

HIV Prevention in Outpatient Substance Abuse Treatment

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Roadmap

- Tell you about more interesting papers I won't talk about
- Obvious background blather about HIV prevention
- Pretentious discussion of simple survey
- Gussied up econometric models
- Incomprehensible results
- Sweeping policy conclusions unrelated to the data and findings.
- Run out the clock by answering other people's annoying questions.

One of four HIV testing papers in-progress...

- The present paper is under review....
- Others
 - Rapid oral HIV testing in dental care settings (grant submitted...today) with University of Miami.
 - HIV testing in emergency department settings.
 - Site visits in six EDs around the country
 - Price elasticity of prevalence for home HIV testing (with David Paltiel).



"I owe it all to clean needles."

Obligatory *New Yorker* cartoon, undoctored, in its way both True and positive.

Please feel free to interrupt
(Talk uninterrupted is 40 minutes)

HIV is a huge problem

- More than 200,000 injection drug users (IDU) have died of AIDS in the United States since the epidemic's inception.
- Human immunodeficiency virus (HIV) remains a principal threat to the health of men and women who use illicit drugs. Despite some decline in HIV incidence among IDUs, an estimated 16% of new HIV infections still occur within this population.
- Although HIV infection is most prominent among IDUs, non-injecting drug users also experience high HIV risk.
- An important minority of drug users engage in commercial sex work. Substance use disorders are correlated with domestic violence, homelessness, and with other HIV behavioral risks. Injection and non-injection drug use are also important factors in sexually-transmitted secondary infections.

Substance abuse treatment as a central HIV prevention opportunity

- Clinicians and policymakers have focused on the special role of outpatient substance abuse treatment (OSAT) services in HIV prevention. This consensus is reflected in the Institute of Medicine's *No Time to Lose*, which summarized best-practice prevention policy approaches.
- OSAT facilities serve patients who otherwise may have little contact with the health care system. Many facilities have the capacity and organizational linkages to refer HIV+ clients to medical providers.
- OSAT facilities provide counseling and other services that may help clients maintain adherence to prescribed HIV therapies.
- Given the reality of high relapse and non-adherence, along with prevalent sexual risks, among OSAT clients, OSAT-based interventions serve a distinctive population facing high HIV risks. Individuals' decision to engage OSAT services also may suggest that they are at a receptive moment for prevention messages and interventions.

Counseling and testing

- HIV counseling and testing (C&T) is a key approach to both prevention and treatment within drug-using populations. Many studies indicate the effectiveness and cost-effectiveness of C&T in reducing HIV incidence.
 - For those found to be positive:
 - Reduction in HIV risk behavior among positives.
 - Initiating care
 - For others
 - Opportunities for counseling
- New research highlights the value of routine C&T in many care settings, particularly within many low- and moderate-risk populations where HIV risks are readily overlooked.

C&T: CDC recommendations

- In light of such research, the Centers for Disease Control and Prevention (CDC) issued September 2006 guidelines that recommend aggressive HIV C&T in a variety of care settings, including OSAT care.
- CDC recommendations result from detailed cost-effectiveness studies finding that testing is cost-effective in care settings where prevalence exceeds 0.1%.
- CDC also recommended changes in pre-test and post-test counseling to move towards opt-out model.
- National Institute on Drug Abuse (NIDA), in its *Principles of Drug Addiction Treatment*, states that OSATs should assess clients for HIV infection and for other infectious diseases, and should provide counseling to address behavioral risks.
- In short, C&T is increasingly recognized as a basic component of high-quality OSAT care.

Barriers to C&T

- Despite the acknowledged importance of OSAT services for reaching undiagnosed HIV-infected individuals, several barriers have been identified in expanding provision of these services in OSAT settings.
 - Aggressive CDC guidelines were not accompanied by corresponding reimbursement or by technical assistance for units which lack specific infrastructure to implement C&T.
 - OSATs may lack resources, financial incentives, or expertise to routinely and effectively provide these services.
 - C&T provides uneasy fit with some OSATs' core mission or with the practice philosophies of their key staff.
 - For example, A free-standing OSAT that predominantly services populations deemed low-risk (e.g. an OSAT which mainly serves affluent individuals with alcohol disorders) may place a low priority on C&T services.
- The impact of these barriers largely unknown.

