



Provision of onsite HIV Services in Substance Use Disorder Treatment Programs: A Longitudinal Analysis



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ABSTRACT

The provision of HIV education and testing in substance use disorder (SUD) treatment programs is an important public health strategy for reducing HIV incidence. For many at-risk individuals, SUD treatment represents the primary point of access for testing and receiving HIV-related services. This study uses two waves of nationally representative data of 265 privately-funded SUD treatment programs in the U.S. to examine organizational and patient characteristics associated with offering a dedicated HIV/AIDS treatment track, onsite HIV/AIDS support groups, and onsite HIV testing. Our longitudinal analysis indicated that the majority of treatment programs reported providing education and prevention services, but there was a small, yet significant, decline in the number of programs providing these services. Programs placed more of an emphasis on providing information on the transmission of HIV rather than on acquiring risk-reduction skills. There was a notable and significant increase (from 26.0% to 31.7%) in programs that offered onsite HIV testing, including rapid HIV testing, and an increase in the percentage of patients who received testing in the programs. Larger programs were more likely to offer a dedicated HIV/AIDS treatment track and to offer onsite HIV/AIDS support groups, while accredited programs and programs with a medical infrastructure were more likely to provide HIV testing. The percentage of injection drug users was positively linked to the availability of specialized HIV/AIDS tracks and HIV/AIDS support groups, and the percentage of female clients was associated with the availability of onsite support groups. The odds of offering HIV/AIDS support groups were also greater in programs that had a dedicated LGBT track. The findings suggest that access to hospitals and medical care services is an effective way to facilitate adoption of HIV services and that programs are providing a needed service among a group of patients who have a heightened risk of HIV transmission. Nonetheless, the fact that fewer than one third of programs offered onsite testing, and, of the ones that did, fewer than one third of their patients received testing, raises concern in light of federal guidelines.

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1. Introduction

An estimated 1.2 million individuals are living with HIV, including 1 in 7 who are unaware of their infection (Centers for Disease Control and Prevention [CDC], 2014). In 2010, the White House released the National HIV/AIDS Strategy (NHAS) outlining 3 goals: 1) reducing HIV incidence, including increasing prevention efforts among substance users; 2) increasing access to care and improving health outcomes for those living with HIV; and 3) reducing HIV-related health disparities (Office of National AIDS Policy, 2010). Furthermore, in 2013, the President issued an Executive Order establishing the HIV Care Continuum Initiative, which is aimed at improving and increasing HIV testing and treatment of those living with HIV (Department of Health and Human Services [US], 2013).

The provision of onsite HIV testing in substance use disorder (SUD) treatment programs is an important public health strategy for reducing HIV incidence (CDC, 2006a), and is linked to positive treatment

outcomes (Rothman, Lyons, & Haukoos, 2007; Volkow & Montaner, 2010). Nonetheless, the majority of SUD treatment programs do not provide onsite testing to their patients, and fewer than one third of patients in programs that provide HIV testing actually receive such testing (Abraham, O'Brien, Bride, & Roman, 2011; Brown et al., 2006; D'Aunno, Pollack, Jiang, Metsch, & Friedmann, 2014; Pollack & D'Aunno, 2010; Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). This suggests that federal guidelines have not made a substantial impact on the SUD treatment field.

For many individuals, SUD treatment represents the primary or only point of access for testing and diagnosis of HIV (Kyle et al., 2015). Thus, provision of HIV/AIDS services, including prevention, testing, and support services in treatment programs can make a significant public health impact among patients with high risk of infection. Beyond HIV/AIDS services, the provision of SUD treatment itself can reduce HIV incidence by reducing the rate of HIV risk behaviors among patients, including injection drug use (Metzger & Navaline, 2003; Sorensen & Copeland, 2000). While treatment programs may form linkages for patients to receive these services offsite, research suggests that onsite health services are more effective in reaching patients than providing referrals to an

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external site (Metsch et al., 2012; Umbricht-Schneiter, Ginn, Pabst, & Bigelow, 1994). Past studies (Abraham et al., 2011; Pollack & D'Aunno, 2010; Pollack, D'Aunno, & Lamar, 2006; Strauss, Des Jarlais, Astone, & Vassilev, 2003) have examined the provision of HIV testing but have often excluded other HIV/AIDS services offered by SUD treatment programs. Further, they have typically used cross-sectional data or examined outpatient-only programs. This study uses two waves of nationally representative data of privately-funded SUD treatment programs in the U.S. to examine organizational and patient characteristics of treatment programs that offer a dedicated HIV/AIDS treatment track, onsite HIV/AIDS support groups, and onsite HIV testing. Building on previous research, we hypothesize that a number of organizational factors and client characteristics may help determine whether or not treatment programs adopt onsite HIV/AIDS services and testing.

