funding streams (e.g., federal Medicaid matching funds) and may ultimately improve access as programs move towards fee-for-service billing (Maryland Department of Health and Mental Hygiene, 2010).

#### 4.1. Limitations

This study has a number of limitations. TEDS is subject to the limitations inherent in many large administrative data systems. First, problems may arise in the reporting chain for large amounts of data going from programs, to states, and finally to the federal level. Each state has their own reporting systems, standards, and protocols that have a bearing on the quality and scope of the data made available to government agencies and for public use (Carise,



McLellan, Gifford, & Kleber, 1999). While they were in the direction expected, the findings for community-level utilization of outpatient methadone and alternative modalities should be interpreted with some caution, as these between-CBSA effects are based on just 40 community metro areas (and fewer still in the supplementary analysis). Some simulation studies suggest that multilevel logistic regression models with relatively small numbers of clusters (i.e., <50) are able to estimate within-cluster relationships quite accurately but may produce biased inferences for between-cluster effects (Moineddin, Matheson, & Glazier, 2007), although other studies suggest that a much smaller number may suffice (Clarke, 2008).

Information on admission delays was collected through the TEDS Supplementary Data which is voluntarily reported, and it is possible that programs with longer waiting lists may have been less likely to report such information. As a result, the contribution of the current study is only in illuminating patterns of admission delays based on a handful of admissions-level and treatment system variables; this study cannot provide meaningful information on the prevalence of system-wide admission delays to treatment. Furthermore, while programs are clearly instructed to only count delays stemming from program requirements or inadequate capacity, there may be different interpretations of what qualifies as a program-related delay in admission. Finally, it is quite likely that other variables not considered here (due to insufficient or entirely absent information) may shape admission delays. An ideal dataset would include much richer information on patient, organizational, and service system characteristics, all of which may individually and interactively impact waiting time for treatment. It is interesting to note that a fair amount of such information is already being collected in data systems like the TEDS and N-SSATS (see Carise et al., 1999; Coffey et al., 2009). Perhaps in the future, improved linkage of various complementary data sources will facilitate more robust examination of patient-, organizational-, and system-level determinants of critical program processes and practices.

The TEDS is a useful resource for illuminating patterns of admission delays at the national level, although there is a major limitation of the monitoring system in its current form. Questions about patient insurance status, expected source of payment, and days waiting for admission are in the Supplementary part of TEDS. TEDS is already set up to collect information on these important questions, but programs report them on a voluntary basis. Making these few items required fields in the TEDS, or otherwise incentivizing programs to report this information, would go a long way in helping to identify patterns in admission delays with greater certainty. As healthcare reform is unveiled and implemented, changing these reporting requirements now would establish a clear baseline against which to track the impact of healthcare reform on timely access to methadone as well as other substance abuse treatment modalities. As the treatment field continues to evolve with the advent of new extended-release formulations for medications like buprenorphine (Ling et al., 2010) and naltrexone (Comer, Sullivan, & Hulse, 2007), it will be important to monitor waiting times for what will hopefully be an expanding array of treatment options.

Despite its limitations, TEDS is the only national-level source of such data available, and one that is used by federal agencies to monitor the substance abuse treatment system and inform decision-making and public policy. Even in light of the limitations of the data and of this study, the present inquiry provides information on admission delay disparities in outpatient methadone treatment, which may be useful for developing more targeted hypotheses in future studies investigating access and timely admission to treatment services.

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**Table 1**Status of admission delays to outpatient methadone treatment by characteristics of admissions ( $n=28,920$ ).

	No Delay ( $n=18,986$ ; 65.65%)	Delay ( $n=9,934$ ; 34.35%)
	Percent	Percent
<b>Gender (<math>p&lt;.001</math>)</b>		
Male	66.6	33.4
Female	64.2	35.8
<b>Age (<math>p&lt;.001</math>)</b>		
18–24	60.1	39.9
25–34	63.2	36.8
35–44	64.1	35.9
45–54	68.3	31.7
55 +	75.0	25.0
<b>Race/Ethnicity (<math>p&lt;.001</math>)</b>		
White	64.3	35.7
Hispanic	80.6	19.5
Black	56.8	43.2
Other	81.4	18.6
<b>Education (<math>p&lt;.001</math>)</b>		
Less than High School	63.6	36.4
Finished High School	66.1	33.9
More than High School	68.3	31.2
<b>Injection Drug Use (IDU) (<math>p&lt;.001</math>)</b>		
IDU	70.6	29.4
non-IDU	60.0	40.0
<b>Cocaine Use (<math>p&lt;.001</math>)</b>		
Cocaine use reported	56.4	43.6
No cocaine use reported	68.8	31.2
<b>Alcohol Use (<math>p&lt;.001</math>)</b>		
Alcohol use reported	57.9	42.1
No alcohol use reported	66.4	33.6
<b>Co-occurring Psychiatric Disorder (<math>p&lt;.001</math>)</b>		
Co-occurring psychiatric problem	53.7	46.3
No co-occurring psychiatric problem	68.6	31.4
<b>Referral Source (<math>p&lt;.001</math>)</b>		
Self/individual	65.1	34.9
Substance abuse treatment provider	79.1	20.9
Healthcare provider	83.8	16.2
Criminal justice system	55.8	44.2
Other referral	47.3	52.7

Note: Significance tests based on the  $\chi^2$  statistic.

**Table 2**

Multivariable random-intercept logistic regression predicting delay in admission to outpatient methadone treatment ( $n=28,920$  admissions in 40 communities).

	Odds Ratio	95% CI
<b>Gender</b>		
Male	1.063	(0.997 – 1.133)
<b>Race/Ethnicity</b> ( <i>ref= Non-Hispanic White</i> )		
Hispanic	1.170**	(1.055 – 1.298)
Black	1.358***	(1.241 – 1.486)
Other Race	1.243	(0.991 – 1.558)
<b>Age</b> ( <i>ref= 25–34</i> )		
18–24	1.109	(0.994 – 1.238)
35–44	0.980	(0.897 – 1.071)
45–54	1.047	(0.955 – 1.148)
55 and older	1.030	(0.906 – 1.170)
<b>Education</b> ( <i>ref= High School Education</i> )		
Less than High School	1.106**	(1.033 – 1.185)
More than High School	1.028	(0.945 – 1.118)
<b>Referral Source</b> ( <i>ref= Individual/Self</i> )		
Substance abuse treatment provider	0.478***	(0.422 – 0.542)
Healthcare provider	0.362***	(0.301 – 0.435)
Criminal justice system	1.698***	(1.445 – 1.996)
Other referral	1.011	(0.891 – 1.148)
<b>Substance Use/Mental Health</b>		
Number of previous treatments for drug abuse	1.051***	(1.030 – 1.072)
Injection drug user	0.917*	(0.854 – 0.983)
Alcohol use	1.226***	(1.102 – 1.364)
Cocaine use	1.115**	(1.038 – 1.198)
Co-occurring psychiatric problem	1.197***	(1.092 – 1.313)
<b>Community Treatment System Utilization</b>		
Outpatient methadone clients/100,000 pop.	1.006*	(1.001 – 1.012)
Alternative modality clients/100,000 pop.	0.995**	(0.992 – 0.999)
<i>rho</i> (model intraclass correlation)	.384***	0.282 – 0.497

\*  $p < 0.05$ ,

\*\*  $p < .01$ ,

\*\*\*  $p < .001$  (two-tailed). Model  $\chi^2=455.0$  ( $p < .001$ ). Alternative modalities include clients served in non-methadone outpatient, residential, and hospital inpatient programs.