NDATSS Prior Work

- Given the importance of OSAT as a location for C&T services, the National Drug Abuse Treatment System Survey (NDATSS) has tracked C&T provision within a representative national (U.S.) sample of several hundred OSAT units since 1988.
- Our own prior work (Pollack, D'Aunno and Lamar 2006) found that the percentage of units which report offering C&T--either on-site or through referral to a testing site--increased from 45% in 1988 to 86% in the year 2000.

Today's talk

- The nation's OSAT care system continues to experience substantial changes, including the rise of managed care, increase in for-profit OSAT units, and increased links to the criminal justice system. Considering these changes, the important role that OSAT units play in C&T services, my talk today addresses two key questions.
 - To what extent are the nation's OSAT units engaged in HIV C&T? Although most OSAT units report that they offer or facilitate some provision of C&T services, what proportion of OSAT clients actually receive these services? What changes, if any, have occurred since 2000?
 - Which organizational factors are promoting or inhibiting the provision of C&T services? How is client case-mix associated with current provision of C&T services?

Hypotheses

- OSAT facilities face multiple demands and limited resources. They must therefore prioritize to meet those demands that they regard as most pressing. We hypothesize that OSATs that treat a large proportion of clients in traditional HIV risk groups will be more likely to adopt or maintain C&T programs.
- The need for an organizational innovation, such as C&T, must also be matched by the resources to support it. We hypothesize that units with higher staff-client ratios will offer a broader range of pertinent services, including C&T.
- OSAT units whose staff members have lower case loads may also have more time to facilitate these services.
- Hospital-affiliated OSATs may be more familiar with these services and to see them as falling within their competence and mission; we hypothesize that hospital-based units are more likely than others to offer C&T.

Hypotheses

- Programs whose directors favor syringe exchange programs may be more likely to regard C&T as within their core mission. Publicly-owned OSATs may also be more likely to see C&T as falling within their core mission of promoting public health.
- Formalized intake and assessment procedures may also influence the provision of C&T services. Units which utilize formal protocols, and units which provide a large proportion of clients with formal intake procedures may provide a larger proportion of clients with C&T services.
- Some accrediting bodies, including Joint Commission on Accreditation of Healthcare Organizations (JCAHO), encourage the provision of prevention services. Further, local agencies may place subtle or overt pressure on OSAT units to prevent HIV among drug users. We therefore hypothesize that city accreditation is associated with provision of HIV C&T services.

Sampling Frame and Sample

- NDATSS data are drawn from the 1995, 2000, and 2005 survey waves.
- NDATSS is a longitudinal/panel study that examines organizational structures, operating characteristics and treatment practices of the nation's OSAT programs.
- Funded by the National Institute of Drug Abuse and conducted by the University of Michigan's Institute for Social Research and the National Opinion Research Center.
- To qualify for NDATSS, a unit must devote at least half of its services for treatment of substance use disorders. Moreover, most drug-related services must have been provided on an outpatient basis.

Sampling Frame and Sample

- NDATSS included five waves, surveyed in 1988 (N=575, 86% response rate); 1990 (N=481, 88% response rate); 1995 (N=618, 86% response rate); 2000 (N=745, 89% response rate); and 2005 (N=555, 88% response rate).
- Elaborate efforts to achieve a fully representative sample of the known universe of OSAT facilities.

Sampling method

- Mixed-panel design, which combines elements from panel and cross-sectional designs. We collected data from the same national sample across five points in time; this panel allows us to examine changes within units over time (241 units in our analysis sample have participated in all five survey waves).
- The design also has a cross-sectional element in that we added a group of units to the panel in 1995 (N=231), 2000 (N=256), and 2005 (N=59).
- This replenishment ensures adequate statistical power, and ensures that NDATSS remains nationally representative.
- In each wave, new surveyed units are drawn from a stratified sample of a new sample frame, designed to include only programs that were not present in the prior sampling frames.