1.1. Organizational factors linked to HIV/AIDS services

The provision of SUD treatment services is typically related to available resources. Larger treatment programs tend to have greater slack resources available for implementation of ancillary services (Rogers, 2003). Organizational studies confirm the positive link between organization size and adoption of a variety of treatment services (Abraham et al., 2011; Aletraris, Paino, Edmond, Roman, & Bride, 2014; Pollack & D'Aunno, 2010). Another relevant treatment program resource is staff education, as greater educational attainment facilitates the adoption and implementation of new organizational practices (Cohen & Levinthal, 1990). Accreditation is also linked to the delivery of HIV testing services (Chriqui, Terry-McElrath, McBride, & Eidson, 2008; Guerrero & Cederbaum, 2011; Pollack & D'Aunno, 2010). The process of accreditation encourages health prevention services and requires programs to conduct comprehensive evaluations of client needs, of which HIV services are a component.

Besides access to resources, treatment programs are likely to provide services that are aligned with their values and mission. For example, non-profit programs are likely to place an emphasis on public health as a core mission (Wheeler & Nahra, 2000), and may therefore play an active role in HIV prevention. Past research finds a higher prevalence of testing for HIV and sexually transmitted infections in non-profit treatment programs (D'Aunno et al., 2014; Guerrero & Cederbaum, 2011). Further, several studies find that for-profit SUD treatment programs offer fewer core services as well as wraparound services, such as medical care (Aletraris, Bond Edmond, & Roman, 2015; Ducharme, Mello, Roman, Knudsen, & Johnson, 2007; Friedmann, Lemon, Durkin, & D'Aunno, 2003).

Treatment programs based in a hospital setting already have a treatment orientation that is based on a medical model and may thus see the provision of diagnostic services as falling within the domain of their organizational goals (Friedmann et al., 2003). Hospital-based programs are also more likely have access to resources and staff with the expertise to provide testing and support services (Knudsen & Oser, 2009). Programs that already provide onsite primary medical care services are likely to offer HIV/AIDS services as well (Strauss et al., 2003). Similarly, programs that use medication-assisted treatment (MAT) as a treatment strategy embrace a medical approach to treatment (Knudsen, Ducharme, & Roman, 2007) consistent with the provision of HIV/AIDS services.

1.2. Patient characteristics linked to HIV/AIDS services

Treatment programs' patient characteristics may also influence provision of HIV/AIDS services, as racial and ethnic minorities, and injection drug users (IDUs) are most profoundly affected by HIV/AIDS. Programs with a preponderance of such patients may find it beneficial to offer services in order to meet their patients' needs.

African Americans continue to be disproportionately affected by HIV, compared with other races and ethnicities. The CDC states that an estimated 1 in 16 African American men and 1 in 32 African American

women will be diagnosed with HIV at some point in their lifetime (CDC, 2007). Further, African Americans represented approximately 44% of new HIV infections in 2010 and 41% of those living with HIV in 2011, even though they represent about 12% of the U.S. population (CDC, 2012, 2014). Data on Hispanics/Latinos show that they are also at an increased risk of contracting and transmitting HIV/AIDS (CDC, 2014). In 2010, they accounted for 21% of new HIV infections (CDC, 2012). Further, the rate of new HIV infections for Hispanic/Latino males is approximately 3 times that for White males, while the rate of new infections for Hispanic/Latino women is approximately 4 times greater compared to White females (CDC, 2012). A recent article found that opioid treatment programs with a higher proportion of Hispanic clients were more likely to offer HIV testing services (D'Aunno et al., 2014).

The link between substance use, particularly injection drug use, and the elevated risk of contracting and transmitting HIV/AIDS has also been well documented (CDC, 2006b; Ehrenstein, Horton, & Samet, 2004; Heimer, Grau, Curtin, Khoshkood, & Singer, 2007; Semple, Amaro, Strathdee, Zians, & Patterson, 2009; Shoptaw et al., 2013; Stein et al., 2005). Data indicate that between 30% and 40% of IDUs are infected with HIV (Battjes, Pickens, & Brown, 1995; Booth, Watters, & Chitwood, 1993; Francis, 2003). Recent CDC reports show that 16% of new HIV infections among women in 2010 were attributed to injection drug use (CDC, 2012; 2014), while 8% of new HIV infections in 2010 and 15% of those with HIV in 2011 were IDUs (CDC, 2012, 2014). Further, the majority of new HIV infections among women were attributed to heterosexual contact (CDC, 2012, 2014), often transmitted by injection drug-using partners (Tortu, Beardsley, Deren, & Davis, 1994). Approximately 40% of HIV infections among IDUs in 34 states had received late diagnoses (Grigoryan et al., 2010), suggesting that timely provision of HIV testing and treatment is critical for at-risk drug users (Guerrero & Cederbaum, 2011; Volkow & Montaner, 2010). Past studies have found that client need for HIV-related services, including the percentage of IDUs, was associated with adoption of services (Knudsen & Oser, 2009; Pollack & D'Aunno, 2010).

