UCSF
UC San Francisco Previously Published Works

Title

Attitudes toward the integration of smoking cessation treatment into drug abuse clinics.

Permalink

https://escholarship.org/uc/item/33q181gg

Journal

Journal of substance abuse treatment, 32(1)

ISSN

0740-5472

Authors

Fuller, Bret E
Guydish, Joseph
Tsoh, Janice
et al.

Publication Date

2007

Peer reviewed

Attitudes toward the Integration of Smoking Cessation Treatment in Drug Abuse

Clinics

Author's Version

Bret E. Fuller, Ph.D.

Oregon Health & Science University, Portland, Oregon, 97239

Joseph Guydish, Ph.D.

University of California, San Francisco, California, 94118

Janice Tsoh, Ph.D.

University of California, San Francisco, California, 94118

Malcolm S. Reid, Ph.D.

New York University, New York, 10010

Michael Resnick, MD

VA Medical Center, Portland, Oregon 97239

Lucy Zammarelli, M.A.

Willamette Family Treatment Services, Eugene, Oregon, 97402

Douglas M. Ziedonis, MD, MPH

Robert Wood Johnson Medical Center, Piscataway, New Jersey, 08854

Clare Sears, Ph.D.

University of California, San Francisco, California, 94118

Dennis McCarty, Ph.D.

Oregon Health and Science University, Portland, Oregon, 97239

Bret E. Fuller, Ph.D.

Oregon Health & Science University
Department of Public Health and Preventive Medicine
3181 SW Sam Jackson Park Road,
Mail Code CB-669
Portland, OR 97239
Phone: 503 494-6553
Email: fullerb@ohsu.edu

Abstract

This paper examines variables associated with the presence of smoking cessation

interventions in drug abuse treatment units as well as staff attitudes toward the integration

of smoking cessation services as a component of care. Surveys were administered to 106

organizations, 348 treatment clinics and 3786 employees in agencies that participated in

the National Drug Abuse Treatment Clinical Trials Network. Organizational factors,

attributes of the treatment setting and staff attitudes toward smoking cessation treatment

were assessed. Use of smoking cessation interventions was associated with the number

of additional services offered at the clinic, residential detoxification services and attitude

of the staff toward smoking cessation treatment. Staff attitudes toward integrating

smoking cessation services in drug treatment were influenced by the number of pregnant

women admitted, the number of ancillary services provided, the attitude of staff toward

evidence based practices, and whether smoking cessation treatment was offered as a

component of care.

1.0 Introduction

The Department of Health and Human Services Clinical Guidelines for Treating Tobacco Use and Dependence recommends targeting drug and alcohol users for nicotine dependence treatment (Fiore, Bailey & Cohen, 2000). Individuals with substance use disorders smoke at higher rates than the general population (Batel, Pessione, Maitre & Rueff, 1995; Bobo, Lando, Walker & McIlvain, 1996; Burling, Ramsey, Seidner & Kondo, 1997; Hurt, Eberman, Slade & Karan, 1993; Kalman, 1998). Substance abusing persons who smoke are more heavily addicted to nicotine (Hughes, 1996, 2002; Marks, Hill, Pomerleau, Mudd & Blow, 1997; Sobell, 2002) and generally have more difficulty quitting smoking than non-substance abusing smokers (Bobo, Gilchrist, Schilling, Noach & Schinke, 1987; Kozlowski, Skinner, Kent & Pope, 1989; Joseph, Nichol & Anderson, 1993; Zimmerman, Warheit, Ulbrich & Auth, 1990). Alcohol dependent individuals who smoke have higher rates of cancer and die from smoking-related causes more frequently than from alcohol-related causes (Hurt, Offord, Croghan, et al., 1996).

Drug abuse programs are an optimal venue for delivering smoking cessation interventions. Many persons entering drug treatment express interest in quitting smoking when asked (Orleans & Hutchinson, 1993; Saxon, McGuffin & Walker, 1997). When patients are referred to external smoking cessation clinics they often do not follow through (Thompson et al., 1988). Integrating nicotine dependence treatment into drug abuse care reduces these attendance problems while also allowing programs to provide a

consistent message that targets all addictive substances, as well as focusing on positive

lifestyle changes, and increasing patients' sense of mastery (Sussman, 2002).

