



Published in final edited form as:

J Subst Abuse Treat. 2008 March ; 34(2): 165–172. doi:10.1016/j.jsat.2007.02.006.

Cigarette Smoking Cessation Services in Outpatient Substance Abuse Treatment Programs in the United States

Peter D. Friedmann, MD, MPH^{*,†}, Lan Jiang, MS^{*}, and Kimber P. Richter, PhD, MPH[‡]

^{*}Program to Integrate Psychosocial and Health Services, Research Service, Providence Veterans Affairs Medical Center, Providence RI

[†]Division of General Internal Medicine, Departments of Medicine and Community Health, Brown Medical School and Rhode Island Hospital, Providence, RI

[‡]Department of Preventive Medicine and Public Health, University of Kansas Medical Center, Kansas City, KS

Abstract

Objective—To estimate the prevalence and determinants of cigarette smoking cessation treatment in U.S. outpatient substance abuse treatment (OSAT) units.

Methods—Program directors and clinical supervisors from a national sample of 550 OSAT units in the United States were surveyed in 2004–05. Supervisors reported the availability of cigarette smoking assessment, and individual or group counseling and pharmacotherapy for smoking cessation. This analysis examines whether institutional and resource factors influence delivery of these services.

Results—Of OSAT programs in the U.S., 41% offer smoking cessation counseling or pharmacotherapy; 38% offer individual/group counseling and 17% provide quit-smoking medication. In multivariate models, hospital affiliation, service breadth, the priority given to physical health, availability of medication to treat addictive problems, assessment of cigarette smoking, and greater perception of the proportion of patients that smoke were associated with delivery of smoking cessation services. Program size and medical staffing also influenced availability of quit-smoking medication.

Conclusions—Of U.S. OSAT programs, two-in-five offer behavioral treatment for smoking cessation, but fewer than one in five provide access to pharmacotherapy. Substance abuse treatment programs that are medically-oriented, provide more comprehensive services, and recognize the burden of tobacco smoking among their patients are more likely to deliver evidence-based smoking cessation services.

Introduction

In the U.S., 71% to 90% of people with alcohol or other drug problems smoke cigarettes.^{1,2} They, along with persons with other mental illnesses, smoke 44% of all cigarettes consumed in the United States.³ Although few data are available, it is likely that many die from

© 2007 Elsevier Inc. All rights reserved.

Address correspondence to: Peter D. Friedmann, M.D., M.P.H., Division of General Internal Medicine, Rhode Island Hospital, 593 Eddy Street, Providence, RI 02903. Telephone: (401) 444-3347; Fax: (401) 444-5040; pfriedmann@lifespan.org.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

tobacco-related illnesses. In an 11-year retrospective cohort study of 845 persons who had been in addiction treatment, Hurt and colleagues found that 51% of deaths were due to tobacco-related causes – twice the rate found in the general population.⁴ Within a cohort of patients with substance use disorders admitted to treatment in 1964, a 24-year follow-up found that the death rate for smokers was four times that for non-smokers.⁵

Treating tobacco smoking among substance-abusing patients has been identified as a priority for eliminating tobacco-related health disparities.⁶ U.S. Public Health Service guidelines for tobacco treatment recommend that all smokers be offered treatment, and that health care providers intervene systematically with smokers using the “5 A’s”: *Ask* patients if they use tobacco; *Advise* them to quit; *Assess* willingness to quit; *Assist* with quit attempt; and *Arrange* for follow-up to prevent/address relapse. Smokers unwilling to quit should be provided with a brief intervention to build motivation, and those who are willing to quit should be offered evidence-based treatment.⁷ Counseling of greater than 10 minutes produces significantly greater cessation rates than no-contact interventions.⁷ Smoking cessation medications, including bupropion and nicotine replacement therapies, double quit rates when compared to placebo.⁸ The highest abstinence rates are achieved when pharmacotherapy is combined with counseling,⁹ and a consensus guideline from the National Institute on Drug Abuse recommends said combination therapy for smoking cessation as an evidence-based practice in substance abuse treatment.¹⁰

Providing services through substance abuse treatment is a promising strategy for reaching substance-abusing patients who smoke. On any given day, approximately 1 million Americans are in treatment for alcohol and other drug problems.¹¹ Research in this new field suggests that many substance abuse treatment patients are highly interested in quitting smoking,¹²⁻²⁰ that evidence-based treatment achieves long-term quit rates of 5-14%,^{13,21-24} and that quitting smoking does not threaten abstinence from other drugs of abuse, but might actually promote it.⁶⁻⁹

Some substance abuse treatment facilities are beginning to do so. In 1998, the SAMHSA Uniform Facility Data Set found that 20% of substance abuse treatment facilities offered some form of smoking cessation service.¹¹ A more recent (2001) survey of Canadian drug treatment facilities found that 54% offered patients help quitting smoking, 10% had formal treatment for smoking cessation, but that fewer than 1% offered nicotine replacement or bupropion.¹² A recent nonrandom survey of U.S. outpatient methadone facilities found that 18% had offered individual or group quit smoking counseling, and 12% had prescribed or had facilitated access to nicotine replacement therapy, to at least one patient in the past month.¹³ These studies, however, provide an incomplete picture of smoking cessation treatment in substance abuse treatment because they collected minimal data on tobacco treatment services and little data on program characteristics. Furthermore, all focused on study populations that do not generalize to the entire U.S. substance abuse treatment system.