Finally, gay, bisexual, and other men who have sex with men (MSM) are a severely HIV-affected population. Data from 2010 show that MSM accounted for almost three quarters (72%) of new HIV infections among all persons aged 13 to 24 (CDC, 2012). Adolescent MSM are at the highest risk, accounting for the greatest percentage increase in HIV infections, and approximately 93% of all HIV infections among males aged 13 to 19. Further, at the end of 2011, MSM (including MSM who also inject drugs) accounted for 57% of those living with an HIV diagnosis (CDC, 2012). While the reasons for these disparities in HIV infections are varied, one major concern is lack of awareness of HIV status, making HIV testing especially important for groups disproportionately affected by HIV. Treatment programs that provide tailored services for their LGBT patients may be particularly likely to incorporate HIV prevention services and testing.

In summary, we expect that treatment programs will be more likely to offer HIV/AIDS services and HIV testing when there are available resources, organizational norms are compatible with a medical treatment model, and when there is a client need for such services.

2. Material and methods

2.1. Sample and study eligibility

Data were drawn from two waves of a nationally representative longitudinal study of privately-funded SUD treatment programs. Baseline data were collected between 2007 and 2008 while follow-up data were collected between 2009 and 2011. Treatment programs were selected through a two-stage sampling protocol, first stratifying all U.S. counties by population size, and then using national and state directories to enumerate treatment facilities within the sampled counties. Next, treatment programs were randomly selected within each stratum, and telephone screening was used to establish eligibility for the study.

Programs screened as ineligible were replaced by random selection of alternative programs from the same population stratum.

To be eligible for this study, treatment programs were required to receive more than 50% of their annual operating revenues from commercial insurance, patient fees, and income sources other than government “block” grants or contracts. The definition of private treatment programs was designed to construct a sample of organizations that engaged in entrepreneurial behaviors, as they had to compete for more than half of their revenue. Revenues from Medicaid and Medicare were not regarded as block funding because they are not assured but are instead received on an individual patient basis. Programs were also required to be open to the general public and to offer treatment services at a level of intensity at least equivalent to American Society of Addiction Medicine Level 1 outpatient services (Mee-Lee, Gartner, Miller, Shulman, & Wilford, 1996). Counselors in private practice, halfway houses, transitional living facilities, programs exclusively offering methadone maintenance, court-ordered driver education classes, detoxification-only services, and programs located in correctional and Veterans Health Administration facilities were excluded from the study. Programs received a \$100 honorarium for participation in each wave of the study. All research procedures were approved by the institutional review board of the University of Georgia.

Baseline data were collected via structured face-to-face interviews with program administrators and/or clinical directors at each treatment program. Data about staffing, internal management and marketing practices were provided by the administrative director, while information about clinical care and treatment services was provided by the clinical director. In the event that a program administrator also served as a clinical director, interviews were combined. Follow-up data were collected in a similar manner, with an average time of 24 months between onsite interviews. On-site interviews were conducted by a trained field interviewer with at least a bachelor's level of education. On average, interviews lasted approximately 2.5 hours. Respondents were provided with a list of pre-interview questions to assist them in preparation for the interview, as they were able to consult their records prior to the interview on topics such as revenues, staffing, and client characteristics.

At baseline, 345 programs were interviewed, representing 67% of eligible programs contacted for the study. There were 275 programs from this sample that participated in the follow-up interview, representing 79.7% of the original sample. Due to missing responses on any of our study variables, the final sample focused on 265 of these organizations.

2.2. Measures

Clinical directors were asked a series of questions about HIV/AIDS services provided in their program at baseline and the 24-month follow-up face-to-face interview. We included three dichotomous dependent variables measured at the follow-up interview. First, we measured whether a separate treatment track was provided for patients with HIV/AIDS that was tailored to meet their specific needs (1 = yes, 0 = no). Second, we included a dichotomous measure denoting whether onsite support groups were provided for patients with HIV/AIDS (1 = offers onsite support groups, 0 = does not offer onsite support groups). Finally, we measured whether or not a program provided onsite HIV testing (1 = program offers onsite HIV testing, 0 = program does not offer onsite HIV testing).

We also measured whether the treatment program offered HIV education and prevention services (1 = yes, 0 = no), but since there was little variation in the provision of these services, we did not estimate further inferential statistics. Respondents provided information on the content of these education services and the emphasis placed on the following topics on a scale of 0 to 5 (0 = no extent, 5 = a very great extent): how HIV/AIDS is transmitted; the development of safer sex skills; skill rehearsal of correct condom use; practicing communication strategies to stop verbal coercion to engage in unsafe sex; and practicing partner communication and negotiation skills about safer sex practices.