Preemptive surrender slide

- Study limitations

- We have unit-level, not individual-level data.
- Our data are reported by unit directors and supervisors, creating issues of social acceptability bias and other difficulties.
- Our data are also based upon director and supervisor responses, and may be susceptible to reporting bias. To the extent that respondents overstate the intensity of C&T provision, OSAT providers are even further from meeting recent CDC guidelines than our descriptive results would indicate.
- We do not have data regarding health services provided to OSAT clients by other providers or by referral organizations. Some clients likely received C&T independently of OSAT care. For example, it is possible that our analysis understates access to C&T within hospital-based OSAT care.
- Finally, our data do not indicate *why* OSAT units provide, or fail to provide, C&T services to their clients. In future empirical work, we hope to explore specific enabling factors and barriers, including staff training, patient preferences, and payer reimbursement.

Data and Measures

- In each wave, each OSAT's administrative director and clinical supervisor were asked to complete a telephone interview.
 - Directors provided data concerning ownership, therapy activities, environment, finances, organizational structure, and managed care arrangements.
 - Clinical supervisors provided information regarding staff composition, client characteristics, and available ancillary services.
- Reliability and validity. Study staff conducted internal consistency checks of key numbers and, if necessary, worked with respondents to clarify responses.
- NDATSS descriptive statistics were also compared with other surveys. For example, investigators compared NDATSS interview data to those collected in the Drug Services Research Study (DSRS), a national client-level investigation of drug treatment organizations.
- Treatment duration data from 323 methadone units in the 1990 NDATSS closely matched data obtained from discharge abstracts at 520 outpatient methadone units in the 1990 DSRS.

Dependent variables

- In each survey wave clinical supervisors were asked whether their facility provided C&T, and, if so, what percentage of clients had actually received these services on-site or off-site.
- This analysis explored two dependent variables drawn from these responses.
 - The percentage of clients reported as actually receiving these services.
 - A dummy (0-1) variable set to 1.0 if at least one percent of an OSAT's clients actually received C&T services in a given survey wave.

Independent variables

- *Client risk profile.* Clinical supervisors reported the percent of clients in the last fiscal year who had injected drugs in the previous year or had earned money from commercial sex work to support their drug use. Supervisors also reported socio-demographic characteristics including the proportion of African-American and Latino clients, along with other socio-demographic factors.
- *Resources.* Supervisors reported the number of clients and the number of full-time equivalents (FTEs) employed by the OSAT in the last fiscal year. The number of full-time FTE was divided by the annual number of clients to create a staff-client ratio.
 - Because the relationship between OSAT size and service provision is likely concave, we took the natural logarithm of this ratio in our regression specifications.
 - Approximately 4.8 percent of units reported no full-time staff FTE. These units were bottom-coded at 0.001. This bottom-coding appeared to have no impact on the resulting point estimates.
- *Ownership.* Unit directors were asked if their treatment units were private non-profit, private for-profit, or publicly owned.
- *Parent organization.* Unit directors were asked if their units were owned by, operated by, or had any affiliation with a hospital. We included a separate dummy if an OSAT had formal linkages with a mental health center or psychiatric facility.

Independent variables

- *Director attitudes.* Directors' values about HIV prevention may also influence units' provision of C&T services. Using 5-point Likert scales, directors reported the extent to which they support syringe exchange.
- *Managed care scope and stringency.* Following prior work, we define managed care scope as the proportion of patients who were members of an HMO or PPO. Stringency captures the proportion of clients requiring pre-authorization of services. Supervisors reported the percentage of clients who belong to HMO/PPOs and the percent of clients whose payers required authorization before clients could begin treatment.
- *Formal intake procedures and protocols.* Directors were asked the extent that they implement formal intake procedures and protocols.
- *Licensing and accreditation.* In each survey wave, directors reported whether their OSAT currently held JCAHO accreditation, as well as accreditations from state and local agencies.
- *Time trends.* We created dummy variables to represent data from 1995 and 2000 (2005 is the referent).
- *Methadone maintenance.* We also included an indicator for whether a unit provided methadone maintenance. Methadone units serve the highest risk-group for HIV infection. These units are also distinctively regulated and reimbursed in ways that might influence C&T.

Data analysis

- Most NDATSS participating units appear in multiple survey waves. We must therefore account for repeated observations from the same unit over time.
- We use random-effect specifications which allow the possibility of within-unit clustering over time.
- All available data were used in each survey wave, including data from units that participated in some years but not in others.
- Our key dependent variable is the percentage of clients who receive C&T. This is left-censored at zero, and is right-censored at 100%. We therefore implemented a random-effects interval regression specification to accommodate these constraints. All regressions were performed using the `cnreg` procedure in the STATA 10.0 software package.