Despite national guidelines that direct healthcare professionals to address nicotine

dependence in drug abuse patients (Fiore et al., 2000), smoking is often overlooked in

drug treatment. Barriers to using smoking cessation interventions include lack of

available resources, little or no insurance coverage for tobacco dependence, and the cost

of nicotine replacement therapy or other appropriate medications (e.g., Buproprion).

Other barriers include high rates of cigarette use among staff (approximately 40%), a

culture amenable to smoking (e.g. "smoke-breaks" structured into the treatment day) and

the attitudes of treatment staff. Resistance to treating nicotine dependence among drug

treatment staff has been documented (Bobo, Slade & Hoffman, 1995; Capretto, 1993;

Fishman & Earley, 1993; Goldsmith & Knapp, 1993; Hahn, Warnick & Plemmons, 1999)

and has been found to be rooted partly in traditional wisdom that those in treatment

should avoid major life changes (including smoking cessation) during their first year of

recovery, and that stopping smoking may jeopardize recovery. Smoking may also be

viewed as a low priority, when compared to more immediate harms of alcohol and illegal

drug use (Bobo, 1992; Sees & Clark, 1993). Drug counselors may also believe their

patients are not interested in quitting smoking (Bobo, 1992; Sees & Clark, 1993).

Counselors who smoke are more resistant to viewing client smoking as a treatment issue,

and are less likely to participate in discussions about the client's nicotine dependence

(Campbell, Krumenacker & Stark, 1998).

A positive staff attitude toward integration of smoking cessation interventions into drug abuse clinics is an important predictor of facilities that offer nicotine dependence services as a component of care. A majority of staff with prior experience in implementing smoking cessation felt that such interventions had either a positive impact or no discernable impact on clients and staff. Only 10 percent felt it had a negative impact. (Williams et al., 2005).

In the context of the National Drug Abuse Treatment Clinical Trials Network (NIDA-CTN), directors and staff were surveyed concerning organizational characteristics and the range of services provided. The Clinical Trials Network is an alliance of research centers and drug treatment programs sponsored by the National Institute on Drug Abuse to conduct randomized trials of drug abuse treatments. The NIDA CTN aims to improve drug abuse treatment through two goals: to determine effectiveness of promising interventions in multi-site clinical trials and second, to support the transfer of tested and effective interventions into clinical practice (Hansen, Leshner & Tai, 2002). NIDA has sustained a commitment to these goals over the past seven years, at a cost of approximately 40 million dollars per year. The CTN has made substantial progress in testing promising interventions. The network includes 17 research centers and over 100 Community Treatment Programs. More than 7,000 participants have been enrolled into a series of 21 multi-site research protocols in various stages of completion (CTN Bulletin 4/5/06).

2.0 METHOD

Data were collected from drug abuse treatment programs participating in the Clinical Trials Network with three surveys administered between February 2002 and August 2004. Organizational surveys were given to the president of the CEO of the program, treatment unit surveys to directors, and workforce surveys to medical, management and counseling staff.

The organizational survey characterized each program at a macro level, with a focus on funding sources, annual revenue, mission and number of full time employees. The treatment unit survey included additional items assessing patients served, services provided and program philosophy. Finally, the workforce survey was distributed to staff within each treatment unit and requested information on years of experience, education, training, licensing, credentials, and job title.

2.1 Data Collection

Each node identified a Node Protocol Coordinator who served as the node liaison and the individual with whom the Oregon Node coordinated study implementation. Coordinators were responsible for facilitating data collection and communication with the treatment programs. They confirmed contact individuals at each program and facilitated distribution of the paper surveys or passwords for the optional web-based surveys. In addition, they worked with the Oregon Node to monitor response rates and promote participation. The Oregon Node trained coordinators and supported their efforts to promote survey participation. The research plan and materials were reviewed by the

Institutional Review Board at Oregon Health and Science University as well as those in each participating location. Information sheets (or consent forms) were provided to all study participants.