We included several organizational and patient characteristics measured during the baseline interview that might influence the provision of onsite HIV services. Organization size was measured by the number of full-time equivalents (FTEs); the measure was log transformed to adjust for skew. The percentage of counselors with a master's degree or higher was included as a measure of staff professionalism. We included dichotomous variables for accreditation, denoting whether a program was accredited by the Joint Commission or the Commission on Accreditation of Rehabilitation Facilities (1 = accredited, 0 = not accredited), and for-profit status (1 = for-profit, 0 = non-profit). We also included dichotomous variables measuring whether a program was hospital-based (1 = hospital-based, 0 = not hospital based), offered primary care services onsite (1 = program provides medical services onsite, 0 = program does not provide medical services onsite), and offered MAT to its patients (1 = prescribes MAT, 0 = does not prescribe MAT).

We included the following continuous measures of patient characteristics; the percentage of African American patients, the percentage of Hispanic patients, the percentage of female patients, and the percentage of patients who were IDUs. While we did not ask clinical directors for the percentage of patients who identified as LGBT, we did ask about the provision of a specialized track to meet the needs of LGBT patients. We included this dichotomous measure, with 1 indicating that the program offered a specialized LGBT track and 0 indicating that it did not.

Finally, we controlled for regional differences by including indicators for a program's location, using dichotomous variables for West, Midwest, Northeast, and South, with south as the omitted reference category.

2.3. Analytic strategy

Descriptive statistics were used to determine the provision of HIV/AIDS services at baseline and follow-up, and McNemar's chi-square tests or paired t-tests compared baseline and follow-up rates of the availability of services. We then performed a series of bivariate logistic regressions that examined the provision of a specialized HIV/AIDS treatment track and the availability of onsite support groups for patients with HIV/AIDS. Due to the small number of centers that offered these services, multivariate models could not be estimated. Lastly, we used multivariate logistic regression to examine the use of onsite HIV testing services. The limited observations of programs that had discontinued HIV testing or that had newly adopted HIV testing between the baseline and follow-up period prevented us from performing multinomial logistic regression comparing these categories with programs that either offered HIV testing at both time points or did not offer HIV testing at either time point. To better examine temporal ordering, all regression models included independent variables measured at baseline and a lagged dependent variable measured at follow-up approximately 24 months later (Menard, 2008). There was no evidence of multicollinearity between the independent variables. Inverse probability weights were calculated to correct for attrition and establish that the subsample of treatment programs interviewed at follow-up was representative of the original sample at baseline. Weighted analyses did not substantially change our results, so unweighted results are presented. All analyses were conducted using Stata 12 (StataCorp, College Station, TX).

3. Results

3.1. Descriptive statistics

Baseline and follow-up statistics regarding the provision of HIV/AIDS services are provided in Table 1. A majority of programs reported offering HIV/AIDS education and prevention services, but the percentage of programs doing so decreased from 83.4% at baseline to 74.3% at the follow-up interview (McNemar's $\chi^2 = 8.73, p < .01$). Further analysis indicated a very small, yet significant, decrease (from 58.9% to 55.8%) in education and prevention services that were delivered in standalone sessions, compared to education services that were incorporated into

Table 1
Descriptive statistics of HIV/AIDS services (N = 265).

	2007–2008		2009–2011		McNemar's or t test results
	Mean or %	SD or N	Mean or %	SD or N	
Program offers HIV education and prevention services	83.4%	(221)	74.3%	(197)	**
Extent to which educational services emphasize:					
How HIV/AIDS is transmitted	4.80	(0.51)	4.78	(0.61)	
The development of safer sex skills	4.50	(0.94)	4.48	(0.99)	
Skill rehearsal of correct condom use	2.52	(2.08)	2.51	(2.13)	
Practicing communication strategies to stop verbal coercion to engage in unsafe sex	2.88	(1.69)	2.96	(1.80)	
Practicing partner communication and negotiation skills about safer sex practices	2.99	(1.69)	3.06	(1.85)	
Program has a dedicated HIV/AIDS treatment track	9.4%	(25)	11.7%	(31)	
Program offers onsite support groups for patients with HIV/AIDS	12.5%	(33)	10.9%	(29)	
If no, are HIV-positive patients referred to community-based support groups?	90.5%	(210)	89.4%	(211)	
Program offers onsite HIV testing	26.0%	(69)	31.7%	(84)	*
If program offers testing					
Rapid HIV test is used (e.g. OraQuick, OraSure)	13.0%	(9)	21.4%	(18)	*
Percentage of patients tested in the past year	22.05	(24.44)	30.00	(31.06)	†

† $p < .1$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

regular counseling services (McNemar's $\chi^2 = 4.17, p < .05$, not shown). There were no significant differences in the emphasis placed on different educational topics during these prevention services. Overall, treatment programs placed the greatest emphasis on how HIV/AIDS was transmitted ($m = 4.8$ on a scale of 0–5) and the development of safer sex skills ($m = 4.5$). Topics such as skill rehearsal of correct condom use ($m = 2.5$), practicing strategies to stop verbal coercion to engage in unsafe sex (baseline mean = 2.9, follow-up mean = 3.0), and practicing partner communication and negotiation skills about safer sex practices (baseline mean = 3.0, follow-up mean = 3.1) received lower emphasis during both time periods.