Klunky fixes

- In the year-2000 NDATSS wave, interview time and financial constraints prevented the National Opinion Research Center from surveying units regarding HIV C&T services. These 174 observations were therefore unavailable for our statistical analysis. These units were subsequently surveyed regarding C&T in the 2004/05 survey waves, and these observations were included in our statistical analysis.
- Three independent variables (percent of clients in an HMO/PPO, percent of clients requiring prior authorization, and percent clients who are female) displayed missing observations in particular survey waves. When a given OSAT displayed missing values for these variables, we calculated predicted values using multiple regression analysis based upon dummy variables for NDATSS survey wave and the observed values of these variables within the same OSAT unit in other waves. This imputation had no substantive impact on our point estimates, but increased our sample size in pooled regression analysis from 1,330 to 1,421 units.

Descriptive Results

- C&T, which had become more common between 1990 and 1995, continued to proliferate in later waves.
- Between 1995 and 2005, the weighted proportion of units that provide HIV testing at all (which we operationalize to be at least 1% of their clients) increased from 74 percent to 82 percent ($p < 0.02$).
- Much of the increase reflected the continued diffusion of C&T to units not traditionally associated with injection drug users.
- The increase in C&T provision appears more modest if one examines the proportion of clients actually tested in responding units.
- In our 1995 wave, 26.8 percent of clients received these services. By 2004/05, the proportion had increased, but only to 28.8 percent.
- In exploratory work (not shown here), we examined patterns of C&T provision among units that provided C&T in the initial 1995 wave. We observed a slight decline in the proportion of clients tested within these units.

Full sample	1995	1999/2000	2004/05
Percent of units with at least 1% of clients tested			
.7512	.7381	.695	.8169
(.4325)	(.44)	(.4609)	(.3871)
Percent clients get HIV/AIDS testing			
26.3163	26.7666	22.8643	28.8312
(33.6112)	(35.051)	(31.054)	(33.8125)
<hr/>			
JCAHO accreditation			
.2524	.2316	.2039	.3213
(.4345)	(.4222)	(.4033)	(.4674)
City or county license/accreditation			
.2091	.2097	.2107	.2069
(.4068)	(.4074)	(.4082)	(.4055)
Hospital affiliation			
.144	.1784	.0973	.1457
(.3512)	(.3832)	(.2966)	(.3531)
Mental health center affiliation			
.1351	.1506	.154	.0993
(.3419)	(.3579)	(.3613)	(.2993)
Public ownership			
.2498	.2708	.2584	.2168
(.433)	(.4447)	(.4382)	(.4125)
Private nonprofit ownership			
.5833	.6339	.56	.5436
(.4932)	(.4821)	(.4968)	(.4986)

Full sample	1995	1999/2000	2004/05	
Percent OSAT clients who injected with needles in past year	23.8148 (28.5911)	23.863 (30.075)	24.781 (29.013)	22.893 (26.288)
Log(number of clients)	6.8102 (1.0269)	6.8622 (1.0012)	6.7453 (1.0479)	6.8061 (1.0367)
Percent of clients who are non-Hispanic African-American	27.4719 (26.4412)	27.9942 (27.1396)	26.2221 (26.4404)	27.9648 (25.5915)
Percent of clients who are Hispanic/Latino	15.073 (20.965)	11.3014 (17.0294)	18.8049 (24.8943)	16.2977 (20.7162)
Percent of clients who are female	33.434 (17.0105)	32.2535 (14.9451)	31.2006 (17.7963)	36.8376 (18.0812)
Percent of clients who supported drug use through sex work	16.5179 (17.7587)	15.8915 (16.736)	17.0829 (18.1656)	16.7445 (18.5418)
Methadone unit dummy (Supervisor)	.2987 (.4578)	.2741 (.4464)	.2669 (.4427)	.3564 (.4794)