The present study describes the prevalence of smoking cessation services in U.S. outpatient substance abuse treatment (OSAT) facilities, and identifies the types of facilities that are more or less likely to offer services. Because counseling and pharmacotherapy are each independently effective for smoking cessation, but are most effective in combination, our main outcomes of interest are a) provision of individual/group counseling, b) provision of medications, and c) provision of comprehensive treatment (counseling plus medication). Our purpose is to provide an estimate of access to evidence-based tobacco treatment within a high risk, underserved population. Our secondary aim is to identify program-level factors that might help or hinder efforts to diffuse smoking cessation therapies within substance abuse treatment, in the hope that interventions targeted to major consumers of tobacco products will further reduce tobacco-related health disparities.

Conceptual Framework

Open systems models of organizations posit that social and cultural norms and priorities in the organizational environment shape institutional practices.²⁵ The recovery community and society as a whole have traditionally viewed nicotine addiction as a less urgent problem than addiction to alcohol and other drugs.¹ While counseling and pharmacotherapy for alcohol and drug addiction are core services in substance abuse treatment programs, many people view smoking cessation services as non-essential to substance rehabilitation.

Insofar as counseling and pharmacotherapy for cigarette smoking cessation represent innovative, non-core services in OSAT programs, the institutional environment of these programs likely influences whether and how these services are delivered.^{26,27} For example, units that are publicly owned have more comprehensive service provision than for-profit units.²⁷⁻²⁹ Accordingly, we hypothesize that public units, whose mission focuses on the public health and welfare, will provide more smoking cessation services than for-profit units,²⁶ in which profit maximization is a central goal. We also expect that the environment's focus on health will cause hospital-affiliated programs to offer more services to prevent smoking-related illness.²⁷

Treatment modality, comprehensiveness, and commitment to quality are other elements of the institutional environment that affect a program's delivery of smoking services.³⁰ We hypothesize that units that use pharmacological approaches may be also more likely to offer pharmacology for smoking cessation. A program's commitment to high quality care affects its propensity to expend the considerable resources required to meet national standards for comprehensive treatment.³⁰⁻³² We anticipate that organizations accredited by the Joint Commission on Accreditation of Health Care Organizations (JCAHO) and those which provide more comprehensive breadth of services will be more likely to deliver smoking cessation services.

Several other organizational factors may also affect delivery of smoking cessation services. Programs that consider physical health an important treatment goal might also give greater emphasis to the prevention of smoking-related illnesses. Relatedly, programs that assess smoking behavior likely give its treatment greater priority. Staff mix may also reflect organizational priorities, i.e. greater medical staffing may mean that the organization prioritizes physical health. In addition, on-site medical staff should facilitate prescription and delivery of smoking cessation pharmacotherapy.²⁸

An organization's environment controls its resources.³³ Programs with uncertain or scarce resources tend to focus on core services and forgo comprehensiveness and innovation.³⁴ Hence, substance abuse treatment organizations subject to the liabilities of “newness” and “smallness” may be less likely to provide innovative, non-essential services like those for smoking cessation.³⁵ Conversely, older and larger units may be more likely to deliver smoking cessation services because they face less uncertainty about their survival and have greater slack resources.³⁶

Finally, OSAT programs adapt their practices to patients' needs and task contingencies related to the population served.^{37,38} We examine the relationship of tobacco treatment services to patient characteristics indicative of differential need, desire or acceptance of smoking services, including patients' gender, race, insurance status, nicotine use, and polysubstance use.³⁹

Methods

Sample and Data Collection

This study analyzed data from the sixth wave (2004-2005) of the National Drug Abuse Treatment System Survey (NDATSS). The NDATSS is a longitudinal study of outpatient substance abuse treatment units conducted by the Institute for Social Research, University of Michigan. In the NDATSS, an OSAT program is formally defined as a physical facility with a majority of resources (>50%) dedicated to treating individuals with substance abuse problems (including alcohol and other drugs) on an outpatient basis. The sample excludes programs run by the Department of Veterans Affairs and by correctional facilities. NDATSS is a telephone survey of 550 pairs of administrative directors and clinical supervisors at each program, with the response rate of 88.3% and 87.5%, respectively.

Experienced interviewing staff from the Survey Research Center at the University of Michigan conducted the survey. The survey is administered using computer-aided telephone interviewing system (CATI) that promotes data reliability and validity. Two pretests with national representative samples of N=20 units each were conducted before the survey. As the data are collected, computer programs perform extensive reliability checks that notify interviewers when numbers do not sum as they should or are out of expected ranges (e.g., the percent of patients receiving various methadone dose levels should sum to 100%). Interviewers then work with respondents to resolve inconsistencies.