Just 9.4% of programs stated that they offered a dedicated HIV/AIDS treatment track at the baseline interview, and 11.7% of programs offered a dedicated HIV/AIDS track at the follow-up interview. Approximately 13% of programs at baseline and 11% of programs at follow-up offered onsite support groups for their patients with HIV/AIDS. Almost all programs that did not offer onsite support groups (90.5% at baseline, 89.4% at follow-up) reported that they referred patients to community-based support groups. There were no significant differences between the number of programs offering an HIV/AIDS treatment track or the number offering onsite support groups between the two interviews.

There was, however, a modest but significant increase in the number of programs offering onsite HIV testing (McNemar's $\chi^2 = 5.77, p < .05$). At baseline, 26.0% of programs provided onsite testing, whereas 31.7% of the same programs provided onsite testing approximately 2 years later. Overall, 22.2% of programs offered onsite testing during both time points, 63.4% did not offer testing at either time point, 4.4% discontinued onsite HIV testing, and 10% newly adopted HIV testing at follow-up (not shown). Respondents that offered onsite testing were asked whether they had adopted rapid HIV testing (e.g. OraQuick, OraSure) in their treatment program (versus sending the testing specimen to a lab for analysis). We found a significant increase in the use of rapid HIV testing between baseline and the follow-up interview; 13% of programs that offered onsite testing at baseline reported using rapid HIV testing, whereas 21.4% utilized it at follow-up (McNemar's $\chi^2 = 4.76, p < .05$). The small number of programs using rapid HIV testing limited our ability to estimate further analyses. Finally, there was an increase in the average percentage of patients tested in the past year, from 22.1% to 30.0%, but this did not reach standard level significance ($t = 1.78, p = .08$).

In terms of our independent variables, 58.1% of treatment programs were accredited, 35.8% were for-profit, and the mean logged organization size was 2.65 ($SD = 1.21$), representing 30.8 FTEs (analyses not shown). Further, 29.4% of programs were hospital-based, 19.2% provided primary care services onsite, and 59.5% offered SUD or psychiatric

medications. Across all programs, the mean percentage for African American patients was 15.6% ($SD = 19.41$), while the mean percentage for Hispanic patients was 9.8% ($SD = 12.67$). On average, females made up 38.0% ($SD = 19.87$) of a treatment program's caseload, and IDUs made up 15.2% ($SD = 17.22$) of a program's caseload. Just 8.3% of programs offered a specialized track for LGBT patients. Finally, 25.7% of treatment programs were located in the west, 31.7% were located in the midwest, 21.1% were located in the northeast, and 21.5% were located in the south.

3.2. HIV/AIDS treatment track

The results of the bivariate logistic regression models examining whether a treatment program had an HIV/AIDS-dedicated treatment track are presented in Table 2. The odds of having a dedicated HIV/AIDS treatment track were greater for larger programs ($OR = 1.404, p < .05$). For a 1-unit increase in the log of FTEs, the odds of offering an HIV/AIDS treatment track increased by a factor of 1.40, while for a stan-

Table 2
Bivariate logistic regression models of having a dedicated HIV/AIDS treatment track.

	b	(SE)	OR	(95% CI)
Organization size (logged)	0.339	(0.157)	1.404	(1.032, 1.910)*
% Counselors with a master's degree or higher	0.001	(0.005)	1.001	(.991, 1.012)
Accredited	0.816	(0.431)	2.260	(.971, 5.262)†
For-profit	−0.018	(0.399)	0.982	(.449, 2.148)
Hospital-based	−0.022	(0.421)	0.978	(.429, 2.232)
Offers onsite primary care medical services	0.807	(0.421)	2.242	(.982, 5.115)†
Prescribes medication-assisted treatment	1.152	(0.473)	3.164	(1.251, 8.002)*
% African American patients	0.008	(0.009)	1.009	(.991, 1.026)
% Hispanic patients	0.016	(0.013)	1.017	(.992, 1.042)
% Female patients	−0.003	(0.010)	0.997	(.977, 1.016)
% Patients who are injection drug users	0.019	(0.009)	1.020	(1.001, 1.038)*
Offers specialized LGBT track	0.898	(0.549)	2.455	(.836, 7.206)
Region				
West	−0.633	(0.672)	0.531	(.142, 1.984)
Midwest	0.020	(0.557)	1.020	(.342, 3.041)
Northeast	0.841	(0.541)	2.318	(.803, 6.689)