2.2 Participants

For the organizational survey, 106 surveys were collected from 112 eligible treatment programs. The treatment unit survey collected data from 348 of 388 treatment units. The director of each treatment unit provided names and addresses of staff eligible to complete the workforce survey. For the workforce survey 3,786 individuals responded from 5,334 eligible respondents (71% of the eligible individuals).

2.3 Variables:

Specific items were derived from each of the surveys. The variables created for these analyses are detailed in Table 1.

2.4 Data Analysis

First, a logistic regression was used to model the probability of the treatment unit providing smoking cessation treatment. This outcome variable was defined as a dichotomous indicator of whether the treatment unit offered smoking cessation interventions as a part of their curriculum.

Second, a multiple linear regression model determined the relative contribution of several predictors of staff attitudes toward the integration of smoking cessation treatment as a

component of care. This analysis was conducted at the workforce survey level. Every

staff member who had a valid observation on an item assessing staff attitudes toward

smoking cessation was included in this analysis.

2.5 Missing Data

A consistent problem with surveys of this type is the presence of missing data. A

multiple imputation approach (Little and Rubin, 1987) replaced each missing value with

a set of plausible values. This approach calculates accurate estimates of standard errors.

A set of regression parameters was generated for each of the 20 datasets generated by

PROC MI (SAS Institute, 1999). In order to condense the output so 20 separate analysis

could be presented together PROC MIANALYZE in SAS averaged the values to one set

of parameters. These values are a stable set of parameters that reduced sample specific

effects (i.e., significant findings that are found in one imputation but not found in others)

and reflected the best estimates of a full dataset. The means and standard deviations

presented in Tables 2 and 4 are non-imputed values. The only imputed values were the

regression parameters for the logistic regression presented in Table 3 and the multiple

regression presented in Table 5.

2.6 Logistic Regression

The logistic regression simultaneously entered 14 variables into a model to determine

which were associated with the presence or absence of smoking cessation treatment at

each clinic. A multiple imputation approach was employed which estimated values for

missing data in the model with the EM algorithm for 20 imputations. A logistic

regression procedure was conducted on each dataset and produced 20 sets of parameter

estimates. All of the models were significant (p < .0001) with the chi-square estimates

ranging from 81.18 to 91.83, with 14 degrees of freedom.

2.7 Multiple Regression

A second regression model used data from the workforce survey to determine which of

19 staff and organizational variables were significantly associated with staff attitudes

toward nicotine dependence interventions. A multiple imputation procedure was used to

replace missing values. Twenty imputations were computed and each imputed model

was significant (p < .0001). The F values with degrees of freedom of 19/3104 ranged

from 9.68 to 10.66 with an R^2 ranging from .0520 to .0613. The low R-square was due to

the outcome variable having only five potential values (e.g., 1 through 5). Regression

analysis is relatively robust to ordinal level outcome variables of this type.

3.0 RESULTS

The 342 treatment units included 106 (31%) that offered some kind of smoking cessation

intervention and 235 (69%) that offered no treatment for nicotine dependence. Table 2

provides the means, standard deviations and the rage of values for 14 organizational

predictors and the criterion, the provision of smoking cessation treatment.

Table 3 shows the solution for the logistic regression parameter estimates aggregated

over the 20 datasets. This solution suggests that the presence of smoking cessation at

each treatment unit was positively related to three variables: a) the mean attitude of the

staff about smoking cessation treatment, b) the number of additional mental health and medical services offered at the clinic, and c) the presence of a residential detoxification program.

Staff attitudes toward integrating smoking cessation interventions (measured on a 1 to 5 Likert scale) were more positive in agencies that offered some kind of treatment for nicotine dependence (M = 3.7) compared with units that did not (M = 3.5). Treatment units providing smoking cessation interventions also provided more ancillary services (M = 8.2) compared with those clinics that did not (M = 5.8). Finally, residential detoxification facilities were more common among treatment units with smoking cessation services (36% with versus 19% without).