Full sample	1995	1999/2000	2004/05
Percent clients requiring prior authorization of services			
	19.0357	19.9535	16.4915
	(30.9768)	(30.8729)	(29.0913)
			20.3824
			(32.7419)
Percent of clients in HMO/PPO			
	11.3147	12.4299	8.2574
	(21.2492)	(21.3672)	(17.9769)
			12.7273
			(23.4581)
Log (staff/client)			
	-4.2924	-4.3611	-4.3088
	(.9678)	(.9434)	(.9614)
			-4.1959
			(.9955)
Director supports needle exchange programs to great/very great extent			
	.5457	.5706	.5178
	(.4981)	(.4954)	(.5002)
			.5414
			(.4988)
Percent of clients with comprehensive assessment at intake			
			74.2178
			(41.5655)
Unit uses protocols/guidelines y/n			
			.8747
			(.3314)
Observations			
	1755	618	571
			566

	1995 (wave 4) [95% CI]	2000 (wave 5) [95% CI]	2005 (wave 6) [95% CI]
Percentage of clients who receive <u>off-site</u> HIV tests	10.3% [7.6, 13.0]	7.4% [4.6, 10.2]	9.1% [4.4, 13.8]
Percentage of clients who receive <u>on-site</u> HIV tests	16.5 [12.2, 20.8]	14.2 [10.4, 17.8]	13.8 [10.3, 17.3]
Percentage of units, weighted by caseload, which provide at least some on-site HIV testing.	34.9 [28.2, 41.6]	42.6 [32.1, 53.1]	41.2 [32.0, 50.3]

Descriptives

- Despite the increasing and relatively high percentage of OSAT units that offer C&T, only 28.8% percent of 2005 clients actually received HIV testing in OSAT care. Indeed the change in proportion of clients who received HIV testing at OSAT units had not significantly changed over the 10-year sampling period.
- C&T services also appear concentrated in units that serve traditional HIV risk groups. In 2005, 44.7% of methadone clients were reported to have actually received C&T services, twice the average (20.2%) among clients in non-methadone OSAT facilities.
- C&T services are more likely to be offered in public or nonprofit facilities than in for-profit OSATs, though differences by ownership status declined in the 2004/05 survey wave.
- The proportion of for-profit clients receiving C&T services more than doubled over the 1995-2004/05 period. The most prominent reason for this trend appears to be the proliferation of for-profit methadone care.
- In 1995, only 8% of methadone clients received care in for-profit facilities. By 2004/05, more than 1/3 of methadone clients received care in for-profit facilities, and methadone accounted for 50.6% of all clients receiving for-profit care.

Multivariate results...

- Table 3 shows our multivariate regression results for the pooled sample of all three NDATSS survey wave.
- The first column shows our random-effect interval regression results for the full sample. We found substantial left- and right-censoring. Within the sample of 1,421 observations used in our regressions, 457 reported that *no* clients received C&T services, 137 reported that *all* clients received C&T services. The remaining 827 observations were...in between these extremes.
- Coefficients indicate the estimated impact of a one-unit change in the independent variable would affect the predicted percentage of clients reported receive C&T. The second column shows the same regression specification, augmented to include an interaction term between for-profit care and the 2004/05 NDATSS wave. Columns (3) and (4) show analogous logistic regression results, in which the dependent variable is whether an OSAT unit performed C&T for at least 1% of client in the given survey wave.

Table 3: Multivariate regression results (Pooled sample)

	(1)	(2)	(3)	(4)
	(Interval regressions)		(Logistic regressions)	
	Baseline	Augmented	Baseline	Augmented
	Dependent variable: Percent of clients Receiving HIV test		Dependent variable: At least 1% of clients Receiving HIV test	
JCAHO accreditation				
	9.773	9.817	0.564	0.573
	(2.52)*	(2.53)*	(2.21)*	(2.20)*
City or county license/accreditation				
	4.633	5.029	0.012	0.034
	(1.37)	(1.49)	(0.06)	(0.15)
State agency or office license/accreditation				
	-11.628	-11.255	-0.222	-0.194
	(2.53)*	(2.45)*	(0.78)	(0.67)
Hospital affiliation				
	-2.184	-1.990	-0.141	-0.136
	(0.45)	(0.41)	(0.44)	(0.42)
Mental health center affiliation				
	-5.114	-5.146	-0.148	-0.145
	(1.33)	(1.34)	(0.64)	(0.62)
Public ownership				
	25.110	32.015	1.568	1.851
	(5.36)**	(6.09)**	(5.40)**	(5.65)**
Private nonprofit ownership				
	22.419	29.331	1.230	1.511
	(5.68)**	(6.37)**	(5.35)**	(5.53)**
For-profit ownership (referent)				
(Regions, not shown)				