† $p < .1$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

standard deviation increase in logged size (i.e. 1.21 logged FTEs or 51.5 FTEs), the odds increased by a factor of 1.51. The odds of having an HIV/AIDS track were 3.16 times higher for programs that prescribed MAT compared to programs that did not offer MAT to their patients ($p < .05$). Similarly, programs with a higher percentage of patients who were IDUs were more likely to have a dedicated HIV/AIDS treatment track (OR = 1.020, $p < .05$). A 1% increase in a program's IDUs was associated with a 2% increase in the odds of having a track for HIV/AIDS patients, while a standard deviation increase in the percentage of IDUs (i.e. 17.22%) increased the odds of offering a dedicated HIV/AIDS track by a factor of 1.40. Accredited programs and programs that offered onsite primary care services trended towards significance ($p = .058$ and $p = .055$, respectively).

3.3. Onsite HIV/AIDS support groups

The results of the bivariate logistic regression models examining whether a treatment program offered onsite support groups for patients with HIV/AIDS are presented in Table 3. Larger programs were significantly more likely to offer onsite HIV/AIDS support groups (OR = 1.488, $p < .05$). There was an increase of 61.5% in the odds for a 1-standard deviation (i.e. 1.21 logged FTEs or 51.5 FTEs) increase in the log of FTEs. The provision of onsite medical services was also significantly associated with having onsite HIV/AIDS support groups. The odds of providing onsite medical services were 3.6 times higher in programs that provided onsite medical services, compared to those that did not provide onsite primary care services (OR = 3.566, $p < .01$). Treatment programs with a higher percentage of female patients (OR = 1.018, $p < .05$) and patients who were IDUs (OR = 1.020, $p < .05$) were also more likely to offer onsite HIV/AIDS support groups. A standard deviation increase in the percentage of female patients (i.e. 19.87%) increased a program's odds of having onsite HIV/AIDS support groups by a factor of 1.43, and a standard deviation increase in the percentage of IDU patients (i.e. 17.22%) increased the odds by a factor of 1.42. Finally, we found a significant association between having dedicated services for LGBT patients and offering onsite HIV/AIDS support groups. The odds were 6.04 times higher for programs that had a dedicated LGBT track compared to programs that did not ($p < .001$).

Table 3
Bivariate logistic regression models of offering onsite HIV/AIDS support groups.

	<i>b</i>	(SE)	OR	(95% CI)
Organization size (logged)	0.397	(0.162)	1.488	(1.083, 2.045)*
% Counselors with a master's degree or higher	0.002	(0.006)	1.002	(.991, 1.013)
Accredited	0.352	(0.412)	1.421	(.634, 3.189)
For-profit	0.263	(0.401)	1.301	(.593, 2.855)
Hospital-based	-0.302	(0.457)	0.739	(.302, 1.809)
Offers onsite primary care medical services	1.271	(0.416)	3.566	(1.578, 8.055)**
Prescribes medication-assisted treatment	0.838	(0.454)	2.311	(.950, 5.621)†
% African American patients	0.009	(0.009)	1.009	(.991, 1.027)
% Hispanic patients	-0.008	(0.017)	0.992	(.959, 1.026)
% Female patients	0.018	(0.009)	1.018	(1.001, 1.036)*
% Patients who are injection drug users	0.020	(0.009)	1.020	(1.002, 1.039)*
Offers specialized LGBT track	1.799	(0.499)	6.041	(2.274, 16.050)***
Region				
West	0.704	(0.630)	2.021	(.588, 6.948)
Midwest	0.019	(0.670)	1.019	(.274, 3.786)
Northeast	1.058	(0.625)	2.880	(.846, 9.805)†

† $p < .1$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

3.4. Onsite HIV testing

As seen in Table 4, several organizational characteristics were associated with the provision of onsite HIV testing. The odds of a program offering onsite HIV testing were 3.01 times greater in accredited programs ($p < .01$) than in non-accredited programs, and 2.02 times greater in hospital-based programs ($p < .05$). Programs with primary care services (OR = 2.580, $p < .05$), and programs that used MAT in their treatment (OR = 2.311, $p < .05$) also had significantly greater odds of offering onsite HIV testing. The percentage of female patients was positively associated with provision of onsite HIV testing, but this did not reach standard level significance ($p < .1$). Finally, the odds of offering onsite HIV testing were 58.6% smaller for programs in the Midwest than for programs located in the South ($p < .05$).

4. Discussion

Our longitudinal analysis indicated that the majority of privately-funded treatment programs reported providing education and prevention services to their patients. However, there was a small but significant decline in the number of programs providing these services in the follow-up interview. While this is disconcerting, this decision may reflect organizations' response to their program's changing patient needs. In 2006, the CDC changed its HIV testing guidelines to specify that risk-reduction counseling should only be required for individuals who test HIV-positive. Our study found that education services placed more of an emphasis on providing information on the transmission of HIV rather than on acquiring risk-reduction skills, even though some research suggests that emphasis on both is more effective than interventions that simply provide information to clients (St. Lawrence, Crosby, Brasfield, & O'Brannon, 2002; St. Lawrence, Jefferson, Alleyne, & Brasfield, 1995). While this is discouraging, a recent article found that sexual risk-reduction counseling did not have an effect on sexual risk behaviors, although it did appear to reduce needle sharing and intravenous drug use (Metsch et al., 2012).