Table 2 also presents the means and standard deviations for the variables in the multiple regression model. Table 4 provides the imputed regression parameter estimates, standard errors, t values and p values for each variable in the model. Positive attitudes toward smoking cessation were associated with a) using smoking cessation interventions as part of treatment , b) a higher number of women admitted, c) a higher number of pregnant women admitted, d) being a program in a Veterans Administration Medical Center, e) positive attitudes toward evidence based practices, and f) familiarity with ASAM Placement Criteria. Attitudes were less supportive if the unit also contained a residential detoxification service. The zero order correlation of this latter variable was r = -.107 indicating that this negative weight is not due to model specific effects. This finding and its apparent contradiction with the conclusions of the logistic model is discussed below.

4.0 DISCUSSION

A national sample of drug abuse treatment units provided information on variables associated with adoption of smoking cessation treatment and the factors associated with positive staff attitudes about integrating nicotine dependence interventions as a component of care. This study examines the provision of smoking cessation services in a wide range of programs including drug-free residential, methadone maintenance, outpatient, inpatient, and detoxification facilities. Factors at both the treatment unit and staff levels were associated with the presence or absence of smoking cessation services within drug abuse clinics.

Smoking cessation treatment was more likely to be available in units that offered other ancillary services including detoxification. Treatment units providing multiple medical and mental health services appear to be more likely to offer smoking cessation interventions. Stand-alone drug abuse treatment programs were less likely to offer smoking cessation interventions. Treatment programs that provided a more comprehensive level of service were more likely to have the resources to provide nicotine dependence treatment. It is unclear whether the smoking cessation treatment was provided through ancillary services such as primary medical care. This might imply that smoking cessation was generally more acceptable in other health care settings but not yet in independent drug abuse treatment settings.

The second model examined staff attitude. Employees were more likely to have a positive view of smoking cessation treatment if the clinic operated a nicotine dependence program, admitted certain populations (veterans, women and pregnant women) and did not offer residential detoxification services. Counselor attitudes about evidence based practices and ASAM placement criteria contributed to a positive attitude toward smoking cessation treatment.

These results are a mix of intuitive and paradoxical findings. Clinics providing smoking cessation care were more likely to have staff with a supportive attitude toward such services. This is consistent with previous findings (Hahn et al., 1999; Hurt et al, 1995; Williams et al., 2005). Staff with a positive view toward smoking cessation may be more likely to refer patients to the program. This raises the question as to whether the presence of nicotine dependence treatment improves staff attitude or whether having a supportive staff increases the likelihood that a clinic would offer smoking cessation interventions. The association between staff attitude and the provision of smoking cessation treatment is likely bi-directional.

The results demonstrate that staff members who worked in clinics with a high number of pregnant women were more likely to support integrating smoking cessation into drug abuse treatment. This finding may reflect that individuals in clinics serving pregnant and perinatal women are more aware of the negative impacts of smoking on fetal development and are more ready to integrate smoking cessation services in their clinics.

On the other hand, the proportion of youth admissions was neither a predictor for staff attitudes nor for the provision of smoking cessation services.

A curious finding is the negative relationship between staff attitudes toward smoking cessation treatment and residential detoxification services. Additional analyses confirmed that this effect was due to most detoxification facilities operating in large hospital settings or any other level-of-care effect. Although staff attitudes toward integration of smoking cessation services were less positive in stand-alone detoxification facilities than in multi service agencies (3.09 vs. 3.43), this difference was not significant. Staff attitude toward smoking cessation interventions in these settings may be negative because the staff are focused on patients in withdrawal and may believe that removing smoking during this period will only make the patient more uncomfortable. This may contribute to the ideation that patients are likely to leave detoxification facilities prematurely because of cigarette cravings. Concerns such as these may lead staff to have more negative attitudes toward the use of smoking cessation treatment. With staff education and administrative commitment, these attitudes usually change (Williams et al., 2005). There is no evidence that more patients actually leave treatment because of smoking restrictions.

Employees working in Veteran's Administration Medical Centers tended to have more positive attitudes toward smoking cessation than the rest of the workforce and may reflect governmental regulations requiring a smoke-free environment in VA hospitals (as well as most other health care facilities). Even though a small number of drug treatment clinics were a part of Veteran's Administration Medical Centers (n = 15) there was still a

significant effect in the regression equation (confirmed by a significant univariate correlation).