Measures

Dependent variables—Clinical supervisors indicated whether on admission the program offers any services to help patients quit smoking cigarettes (Yes/No). If the program offered smoking cessation services, they were asked whether the program offers individual or group or counseling and/or any form of smoking cessation medication to help patients quit smoking. After an affirmative response regarding pharmacotherapy, they indicated whether the program offers nicotine replacement (patch, gum, etc.), bupropion (Zyban) or other antidepressant therapy, or both.

Explanatory variables

Program Characteristics: Ownership was dummy-coded as private for-profit or private not-for-profit, with public ownership as the referent. Similarly, affiliation was dummy-coded as hospital, mental health center, or other with freestanding as the referent. Methadone availability was generated from clinical supervisors' reports of whether their program provided methadone treatment. If the clinical supervisor reported that the program offered buprenorphine, naltrexone or antabuse, an indicator variable for addiction treatment medications other than methadone was coded 1, otherwise 0. Clinical supervisors indicated whether on admission the program routinely assesses patients for cigarette smoking (Yes/No). Another indicator variable coded smoke-free facilities as 1, otherwise 0. JCAHO accreditation was also a dummy variable; no accreditation served as the referent. To determine the breadth of services available, we summed the number of services the program offers. The 22 possible services included physical examinations, routine medical care, HIV testing, HIV/AIDS acute treatment, tuberculosis screening, hepatitis testing, sexually transmitted disease testing, routine gynecological examinations, PAP smears, contraceptive counseling, pregnancy tests, prenatal care, mental health treatment; parenting skills classes, domestic violence counseling, employment counseling, legal counseling about child custody issues; legal counseling regarding criminal issues; financial counseling; transportation assistance; child care; housing assistance.

To assess the program's medical and recovery orientation, the clinical supervisors rank ordered from 1, the most important, to 10, the least important a list of ten treatment goals for the program. The ranks afforded to physical health and spiritual growth are markers of their relative importance within the organization. The ratio of physician and nurse staffing among the program's full time and part time permanent employees is indicative of a medical orientation and the availability of on-site staff to prescribe smoking cessation medication. Program size was measured as number of patients in the past fiscal year

Patient Characteristics: To assess resources and needs of the population served in these OSAT programs,²⁸ explanatory variables include percentages of patients in the past fiscal year who were female; from a minority racial/ethnic group; unable to pay for their treatment; insured by Medicaid; abuse nicotine; and abused more than one drug

Data Analysis: Bivariate analyses weighted to adjust for sample selection probability describe the characteristics of programs overall and by delivery of any cigarette smoking cessation treatment, smoking cessation counseling and smoking cessation pharmacotherapy.⁴⁰ In a process of manual backward selection, bivariate correlates of any of the outcomes at the $P < 0.2$ level of significance entered multivariate logistic regression models; final models retain explanatory variables with $P < 0.05$. All significance tests were two-tailed.

Because information about smoking cessation counseling and pharmacotherapy exists only for those programs that offer any cigarette smoking cessation treatment, selection bias might result if differences between units that do and do not offer any treatment were correlated with the type of smoking cessation treatment offered. To examine this issue, we used a Heckman procedure with maximum-likelihood estimates to generate separate multivariate probit models for the counseling and pharmacotherapy services (Stata/SE 8.0). The parameter estimate for the selection bias term was not significant so Table 2 presents adjusted odds ratios from the logistic regression models.

Results

Descriptive Results

When weighted to represent the population of OSAT programs in the United States, 41% offer either counseling or pharmacotherapy to help patients quit cigarette smoking: 38% offer individual or group counseling services and 16% offer pharmacotherapy services (Table 1). Only nine programs offer pharmacotherapy without counseling while 76 (14%) offer both counseling and pharmacotherapy services. Interestingly, 45 programs claimed to offer smoking cessation services but neither counseling nor medication; the survey unfortunately did not assess the nature of these alternative services. Among the 85 programs that offer pharmacotherapy, 25 offer bupropion or other antidepressant pill, 27 offer nicotine replacement only, and 28 offer both. Nearly all (98.2%) reported their facilities were smoke-free.

Bivariate correlates of delivery of smoking cessation counseling or medication include public ownership; hospital affiliation; routine assessment for cigarette smoking on admission; JCAHO accreditation; a greater breadth of services; more medical staff; fewer recovering staff; as well as serving more Medicaid-insured, nicotine-using patients and polysubstance abuse patients. The small number of programs that were not smoke-free drove a bivariate finding that an environment that is smoke-free is associated with fewer smoking cessation services. Similar variables were associated with the delivery of individual or group smoking cessation counseling, with the addition of availability of other addiction treatment medications (buprenorphine, naltrexone and antabuse), older program age and larger

program size and the exception of alcoholic recovering staffing and polysubstance abusing patients. Again, similar factors were associated with greater delivery of smoking cessation medications, with the addition of availability of methadone or other addiction treatment medications (buprenorphine, naltrexone and antabuse), greater importance of physical health, younger program age and more female patients and the exception of Medicaid insurance, the percentage of patients using nicotine and polysubstance-abusing patients.