Between 10% and 13% of programs provided a dedicated HIV/AIDS treatment track or onsite support groups for patients with HIV/AIDS at either the baseline or the follow-up interview. A larger percentage of programs offered onsite HIV testing, and we found a modest, yet significant, increase (from 26.0% to 31.7%) in the percentage of programs that provided onsite testing and in the mean percentage of patients who

Table 4
Multivariate logistic regression models of offering onsite HIV testing.

	<i>b</i>	(SE)	OR	(95% CI)
Organization size (logged)	-0.143	(0.060)	0.991	(.749, 1.312)
% Counselors with a master's degree or higher	-0.004	(0.005)	0.996	(.986, 1.006)
Accredited	1.101	(0.394)	3.007	(1.390, 6.506)**
For-profit	-0.349	(0.361)	0.706	(.348, 1.432)
Hospital-based	0.700	(0.348)	2.015	(1.018, 3.988)*
Offers onsite primary care medical services	0.948	(0.368)	2.580	(1.254, 5.306)*
Prescribes medication-assisted treatment	0.837	(0.395)	2.311	(1.065, 5.013)*
% African American patients	-0.006	(0.008)	0.994	(.978, 1.011)
% Hispanic patients	0.005	(0.013)	1.005	(.980, 1.030)
% Female patients	0.014	(0.008)	1.014	(.998, 1.031)†
% Patients who are injection drug users	0.001	(0.009)	1.001	(.984, 1.019)
Offers specialized LGBT track	-0.121	(0.591)	0.886	(.278, 2.821)
Region				
West	-0.782	(0.491)	0.458	(.175, 1.199)
Midwest	-0.883	(0.445)	0.414	(.173, .990)*
Northeast	-0.305	(0.481)	0.737	(.287, 1.890)

† $p < .1$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

were tested (from 22.1% to 30.0%). Of those providing testing, we found that there was a significant increase in the utilization of rapid HIV testing. Despite this increase, the adoption of rapid HIV testing was relatively low (13.0% of programs that offered onsite testing at baseline used rapid HIV testing; this increased to 21.4% at follow-up). Unlike other medical procedures, rapid HIV testing does not require medical personnel to administer it, so we expect that its use will expand.

Our findings are similar to information provided by SAMHSA (2014) but lower compared to other research on HIV-related services. Studies examining treatment programs affiliated with the Clinical Trials Network (CTN) indicate that a little over 48% of programs provide on-site testing (Abraham et al., 2013; Brown et al., 2006; Strauss et al., 2003). Research on HIV services has also been reported using data from the National Drug Abuse Treatment System Survey (NDATSS). D'Aunno et al. (2014) found a decrease from 93% in 2005 to 64% in 2011 among HIV testing in opioid treatment programs (OTPs), and an increase from 74% in 1995 to 82% in 2005 among outpatient treatment programs. While these percentages seem much greater than our results, it is important to note that the NDATSS does not differentiate programs that provide onsite HIV testing from those that refer patients to an external provider, and focuses on outpatient programs only. Furthermore, programs in the CTN have higher adoption rates for innovations than other treatment programs, perhaps due to their research network participation and exposure to innovative treatment practices (Ducharme, Knudsen, Roman, & Johnson, 2007). Both the CTN and NDATSS data have a greater percentage of public programs, which are also more likely to assume a safety-net role, and, thus provide HIV testing services (D'Aunno et al., 2014).

Nonetheless, our findings on education services and percentage of patients tested are similar to those found in other studies. Brown et al. (2006) found that 83.7% of programs in the CTN provided education services. D'Aunno et al. (2014) found that just 17.1% of patients in OTPs were tested in 2011, while Pollack and D'Aunno (2010) found that 28.8% of patients had received testing in outpatient programs in 2005.

Consistent with past studies (Abraham et al., 2011; Pollack & D'Aunno, 2010; Rogers, 2003), we found that larger programs were more likely to offer a dedicated HIV/AIDS treatment track and to offer onsite HIV/AIDS support groups. Organizational size is typically linked to available resources that can be used to implement a treatment practice. Nonetheless, we did not find a significant association between size and onsite HIV testing. While accreditation was not significantly associated with a specialized track or onsite support groups, it was positively linked to the provision of onsite testing. This is consistent with other studies (Chriqui et al., 2008; Guerrero & Cederbaum, 2011; Pollack & D'Aunno, 2010). National accreditation bodies may place pressure on programs to adopt HIV testing, as they encourage prevention services and require that programs conduct comprehensive evaluations of client needs. Application of these criteria for state and national accreditation could lead to an increase in HIV testing.