Respondents who valued evidence-based practices, and those who perceived themselves to be knowledgeable of the ASAM criteria, were also more likely to favor the integration of smoking cessation into drug treatment units. These staff may be more aware of both the importance and the current techniques of treating nicotine dependence.

4.1 Study Limitations

As with any large-scale survey, missing data was a limitation. The use of data imputation in constructing these models is a technological tool that allows the best use of incomplete data. In this study, most of the incomplete data were single omissions of items rather than large spans of missing data. In this case, imputation was the best way to use these data to determine the underlying relationships.

Because the focus of the survey instruments was not on the provision of smoking cessation treatment, no details regarding the specific types of services were obtained. For some clinics smoking cessation treatment could mean providing nicotine replacement while the patient is in detoxification. For others, a program might involve nicotine replacement therapy, social support groups and psychoeducational counseling or medication. This variation was not assessed and thus it is unclear what the respondent meant when indicating the presence of smoking cessation treatment at their clinic.

Staff surveys indicate that the lack of demonstrated efficacy and lack of client interest are big barriers for implementation of interventions for smoking reduction while in treatment (Walsh, Bowman, Tzelepis & Lecathelinais, 2005). The large proportion of the workforce who smokes cigarettes was less likely to suggest smoking cessation treatment to their clients (Bobo & Gilchrist, 1983). Some staff members believe that it is therapeutic to occasionally smoke with their clients (Walsh et al, 2005).

Research has indicated that nicotine dependence treatment does not jeopardize drug treatment and may actually help recovery (Burling, Marshall & Seidner, 1991; Hurt et al., 1994; Martin et al., 1997; Stuyt, 1997; Toneatto, Sobell, Sobell & Kozlowski, 1995). Some research demonstrates that smoking cessation interventions do improve long term abstinence from alcohol or drugs but not tobacco use (Bobo, et al, 1998; Prochaska, Delucchi & Hall, 2004). Even though smoking interventions started early in residential treatment have been shown to affect abstinence rates, these effects are largely short term (Joseph, Willenbring, Ngent & Nelson, 2004). Studies examining the effectiveness of smoking cessation treatment in drug treatment show short term (6 month) reductions in cigarette use but do not show long term (18 month) effects (Prochaska, Delucchi & Hall, 2004). It is unclear to what extent treatment staff members are aware of these findings and how much this lack of evidence influences staff attitudes. Also inconclusive is how generalizable the current findings are when compared to treatment agencies not affiliated with the CTN. Although this is likely a good sample of treatment units, the CTN may have more multi-faceted clinics than a random sample of agencies would contain.

4.2 Conclusions

Future research in this area should focus on the types of smoking cessation interventions that are provided at each agency in order to better characterize the types of services available. Additionally, a qualitative study of the staff attitudes toward smoking cessation would greatly improve the understanding of the complex attitudes of staff, particularly in detoxification centers. Research into programs designed to educate staff about the importance of integrating smoking cessation into drug abuse clinics is also merited. An examination is also needed to determine the how attitudes of patients and providers are influenced by the large smoking population in the workforce.

This study presents some challenges to the treatment field to focus on evidence-based services regarding smoking cessation treatment, and raises some ethical issues as well. Pregnant clients who do not receive nicotine dependence treatment have limited ability to eliminate tobacco use, leading to more fetal complications. Treatment clinics for youth that ignore smoking cessation education do a disservice to a vulnerable population who may face a lifetime of tobacco addiction. The incorporation of evidence-based practices can be enhanced by the adoption of concurrent tobacco cessation services during rehabilitation, clearly an asset to good health and client recovery.

Acknowledgements

REFERENCES

Batel, P., Pessione, F., Maitre, C., & Rueff, B. (1995). Relationship between alcohol and

tobacco dependencies among alcoholics who smoke. *Addiction, 90*, 977-980.

Bobo, J.K. (1992). Nicotine dependence and alcoholism epidemiology and treatment.

Journal of Psychoactive Drugs, 24, 123-129.

Bobo, J.K. & Gilchrist, L.D (1983). Urging the alcoholic client to quit smoking

cigarettes. *Addictive Behaviors, 8,* 297-305.