Table 3: Multivariate regression results (Pooled sample, cont)

	(1) (Interval regressions) Baseline	(2) Augmented	(3) (Logistic regressions) Baseline	(4) Augmented
Dependent variable: Percent of clients Receiving HIV test			Dependent variable: At least 1% of clients Receiving HIV test	
Percent of clients who injected drugs in past year	0.229 (3.34)**	0.234 (3.42)**	0.007 (1.32)	0.007 (1.43)
Log(clients)	4.186 (3.04)**	3.995 (2.91)**	0.496 (5.80)**	0.494 (5.70)**
Percent of clients Non-Hispanic African-American	0.253 (4.57)**	0.252 (4.55)**	0.006 (1.84)	0.006 (1.84)
Percent of clients Hispanic/Latino	0.150 (2.13)*	0.151 (2.14)*	-0.002 (0.50)	-0.002 (0.50)
Percent of clients female	0.089 (1.22)	0.091 (1.24)	0.005 (1.10)	0.005 (1.07)
Percent of clients who supported drug use with commercial sex work	0.243 (3.02)**	0.243 (3.03)**	0.007 (1.24)	0.007 (1.22)
Methadone dummy	18.675 (3.96)**	17.603 (3.72)**	1.097 (3.16)**	1.037 (2.95)**

Table 3: Multivariate regression results (Pooled sample, cont)

	(1) (Interval regressions) Baseline	(2) (Interval regressions) Augmented	(3) (Logistic regressions) Baseline	(4) (Logistic regressions) Augmented
Dependent variable:	Percent of clients Receiving HIV test		At least 1% of clients Receiving HIV test	
Percent of clients requiring prior authorization for services	-0.043 (0.97)	-0.043 (0.97)	-0.000 (0.17)	-0.000 (0.13)
Percent of clients in HMO/PPO	0.003 (0.04)	0.016 (0.22)	0.002 (0.51)	0.003 (0.58)
Log(staff/client)	4.543 (3.33)**	4.777 (3.50)**	0.299 (3.79)**	0.315 (3.90)**
Director supports needle exchange to great/very great extent	2.020 (0.80)	1.879 (0.75)	0.172 (1.11)	0.167 (1.06)
1995 wave	2.346 (0.83)	5.532 (1.84)	-0.109 (0.60)	0.069 (0.35)
1999/2000 wave	-1.676 (0.59)	2.333 (0.74)	-0.088 (0.48)	0.130 (0.62)
2004/05 wave (referent)				
For-profit interacted with 2004/05 wave	----	18.792 (3.00)**	----	0.806 (2.11)*
Obs	1421	1421	1421	1421

Absolute value of z statistics in parentheses (*p<0.05, **p<0.01)

Observations on Table 3

- Controlling for potential confounders, we saw no statistically or clinically significant time-trend in the proportion of clients receiving C&T. OSAT units were somewhat more likely to test at least one client in wave 6 than in the two earlier waves, but this difference was small and was not statistically significant.
- Units that served traditional risk-groups provided more C&T.
 - Each 1.0 percentage-point increase in the percentage of IDU was associated with a 0.23 percentage-point increase in the percentage of clients receiving C&T. We obtained slightly larger estimates (0.24) of the impact of clients' involvement in drug-related commercial sex work.
 - Methadone units were markedly more likely than others to provide C&T services, with a censored regression coefficient exceeding 20 percentage points when compared with other OSAT facilities.
 - Units that serve a high proportion of African-Americans and (to a lesser extent) Latinos were also more aggressive in providing C&T services.
- We saw large regional differences, with the Western region showing the most intensive C&T and Midwestern units the least-intensive.
- Public and private nonprofit OSATs provided a markedly higher proportion of C&T ($p < 0.0001$) than was observed among private for-profit facilities.
- Larger units, those with higher staff-client ratios, and those with external accreditation were significantly more likely to provide C&T.