Programs with a medical infrastructure were more likely to implement HIV-related services, perhaps because doing so was compatible with the primary goals of the programs, as suggested by innovation theory (Rogers, 2003). Hospital status was not associated with providing a dedicated treatment track or support groups for HIV-positive patients, but it was positively associated with the provision of onsite HIV testing. It is likely that hospital-based programs regard testing as compatible with their values, but consider the provision of education or support groups as outside the scope of services they should provide to their patients. Independent of hospital status, programs that offered primary medical care services and used MAT were also linked to HIV services. These programs are likely to have the resources and staff available to provide these types of services.

The positive association between the percentage of IDUs and the availability of specialized HIV/AIDS tracks and HIV support groups indicates that programs are providing a needed service among a group of patients who have a heightened risk of HIV transmission. However,

the percentage of IDUs was not predictive with provision of HIV testing. We also found that the percentage of female patients was linked to onsite HIV support groups. Other at-risk client characteristics predictive of increased levels of HIV infection were not associated with provision of services. This can be troubling if programs are not responding to patients' physical health needs, particularly high-risk patients who often lack access to testing and treatment in other health care settings. Nonetheless, we did also find that the provision of specialized services for LGBT patients was significantly associated with onsite HIV/AIDS support groups.

4.1. Limitations

Several limitations should be noted. First, the data are representative of privately-funded treatment programs, so our findings cannot be generalized to programs that receive a majority of funding from government grants. Publically-funded programs might have increased funding opportunities from federal and local governments to implement HIV/AIDS services. Second, the data are self-reported and thus subject to recall and social desirability bias. Third, we did not collect data from patients so we are unable to explore patient-level data that could be associated with either the provision of services or with treatment outcomes. Further, it is possible that patients received HIV prevention and testing services by referral or independent of their SUD treatment. Nonetheless, research that compares referral versus on-site care finds that on-site health services are more effective in reaching clients than providing referrals to an external site (Umbricht-Schneiter et al., 1994). While we examined the availability of a specialized track for LGBT patients, the data did not allow us to more specifically explore services for MSM. Finally, these data do not include state policy and regulatory measures that could influence the provision of HIV/AIDS services.

4.2. Conclusions

SUD treatment programs serve as the primary point of access for many at-risk individuals, underscoring the need for an increase in the provision of HIV prevention and testing services. HIV testing is an effective prevention strategy, while the provision of dedicated treatment tracks and of support groups ensures that HIV-infected individuals are receiving treatment tailored to meet their unique needs. Furthermore, the National Institute on Drug Abuse specifies that HIV services and medical care are integral components of a high-quality comprehensive SUD treatment plan (NIDA, 2012). Assessment of risky behaviors during the intake process is necessary for identifying at-risk patients. While our results indicate a decline in HIV education and prevention services, the provision of onsite HIV testing increased, as did the specific availability of rapid HIV testing. This is encouraging, as rapid tests can be administered by trained non-medical personnel in a treatment program, and results can be quickly provided to patients. Nonetheless, given the increased focus on providing HIV testing in SUD treatment programs, the development of rapid HIV testing, and CDC's HIV testing recommendations (2006) for an opt-out approach to informed consent (i.e. consent is inferred, and individuals are informed that they will receive HIV testing as part of a routine assessment, unless they decline), these adoption rates indicate a disappointing pattern. Despite research indicating the effectiveness of SUD treatment in reducing HIV incidence, we found that fewer than one third of programs offered onsite HIV testing, and fewer than one third of patients in programs that offered testing actually received such testing. Past research has highlighted the importance of differentiating between adoption and full implementation (i.e. routine testing) of a treatment practice (Ducharme et al., 2007; Ducharme et al., 2007). The findings suggest that access to hospitals and medical care services is an effective way to facilitate adoption of HIV services. Programs that are not based in a hospital setting may be able to lower testing costs by forming linkages with public health clinics.

Future research should consider barriers to adoption and examine effective strategies for implementation and sustainability of onsite HIV services.

The era of health care reform underscores the importance of examining changes to the provision of HIV and other medical services in SUD treatment programs. Greater access to treatment associated with the Affordable Care Act (ACA) will be particularly important for individuals living with HIV/AIDS who also have an SUD. Research is needed to understand how patterns of HIV/AIDS services may shift as a result of the greater integration between treatment for SUD and mainstream health care. One potential advantage of embedding SUD treatment within primary care would be increased provision of HIV-related services. At the same time, the demand for SUD treatment programs that are able to offer integrated services themselves, including HIV-related and other wraparound services, is expected to increase.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper. The paper has not been published previously and is not under consideration for publication elsewhere.

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