Bobo, J.K., Gilchrist, L.D., Schilling, R.F., Noach, B., & Schinke, S.P. (1987). Cigarette

smoking cessation attempts by recovering alcoholics. *Addictive Behaviors, 12*

209-215.

Bobo, J.K., Lando, H.A., Walker, R.D., & McIlvain, H.E. (1996). Predictors of tobacco

quit attempts among recovering alcoholics. *Journal of Substance Abuse 8,* 431-

433.

Bobo, J.K., McIlvain, H.E., Lando, H.A., Walker, R.D. & Leed-Kelly, A. (1998). Effect

of smoking cessation counseling on recovery from alcoholism: Findings from a

randomized community intervention trial. *Addiction 93*(6), 877-887.

Bobo, J.K., Slade, J., & Hoffman, A.L. (1995). Nicotine addiction counseling for

chemically dependent patients. *Psychiatric Services 46*, 945-947.

Burling, T.A., Marshall, G.D., & Seidner, A.L. (1991). Smoking cessation for substance

abuse inpatients. *Journal of Substance Abuse 3*, 269-276.

Burling, T.A., Ramsey, T.G., Seidner, A.L., & Kondo, C.S. (1997). Issues related to

smoking cessation among substance abusers. *Journal of Substance Abuse 9*, 27-

40.

Campbell, B.K., Krumenacker, J., & Stark, M.J. (1998). Smoking cessation for clients in

chemical dependency treatment. A demonstration project. *Journal of Substance*

Abuse Treatment 14, 313-318.

Capretto, N.A. (1993). Confronting nicotine dependency at the Gateway Rehabilitation

Center. *Journal of Substance Abuse Treatment 10,* 113-116.

Centers for Medicare & Medicaid Services, Medicare News (March 22, 2005). Medicare

adds coverage of smoking and other tobacco use, Tuesday, Available from URL:

http://www.cms.hhs.gov/media/press/release.asp?Counter=1395 (accessed on

August 11, 2005)

CTN Bulletin (2006, April, 5). Copy Editor, Volume 06-06.

Fiore, M.C., Bailey, W.C., and Cohen, S.J. (2000). *Treating tobacco use and*

dependence: Clinical practice guideline. U.S. Department of Health and Human

Services: Rockville, MD.

Fishman, M.L. & Earley, P.H. (1993). Treatment centers--the next challenge: The

Counterpoint Unit at CPC Parkwood Hospital. *Journal of Substance Abuse*

Treatment 10, 133-137.

Goldsmith, R.J. & Knapp, J., (1993). Towards a broader view of recovery. *Journal of*

Substance Abuse Treatment 10, 107-111.

Hahn, E.J., Warnick, T.A., & Plemmons, S. (1999). Smoking cessation in drug treatment

programs. *Journal of Addictive Diseases 18*, 89-101.

Hansen, G.R., Leshner, A.I. & Tai, B. (2002). Putting drug abuse research to use in real-

life settings. *Journal of Substance Abuse Treatment, 23,* 69-70.

Hughes, J., (1996). Treating smokers with current or past alcohol dependence. *American*

Journal of Health Behavior 20, 286-290.

Hughes, J. (2002). Do smokers with current or past alcoholism need different or more

intensive treatment? *Alcoholism: Clinical and Experimental Research 26 ,*1934-

1935.

Hurt, R. D., Croghan, I. T, Offord, K.P, Eberman, K. M & Morse, R. M. (1995).

Attitudes toward nicotine dependence among chemical dependency unit staff -

before and after a smoking cessation trial. *Journal of Substance Abuse Treatment*

12, 247-252.

Hurt, R.D., Eberman, K.M., Croghan, I.T., et al. (1994). Nicotine dependence treatment

during inpatient treatment for other addictions: a prospective intervention trial.

Alcoholism: Clinical and Experimental Research 18, 867-872.

Hurt, R.D., Eberman, K.M., Slade, J., & Karan, L. (1993). Treating nicotine addiction in

patients with other addictive disorders. in *Nicotine addiction: Principles and*

management, C.T. Orleans and J. Slade, Editors. Oxford University Press: New

York. p. 310-326.