Table 4: Multivariate regression results (2004/05 wave)

	Baseline	Augmented	Baseline	Augmented
Dependent variable:				
Interval regression			Logistic regression	
Percent of clients			At least 1% of clients	
Receiving HIV test			Receiving HIV test	
JCAHO accreditation				
	11.944	15.215	0.721	0.847
	(1.88)	(2.43)*	(1.76)	(2.00)*
City or county license/accreditation				
	4.890	4.939	-.126	-.189
	(0.90)	(0.93)	(0.38)	(0.55)
State agency or office license/accredit				
	-6.660	-6.721	-.485	-.526
	(0.86)	(0.89)	(1.06)	(1.12)
Hospital affiliation				
	-11.626	-13.128	-.852	-.860
	(1.44)	(1.66)	(1.68)	(1.65)
Mental health center affiliation				
	-7.982	-8.563	-.417	-.446
	(1.17)	(1.29)	(1.12)	(1.18)
Public unit				
	14.303	14.325	1.155	1.208
	(1.91)	(1.97)*	(2.68)**	(2.74)**
Private nonprofit				
	11.525	14.066	0.921	1.082
	(1.90)	(2.37)*	(2.75)**	(3.11)**
For-profit ownership (referent)				

Table 4: Multivariate regression results (2004/05 wave, cont)

	Baseline	Augmented	Baseline	Augmented
Dependent variable:				
Interval regression			Logistic regression	
Percent of clients			At least 1% of clients	
Receiving HIV test			Receiving HIV test	
Percent of clients who injected drugs in past year				
	0.160	0.226	0.0013	0.007
	(1.41)	(2.03)*	(0.18)	(0.86)
Log (clients)				
	3.537	3.224	0.572	0.597
	(1.57)	(1.47)	(4.40)**	(4.48)**
Percent of clients Non-Hispanic African-American				
	0.215	0.218	-.0002	0.001
	(2.40)*	(2.50)*	(0.03)	(0.16)
Percent of clients Hispanic/Latino				
	0.105	0.060	-.004	-.006
	(0.98)	(0.57)	(0.61)	(0.99)
Percent of clients who are female				
	0.224	0.241	0.007	0.009
	(1.82)	(2.00)*	(1.02)	(1.27)
Percent of clients who supported drug use through sex work				
	0.271	0.223	0.011	0.007
	(2.07)*	(1.75)	(1.33)	(0.80)
Methadone dummy (Supervisor)				
	21.153	18.821	1.129	1.027
	(3.10)**	(2.84)**	(2.46)*	(2.19)*

Table 4: Multivariate regression results (2004/05 wave, cont)

	Baseline	Augmented	Baseline	Augmented
Dependent variable:				
Interval regression			Logistic regression	
Percent of clients			At least 1% of clients	
Receiving HIV test			Receiving HIV test	
Percent of clients requiring prior authorization for services				
	0.058	0.047	0.004	0.004
	(0.86)	(0.72)	(1.01)	(0.90)
Percent of clients in HMO/PPO				
	-0.075	-0.100	0.001	-.001
	(0.67)	(0.91)	(0.12)	(0.14)
Log(Staff/client)				
	7.005	5.736	0.266	0.219
	(2.97)**	(2.49)*	(2.21)*	(1.76)
Director strongly/very strongly supports syringe exchange				
	5.521	7.281	0.396	0.531
	(1.26)	(1.70)	(1.62)	(2.10)*
Percent of clients receiving comprehensive assessment at intake				
	-----	0.127	-----	0.005
		(2.64)**		(1.97)*
Unit uses protocols/guidelines y/n				
	-----	21.532	-----	0.763
		(3.44)**		(2.20)*
Obs	442	441	442	441
Columns 1 and 3 show results from interval regression				
Columns 2 and 4 show adjusted odds ratios from logistic regression				
Absolute value of z statistics in parentheses (*p<0.05, **p<0.01)				

Cross-sectional 2004/05 Results

- As expected, OSATs which serve a large proportion of nonwhite clients, drug-injectors, and clients who had engaged in commercial sex work were more aggressive in providing C&T, as were methadone units and units with large staff-client ratios. Several of our point estimates were in the expected direction but failed to reach the threshold of statistical significance.
- Most interesting result: As shown in columns (2) and (4), units that conduct comprehensive intake assessment and follow formal protocols and guidelines were significantly more likely to provide C&T services.
- These units also tested a markedly larger proportion of clients. In our 2004/05 data, OSAT units that employed formal protocols and guidelines tested twice the proportion of clients (30.7%) as were tested among other OSAT units (15.3%).