Multivariate Analysis

Counseling or Medication for Smoking Cessation—Hospital affiliation is associated with a near doubling of the accessibility of smoking cessation services compared to freestanding units (Table 2). Testing for collinearity, JCAHO accreditation is strongly correlated with being affiliated with a hospital (Pearson coefficient, 0.55; $P < .0001$). Regarding service breadth, every additional service is associated with an approximately 5% increase in smoking cessation services. Programs that rank physical health improvement as more important appear more likely to deliver smoking cessation services, each one-point improvement in ranking increases delivery approximately 13%. Routine assessment for cigarette smoking correlates with a nearly four-fold increase in the delivery of smoking cessation services. Finally, there is a modest trend toward availability of addiction treatment medication other than methadone being associated with 40% greater delivery of smoking cessation services ($P = .10$).

Similar variables are associated with the provision of group and/or individual counseling services (Table 2, *data column 2*). For the provision of smoking cessation medication (Table 2, *data column 3*), hospital affiliation has an even stronger effect, increasing the delivery of pharmacotherapy more than 3-fold. Service breadth also has a slightly stronger influence. Program size modestly influences the availability of pharmacotherapy. Assessment for cigarette smoking shows a lesser relationship with smoking cessation medication than with counseling. The availability of medications for addiction other than methadone showed a trend towards an association with use of any smoking cessation medication ($P = .07$). Finally, a 10% increase in medical staff is associated with a 17% increase in the provision of smoking cessation medication.

In separate multivariate models (not shown), the correlates of prescription medication (i.e. bupropion or other antidepressant) availability were similar in magnitude to those in the model for any pharmacotherapy. In a separate model for delivery of nicotine replacement therapy, only affiliation and service breadth emerged as significant factors.

Counseling and Pharmacotherapy for Smoking Cessation—Correlates of the delivery of both counseling and pharmacotherapy services are similar to those of the delivery of pharmacotherapy only, with an even lesser influence of the assessment variable ($P = .07$) and medical staffing. The availability of addiction treatment medications other than methadone was associated with a 2-fold increase in the availability of both counseling and pharmacotherapy service.

Discussion

This nationally representative sample survey of outpatient substance abuse treatment programs in 2004 found that 41% offered smoking cessation counseling or medication: 38% offered individual/group counseling and 17% offered pharmacotherapy. These rates of service delivery are higher than rates reported by U.S. facilities in 1998,⁴² U.S. methadone facilities in 2004,²⁶ and rates of “formal” tobacco services reported in a survey of Canadian substance abuse treatment facilities in 2001.⁴¹ Our findings confirm that two-in-five

substance abuse treatment facilities offer behavioral treatment, but fewer than one in five provide access to pharmacotherapy for smoking cessation.

Multivariate findings supported hypotheses that the institutional environment affects delivery of these services. The covariates of any smoking cessation services (hospital affiliation, breadth of services, the priority given to physical health improvement, and the assessment and recognition of the prevalence of smoking), suggest that the organization's overall focus on physical health, its commitment and ability to delivery comprehensive services, and its responsiveness to the needs of its patients, influence provision of smoking cessation services. No additional multivariate factors correlated with the delivery of individual or group counseling for smoking, suggesting that counseling is the default service in programs that address smoking. However, assessment for cigarette smoking appeared more strongly associated with counseling than with pharmacotherapy, perhaps because behavioral therapy requires that a counselor understand the patient's smoking patterns and triggers in a deeper manner than does pharmacotherapy. The models of smoking cessation pharmacotherapy suggest that a medical environment and orientation (manifested by the hospital affiliation, use of addiction pharmacotherapy and medical staffing) facilitate use of medications for smoking cessation. Furthermore, secondary findings suggest that the medical orientation and environment are probably more important for the adoption of prescription medications (bupropion and other antidepressants) than for over-the-counter medications (nicotine replacement). Finally, greater use of medications for smoking cessation was also associated with larger program size. Larger organizations face less uncertainty about their survival and thus may be more likely than small programs to provide innovative services.³⁵ Substance abuse treatment programs with larger budgets are also more likely to have unencumbered resources (i.e. slack) to support non-essential programming like smoking cessation.³⁶

Like a previous study,²⁶ bivariate results suggest that programs owned by a private for-profit entity were less likely to offer smoking cessation services than public or not-for-profit programs, but these findings dissipated in multivariate models. Hospital affiliation was associated with availability of any smoking cessation services, and it exerted stronger influence on the provision of pharmacotherapy as one might expect from its association with a medical orientation. JCAHO accreditation, a marker of quality care and service delivery in previous studies,³⁰ dropped out of the multivariate models because of its correlation with hospital affiliation.