Hurt, R.D., Offord, K.P., Croghan, I.T. et al. (1996). Mortality following inpatient

addictions treatment: Role of tobacco use in a community-based cohort. *JAMA*

275, 1097-1103.

Joseph, A.M., Nichol, K.L., & Anderson, H. (1993). Effect of treatment for nicotine

dependence on alcohol and drug treatment outcomes. *Addictive Behaviors 18*,

635-644.

Joseph, A.M. Willenbring, M.L, Nugent, S.M., Nelson, D.B. (2004). A randomized trial

of concurrent versus delayed smoking intervention for patients in alcohol

dependence treatment. *Journal of Studies on Alcohol, 65,* 681-91.

Kalman, D. (1998). Smoking cessation treatment for substance misusers in early

recovery: a review of the literature and recommendations for practice. *Substance

Use and Misuse 33*, 2010-2047.

Kozlowski, L.T., Skinner, W., Kent, C., & Pope, M.A. (1989). Prospects for smoking

treatment in individuals seeking treatment for alcohol and other drug problems.

Addictive Behaviors 14, 273-278.

Little, R.J.A. & Rubin, D.B. (1987). Statistical Analysis with Missing Data. J. Wiley &

Sons, New York.

Marks, J.L., Hill, E.M., Pomerleau, C.S., Mudd, S.A., & Blow, F.C. (1997). Nicotine

dependence and withdrawal in alcoholic and nonalcoholic ever- smokers. *Journal

of Substance Abuse Treatment, 14*, 521-527.

McCarty, D., Fuller, B.E. Edmundson, E. et al. (in review a). Treatment Programs

Participating in the National Drug Abuse Treatment Clinical Trials Network.

McCarty, D., Fuller, B.E. Edmundson, E. et al. (in review b). The Direct Care Workforce

in the National Drug Abuse Treatment Clinical Trials Network: Characteristics

and Attitudes.

Martin, J.E., Calfas, K.J., Patten, C.A., et al. (1997). Prospective evaluation of three

smoking interventions in 205 recovering alcoholics: one-year results of Project

SCRAP-Tobacco. *Journal of Consulting and Clinical Psychology 65,* 190-194.

Orleans, C.T. & Hutchinson, D., (1993). Tailoring nicotine addiction treatments for chemical dependency patients. *Journal of Substance Abuse Treatment 10,* 197-208.

Prochaska, J. J., Delucchi, K., & Hall, S. M. (2004). A meta-analysis of smoking cessation interventions with individuals in substance abuse treatment or recovery. *Journal of Consulting and Clinical Psychology, 72*(6), 1144-1156.

SAS Institute, Inc. (1999). SAS/STAT User's Guide, Version 8, Cary, NC: SAS Institute Inc.

Saxon, A.J., McGuffin, R., & Walker, R.D. (1997). An open trial of transdermal nicotine replacement therapy for smoking cessation among alcohol- and drug-dependent inpatients. *Journal of Substance Abuse Treatment 14,* 333-337.

Sees, K.L. and Clark, H.W. (1993). When to begin smoking cessation in substance abusers. *Journal of Substance Abuse Treatment 10,* 189-195.

Sobell, M.B. (2002). Alcohol and tobacco: Clinical and treatment issues. *Alcoholism: Clinical and Experimental Research 26*, 1954-1955.

Stuyt, E.B. (1997). Recovery rates after treatment for alcohol/drug dependence - Tobacco users vs. non-tobacco users. *American Journal on Addictions 6,* 159-167.

Sussman, S. (2002). Smoking cessation among persons in recovery. *Substance Use and Misuse, 37,* 1275-1298.

Thompson, R.S., Michnich, M.E., Friedlander, L., Gilson, B., Grothaus, L.C., & Storer, B. (1988). Effectiveness of smoking cessation interventions integrated into primary care practice. *Medical Care 26*, 62-76.

Toneatto, A., Sobell, L.C., Sobell, M.B., & Kozlowski, L.T. (1995). Effect of cigarette

smoking on alcohol treatment outcome. *Journal of Substance Abuse, 7,* 245-252.