Polonius-like musings

- OSAT units are far from implementing the routine provision of C&T services recommended by CDC and other public health authorities--In fact they are far from implementing 1990s best-practice recommendations
- In 2004/05, only ¼ of OSAT clients were reported to have received C&T services. Almost 20 percent of OSAT clients received treatment at facilities reporting no clients actually receiving C&T services.
- C&T services are more common in methadone facilities and in other care sites that serve traditional risk groups. Even within these groups, only a minority of clients appear to receive C&T services.
- OSAT units face many barriers to the provision of widespread HIV/AIDS testing. CDC guidelines ask OSATs to provide more testing but do not provide resources, incentives, or penalties to accomplish this goal.

Polonius-like musings

- Units with JCAHO accreditation also were more likely than others to provide C&T. This measure is correlated with other dimensions of OSAT quality such as methadone dose level. As HIV testing becomes identified as a basic component of “best-practice” OSAT care, units that regard themselves as high-quality may be especially likely to incorporate this service.
- Larger units, and units with high staff-client ratios were more likely to offer C&T services, and tested more of their clients. These patterns may reflect economies of scale in C&T, a service which sometimes requires dedicated staff, private space, and onsite or offsite access to phlebotomy services.

Polonius-like musings

- Organizational factors matter.
 - Formal intake procedures and protocols seem to help. These do not seem to lead units to offer C&T in the first place, but they do help units institutionalize these practices.
 - Stronger JCAHO requirements also matter.

Conclusion

- Controlling for case mix and other confounders, for-profit OSATs were much less likely to provide C&T services than were their public or non-profit counterparts. Public-owned units are often linked with state and local health departments that play an active role in HIV C&T. For similar reasons, public-owned units and many non-profits may regard public health as an important organizational goal. This pattern is consistent with prior research highlighting the sharp contrast in roles across providers, with public providers assuming a greatly increased public health and safety-net roles, serving populations at greatest risk for HIV infection.
- For-profit units closed some of this gap within the 2004/05 NDATSS wave. This appears to reflect the penetration of for-profit care. Between 1995 and 2005, the market share of for-profit facilities increased from 9.4% to 19.2% of OSAT clients. Most of this increase arose from net market share reduction in public OSAT care, which declined from 26.0% to 17.8% over the same period. For-profit care has displayed especially marked increase in the arena of methadone maintenance, where C&T is widespread and widely accepted as good-practice care.

Conclusions

- Perhaps our most interesting analysis of our cross-sectional wave showed importance of comprehensive intake procedures and protocols in expanding C&T services. Researchers note that such procedures and protocols provide explicit structures for OSAT units to adopt innovations and institutionalize evidence-based practices. Our paper documents an important example of this process in action.
- We were most surprised to find that the proportion of clients receiving C&T services appeared stable across survey waves, with quite similar unit means in the 1995 and 2005 survey waves. Prior work, which presented NDATSS results up to the year 2000, fully 86 percent of OSATs indicated that they facilitated such care, either through onsite services or offsite referral. Most research has focused on whether units currently provide C&T, but which do not focus on the proportion of clients actually served. Our results highlight the danger of this approach.

Conclusions

- It is critical to distinguish adoption from implementation and institutionalization. Organizations often adopt an innovative practice without fully implementing it. Superficial compliance with C&T guidelines is much easier to achieve than routine C&T, which would require a substantial organizational commitment.
- OSAT care can play a central role in HIV prevention policy. Our results suggest that OSATs are not providing the broad counseling and testing called for by CDC, or indeed called for by earlier guidelines.
- Despite increased attention to the value of HIV counseling, testing, and prevention efforts, OSAT facilities have not increased the provision of C&T services over the past decade. Efforts to identify and address barriers to expanded C&T provision appear to be a high priority for public health policy.

Conclusions

- OSAT care is medical care, but that is not the way the industry is constructed, services are organized, or OSATs are paid.
- Low rates of C&T and other performance issues highlight difficulties of making these links to create an effective public health model for critical populations.
- CDC guidelines serve as unfunded mandates on organizations which face many internal and external barriers to effective HIV prevention practices.