Several limitations warrant mention. First, because of its cross-sectional design, this study cannot determine causal direction, although many of the explanatory variables were relatively fixed organizational characteristics. Second, although program administrators responses in DATSS have been compared against chart-abstracted data for some measures,⁴³ the reports of the dependent and explanatory variables in this study have not been specifically validated. Third, the survey included only a limited set of tobacco treatment measures and measures of the organizational environment – some influential factors and outcomes may have been missed. For example, the survey did not determine the types and severity of tobacco use disorders that may exert influence on service delivery. In addition, virtually all programs reported being “smoke-free” on the survey's single item; but the survey did not examine enforcement of “smoke-free” policies and informal acceptance of *de facto* smoking areas. Finally, although the demographic characteristics of patients exerted limited influence on these practices, the survey did not directly assess whether programs prioritize certain patient subgroups (e.g. adolescents, pregnant women) for tobacco screening and treatment. These issues merit examination in future studies.

In conclusion, 40% of outpatient substance abuse treatment programs in the U.S. in 2004 offered smoking cessation services, but fewer than 20% provided access to pharmacotherapy, even though medications double the odds of smoking cessation and their combination with counseling is an evidence-based practice.^{8,10} Several institutional and environmental factors are associated with delivery of these services. Interventions that address these factors might be useful in promoting adoption of smoking cessation services. Candidate interventions include fostering stronger linkages with medically oriented organizations like hospitals; offering training and support for expanding the breadth of service delivery; developing special grants or mandates that facilities target some proportion of federal or state substance abuse block grant dollars to improve the physical health of their patients; requiring facilities to monitor and report the proportion of patients who smoke cigarettes; or requiring or providing incentives for having on-site medical staff. Further study is needed to determine whether manipulation of these factors will increase the availability of evidence-based smoking cessation treatment in addiction treatment programs.

Future research should also expand the types of institutional and environmental factors that might influence service provision. State policies are one potential source of influence. For example, in New Jersey a state law, staff training, and provision of nicotine replacement therapy resulted in widespread adoption of tobacco treatment in residential substance abuse treatment facilities.⁴⁴ It is highly likely that new developments in smoking cessation treatment will create ever more reasons for substance abuse facilities to treat tobacco smoking. Future studies should develop measures that capture how smoking cessation services are implemented and evaluate these services in order to identify and disseminate effective practices throughout the substance abuse treatment system.

Acknowledgments

Grant R01-DA32727 from the National Institute on Drug Abuse (NIDA) supported this research. Dr. Friedmann directs the Program to Integrate Psychosocial and Health Services, a Targeted Research Enhancement Program (TRP 04-179) supported by the Department of Veterans Affairs Health Services Research & Development Service, at the Providence Veterans Affairs Medical Center (Rhode Island). Dr. Richter received support from the Robert Wood Johnson Foundation Substance Abuse Policy Research Program (042042) and NIDA (K01 DA00450). The views expressed in this article are the authors' and not necessarily those of the National Institute on Drug Abuse, Department of Veterans Affairs or Robert Wood Johnson Foundation.

References

1. Bien TH, Burge R. Smoking and drinking: a review of the literature. *Int J Addict.* 1990; 25(12): 1429–1454. [PubMed: 2094682]
2. Richter KP, Ahluwalia HK, Mosier MC, Nazir N, Ahluwalia JS. A population-based study of cigarette smoking among illicit drug users in the United States. *Addiction.* 2002; 97(7):861–869. [PubMed: 12133125]
3. Lasser K, Boyd JW, Woolhandler S, Himmelstein DU, McCormick D, Bor DH. Smoking and mental illness: A population-based prevalence study. *JAMA.* 2000; 284(20):2606–2610. [PubMed: 11086367]
4. Hurt RD, Offord KP, Croghan IT, Gomez-Dahl L, Kottke TE, Morse RM, et al. Mortality following inpatient addictions treatment. Role of tobacco use in a community-based cohort. *JAMA.* 1996; 275(14):1097–1103. [PubMed: 8601929]
5. Hser YI, McCarthy WJ, Anglin MD. Tobacco use as a distal predictor of mortality among long-term narcotics addicts. *Prev Med.* 1994; 23:61–69. [PubMed: 8016035]
6. Fagan P, King G, Lawrence D, Petrucci SA, Robinson RG, Banks D, et al. Eliminating tobacco-related health disparities: directions for future research. *Am J Public Health.* 2004; 94(2):211–217. [PubMed: 1475929]
7. Fiore MC, Bailey WC, Cohen SJ, et al. A clinical practice guideline for treating tobacco use and dependence: A US Public Health Service report. The Tobacco Use and Dependence Clinical

- Practice Guideline Panel, Staff, and Consortium Representatives. *JAMA*. 2000; 283(24):3244–3254. [PubMed: 10866874]
8. Hughes JR, Goldstein MG, Hurt RD, Shiffman S. Recent advances in the pharmacotherapy of smoking. *JAMA*. 1999; 281(1):72–76. [PubMed: 9892454]
 9. Stitzer ML. Combined behavioral and pharmacological treatments for smoking cessation. *Nicotine Tob Res*. 1999; 1(2):S181–S187. [PubMed: 11768178]
 10. National Institute on Drug Abuse. Principles of Drug Addiction Treatment A Research-Based Guide. Rockville, MD: National Institutes of Health; 2000. NIH Publication No. 00-4180 ed
 11. Substance Abuse and Mental Health Services Administration OoAS. Data on Substance Abuse Treatment Facilities, DASIS Series S-28. Rockville, MD: Department of Health and Human Services; 2005. National Survey of Substance Abuse Treatment Services (N-SSATS), 2004.
 12. Orleans CT, Hutchinson D. Tailoring nicotine addiction treatments for chemical dependency patients. *J Subst Abuse Treat*. 1993; 10:197–208. [PubMed: 8389897]
 13. Shoptaw S, Rotheram-Fuller E, Yang X, Frosch D, Nahom D, Jarvik ME, et al. Smoking cessation in methadone maintenance. *Addiction*. 2002; 97(10):1317–1328. [PubMed: 12359036]
 14. Meyer TJ, Lin MM, Brown LSJ. Nicotine dependence and depression among methadone maintenance patients. *J Natl Med Assoc*. 1996; 88:800–804. [PubMed: 8990806]
 15. Richter KP, Gibson CA, Ahluwalia JS, Schmelzle KH. Tobacco use and quit attempts among methadone maintenance patients. *Am J Public Health*. 2001; 91(2):296–299. [PubMed: 11211643]
 16. Nahvi S, Richter K, Li X, Modali L, Arnsten J. Cigarette smoking and interest in quitting in methadone maintenance patients. *Addict Behav*. 2006
 17. Sees KL, Clark HW. When to begin smoking cessation in substance abusers. *J Subst Abuse Treat*. 1993; 10(2):189–195. [PubMed: 8510193]
 18. Clemmey P, Brooner R, Chutuape MA, Kidorf M, Stitzer M. Smoking habits and attitudes in a methadone maintenance treatment population. *Drug Alcohol Depend*. 1997; 44(2-3):123–132. [PubMed: 9088784]
 19. Frosch DL, Shoptaw S, Jarvik ME, Rawson RA, Ling W. Interest in smoking cessation among methadone maintained outpatients. *J Addict Dis*. 1998; 17(2):9–19. [PubMed: 9567223]
 20. Clarke JG, Stein MD, McGarry KA, Gogineni A. Interest in smoking cessation among injection drug users. *Am J Addict*. 2001; 10(2):159–166. [PubMed: 11444157]
 21. Stein MD, Weinstock MC, Herman DS, Anderson BJ, Anthony JL, Niaura R. A smoking cessation intervention for the methadone-maintained. *Addiction*. 2006; 101(4):599–607. [PubMed: 16548939]
 22. Richter KP, McCool RM, Catley D, Hall M, Ahluwalia JS. Dual pharmacotherapy and motivational interviewing for tobacco dependence among drug treatment patients. *J Addict Dis*. 2005; 24(4):79–90. [PubMed: 16368658]
 23. Burling TA, Burling AS, Latini D. A controlled smoking cessation trial for substance-dependent inpatients. *J Consult Clin Psychol*. 2001; 69(2):295–304. [PubMed: 11393606]
 24. Joseph AM, Willenbring ML, Nelson D, Nugent SM. Timing of alcohol and smoking cessation study. *Alcohol Clin Exp Res*. 2002; 26(12):1945–1946. [PubMed: 12500130]
 25. Scott, WR. Organizaitions: Natural, Rational and Open Systems. Fourth. Englewood Cliffs, NJ: Prentice-Hall; 1998.
 26. Richter KP, Choi WS, McCool RM, Harris KJ, Ahluwalia JS. Smoking cessation services in U.S. methadone maintenance facilities. *Psychiatr Serv*. 2004; 55(11):1258–1264. [PubMed: 15534014]
 27. Friedmann PD, Lemon SC, Durkin EM, D'Aunno TA. Trends in comprehensive service availability in outpatient drug abuse treatment. *J Subst Abuse Treat*. 2003; 24(1):81–88. [PubMed: 12646334]
 28. Friedmann PD, Alexander JA, D'Aunno TA. Organizational correlates of access to primary care and mental health services in drug abuse treatment units. *J Subst Abuse Treat*. 1999; 16(1):71–80. [PubMed: 9888124]
 29. Wheeler JR, Fadel H, D'Aunno TA. Ownership and performance of outpatient substance abuse treatment centers. *Am J Public Health*. 1992; 82(5):711–718. [PubMed: 1314520]

30. Friedmann PD, Alexander JA, Jin L, D'Aunno TA. On-site primary care and mental health services in outpatient drug abuse treatment units. *J Behav Health Serv Res*. 1999; 26(1):80–94. [PubMed: 10069143]
31. D'Aunno, TA. Linking substance abuse treatment and primary health care. In: Egertson, JA.; Fox, DM.; Leshner, AL., editors. *Treating drug abusers effectively*. Malden, MA: Blackwell Publishers; 1997. p. 311-351.
32. McCaughrin WC, Price RH. Effective outpatient drug treatment organizations: Program features and selection effects. *International Journal of the Addictions*. 1992; 27:1335–1358. [PubMed: 1332928]
33. Pfeffer, J.; Salancik, GR. *The External Control of Organizations: A Resource Dependency Perspective*. New York: Harper & Row; 1978.
34. Thompson, J. *Organizations in action*. New York: McGraw-Hill; 1967.
35. Wells R, Lemak CH, D'Aunno TA. Organizational survival in the outpatient substance abuse treatment sector, 1988-2000. *Med Care Res Rev*. 2005; 62(6):697–719. [PubMed: 16330821]
36. Damanpour F. Organizational innovation: a meta-analysis of effects of determinants and moderators. *Acad Manage J*. 1991; 34:555–590.
37. Pollack HA, D'Aunno T, Lamar B. Outpatient substance abuse treatment and HIV prevention: an update. *J Subst Abuse Treat*. 2006; 30(1):39–47. [PubMed: 16377451]
38. D'Aunno T, Vaughn TE, McElroy P. An institutional analysis of HIV prevention efforts by the nation's outpatient drug abuse treatment units. *J Health Soc Behav*. 1999; 40(2):175–192. [PubMed: 10467763]
39. D'Aunno TA, Vaughn TE. An organizational analysis of service patterns in outpatient drug abuse treatment units. *Journal of Substance Abuse*. 1995; 7:27–42. [PubMed: 7655310]
40. Heeringa, SG. *Outpatient drug abuse treatment studies: technical documentation*. Ann Arbor, MI: University of Michigan Institute for Social Research; Survey Design and Analysis Unit; 1996.
41. Currie SR, Nesbitt K, Wood C, Lawson A. Survey of smoking cessation services in Canadian addiction programs. *J Subst Abuse Treat*. 2003; 24(1):59–65. [PubMed: 12646331]
42. Substance Abuse and Mental Health Health Services Administration, Office of Applied Services. *Uniform Facility Data Set*. Arlington, VA: Synectics for Management Decisions, Inc; 1998.
43. Batten, HL.; Horgan, CH.; Prottas, JM.; Simon, LJ.; Larson, MJ.; Elliot, EA., et al. *Phase I final report: Non-correctional facilities*. Waltham, MA: Brandeis University Institute for Health Policy; 1993. Drug services research survey.
44. Williams JM, Foulds J, Dwyer M, Order-Connors B, Springer M, Gadde P, Ziedonis DM. The integration of tobacco dependence treatment and tobacco-free standards into residential addictions treatment in New Jersey. *J Subst Abuse Treat*. 2005; 28(4):331–40. [PubMed: 15925267]

Table 1
National Estimates Of Program And Patient Characteristics Associated With Availability of Smoking Cessation Services*

	Smoking Cessation Counseling Or Medication		Smoking Cessation Counseling		Smoking Cessation Medication	
	No	Yes	No	Yes	No	Yes
Overall National Estimates, %	59.0	41.0	61.8	38.2	83.5	16.5
Program Characteristics						
Ownership, %						
Private for Profit	68.6	31.4 [¶]	68.6	31.4 [¶]	94.2	5.8 [¶]
Private not for Profit	58.3	41.7 [¶]	63.3	36.7 [¶]	84.5	15.5 [¶]
Public	47.5	52.5 [¶]	48.2	51.8 [¶]	67.4	32.6 [¶]
Affiliation, %						
Hospital	22.0	78.0 [¶]	23.0	77.0 [¶]	55.7	44.3 [¶]
Mental Health	58.6	41.4 [¶]	59.3	40.7 [¶]	81.6	18.4 [¶]
Other Organization	59.1	41.0 [¶]	64.7	35.3 [¶]	84.4	15.6 [¶]
Freestanding	73.2	26.8 [¶]	73.2	26.8 [¶]	94.0	6.0 [¶]
Medication Available, %						
Yes	59.2	40.8	61.9	38.1	79.0	21.6 [¶]
No	58.9	41.1	61.8	38.2	84.2	15.8 [¶]
Addiction Treatment Medications Other Than Methadone Available [‡] , %						
Yes	58.3	41.7	59.0	41.0 [¶]	79.2	20.7 [¶]
No	59.4	40.6	64.1	35.9 [¶]	87.0	13.0 [¶]
Assess for Cigarette Smoking, %						
Yes	51.4	48.6 [¶]	55.0	45.0 [¶]	80.2	19.8 [¶]
No	91.0	9.0 [¶]	91.0	9.0 [¶]	97.3	2.7 [¶]
Smoke-Free, %						
Yes	60.1	39.9 [¶]	62.8	37.2 [¶]	85.5	14.5 [¶]
No	17.0	83.0 [¶]	24.5	75.5 [¶]	18.8	81.2 [¶]
JCAHO Accredited, %						

	Smoking Cessation Counseling Or Medication		Smoking Cessation Counseling		Smoking Cessation Medication	
	No	Yes	No	Yes	No	Yes
Yes	44.5	54.5 [†]	46.3	53.7 [†]	70.3	29.7 [†]
No	62.3	37.7 [†]	65.4	34.6 [†]	86.6	13.4 [†]
Breadth of Services Provided, <i>mean (std)</i>	9.4 (19.8)	12.3 (17.5) [†]	9.4(19.6)	12.4 (17.7) [†]	9.9 (19.5)	13.9 (14.5) [†]
Physical Importance, <i>mean (std)</i>	4.5 (7.5)	4.2 (7.5)	4.4 (7.6)	4.3 (7.3)	4.5 (7.5)	3.5 (6.6) [†]
% Medical Staff, <i>mean (std)</i>	6.5 (45.5)	13.4 (65.3) [†]	7.6(48.8)	12.2 (64.2) [§]	8.6 (54.0)	13.0 (61.0) [‡]
% Recovering Staff, <i>mean (std)</i>	30.8 (102.6)	25.8 (83.0) [‡]	29.5(103.3)	27.4 (81.6)	30.6 (96.5)	19.4 (82.6)
Program age, <i>mean years, (std)</i>	15.7 (35.6)	16.7 (39.4)	15.2 (36.8)	17.5 (37.4) [‡]	17.0 (35.9)	11.3 (40.1) [†]
Program size, <i>mean no. patients per yr (std)</i>	435 (1957)	559 (2644)	423(1950)	591 (2664) [‡]	457(1851)	629 (3791)
Patient Characteristics, mean (std)						
% female	33.7 (63.3)	36.2 (62.6)	33.5 (62.7)	36.8 (63.3)	33.3 (60.8)	42.5 (69.0)
% minority	44.7 (108.6)	42.3 (93.5)	44.2 (107.9)	43.3 (94.4)	44.4 (107.1)	39.7 (75.6)
% uninsured	23.7 (111.8)	23.3 (93.9)	23.2 (112.1)	24.3 (92.5)	23.7 (105.2)	22.8 (104.7)
% Medicaid insurance	11.0 (72.2)	19.8 (98.7)	11.2 (71.9)	20.1 (100.0) [§]	14.5 (84.8)	13.6 (85.7)
% patients use nicotine	64.8 (101.8)	75.5 (80.6) [†]	65.0 (100.7)	75.4 (82.0) [†]	68.5 (95.3)	73.3 (94.4)
% polysubstance abusing patients	55.4 (100.4)	60.8 (93.7) [‡]	55.7 (99.7)	60.6 (94.7)	57.7 (99.1)	57.1 (92.9)

* Proportions, means and standard deviations based on stratified sample of 550 units weighted to be representative of 6445 units nationally.

[†] Addiction treatment medications other than methadone include buprenorphine, naltrexone, and disulfiram.

[‡] P<.05

[§] P<.01

^{||} P<.001

^{††} P<.0001

Table 2
Multivariate Correlates of Availability of Smoking Cessation Services in Outpatient Addiction Treatment Programs

Program Characteristics	Odds Ratio (95% CI)			
	Smoking Cessation Counseling Or Medication	Smoking Cessation Counseling	Smoking Cessation Medication	Both Smoking Cessation Counseling and Medication
Affiliation				
Hospital	1.93 (1.03 to 3.59) [‡]	—	3.13 (1.46 to 6.68) [§]	3.09 (1.46 to 6.54) [§]
Mental Health	1.07 (0.59 to 1.94)	—	0.92 (0.36 to 2.33)	0.95 (0.37 to 2.39)
Other Organization	0.80 (0.51 to 1.27)	—	0.98 (0.50 to 1.92)	0.87 (0.44 to 1.73)
Freestanding	Referent	—	Referent	Referent
Breadth of Services Provided	1.05 (1.02 to 1.09) [§]	1.04 (1.01 to 1.08) [§]	1.08 (1.03 to 1.14) ^{//}	1.09 (1.04 to 1.14) ^{//}
Physical Importance	0.87 (0.80 to 0.95) [§]	0.87 (0.80 to 0.94) ^{//}	—	—
Program size (per 100 patients)	—	—	1.02 (1.00 to 1.05) [‡]	1.03 (1.00 to 1.05) [‡]
Assessment for Cigarette Smoking				
Yes	3.89 (2.27 to 6.67) ^{//}	3.59 (2.11 to 6.11) ^{//}	2.56 (1.08 to 6.06) [‡]	2.21 (0.93, 5.23)
No	Referent	Referent	Referent	Referent
Addiction Treatment Medications Other Than Methadone Available [‡]				
Yes	1.39 (0.94 to 2.04)	1.55 (1.07 to 2.26) [‡]	1.61 (0.95 to 2.71)	2.09 (1.22 to 3.58) [§]
No	Referent	Referent	Referent	Referent
% Medical Staff (per 10%)	—	—	1.17 (1.02 to 1.35) [‡]	—

* From multivariate logistic models.

[‡] Addiction treatment medications other than methadone include buprenorphine, naltrexone, and disulfiram.

[‡] P<.05

[§] P<.01

^{//} P<.001

^{//} P<.0001