Williams G. C., McGregor, H., Borrelli, B., Jordan P.J. & Strecher, V.J. (2005).

Measuring tobacco dependence treatment outcomes: a perspective from the

behavior change consortium. *Annals of Behavioral Medicine Apr, 29* Suppl:11-9.

Zimmerman, R.S., Warheit, G.J., Ulbrich, P.M., & Auth, J.B., (1990). The relationship

between alcohol use and attempts and success at smoking cessation. *Addictive*

Behaviors 15, 197-207.

Table 1: Descriptions of variables

Organizational Survey	
Stand Alone Substance Abuse Clinic:	A dichotomous variable that assesses whether the clinic is a stand alone substance abuse clinic or another type of clinic such as a hospital, medical clinic or government agency.
Accreditation:	A dichotomous variable that indicates whether or not the agency had accreditation from JACHO, CARF or state agencies.
Treatment Unit Survey	
Size	Number of unduplicated clients that are admitted annually to the clinic.
Youth:	Estimated percentage of clients between the ages of 18 and 21.
Women:	The percentage of women served in the clinic.
Pregnant:	The percentage of pregnant women in the clinic.
Tobacco:	The percentage of clients admitted to the clinic that use tobacco.
Residential Program:	A dichotomous variable indicating whether this program has residential services excluding residential detoxification facilities.
Methadone:	A dichotomous variable assessing whether methadone services are offered in the clinic.
Outpatient Program:	A dichotomous variable indicating whether the program offers outpatient services excluding outpatient detoxification facilities.
Length of Stay:	The average length of stay of individuals in the program.
Residential Detoxification Services	A dichotomous variable indicating whether residential detoxification services were available in the clinic.
Outpatient Detoxification Services:	A dichotomous variable indicating whether outpatient detoxification services were available in the clinic.
Smoking Cessation:	A dichotomous variable indicating the presence of smoking cessation treatment.
Auxiliary Services	This variable is a sum of 18 additional services offered by clinics for their clients. These include testing for infectious disease, primary health care services, mental health counseling, and providing psychiatric medication. The variable entered is a sum of the binary indicators for the list of 18 services.
VA Medical Center	Whether the center was a Veterans Administration Medical Center
Stand Alone	Whether the community treatment program offered other services

Substance Abuse Treatment Clinic	besides drug treatment services.
Workforce Survey	
Evidence Based Practices:	Two items assessing the attitudes toward evidence-based practices were summed to create this indicator (possible score range = 2 to 10). The items were "Evidence-based practice guidelines are useful to improve quality of care" and "Evidence-based practice guidelines promote oversimplified "cookbook" care (reverse coded)."
ASAM Knowledge:	"How familiar are you with the American Society of Addiction Medicine Placement Criteria?" was scored from not at all (1) to very (3).
APA Guideline Knowledge	"How familiar are you with the American Psychiatric Association *Clinical Practice Guidelines for the Treatment of Patients with Substance Use Disorder?*" ranged from not at all (1) to very (3).
Licensure:	Percentage of staff members with licensure or certification at either the local, state or national level
Clinical Hours:	This variable is the number of clinical hours the staff member works each week.
Attitude:	"Smoking cessation should be integrated into treatments for alcohol and drug abuse" was scored on a 5-point scale ranged from 1 (strongly disagree) to 5 (strongly agree).
Workforce Variables Aggregated to the Treatment Unit Level	
Attitude Mean:	The mean of the item "Smoking cessation should be integrated into treatments for alcohol and drug abuse" was calculated for each treatment unit. This mean attitude was included in the logistic regression reported in Table 3.

Table 2: Means and standard deviations of predictors of smoking cessation treatment in drug abuse treatment clinics

Variable	n	Mean	SD	Minimum Value	Maximum Value
Criterion					
Smoking Cessation Program[1]	341	.311	-	0	1
Organizational Predictors					
Accreditation[1]	347	.948	-	0	1
Youth[2]	306	12.27	20.43	0	100
Methadone[1]	341	.28	-	0	1
Women[2]	318	39.71	27.69	1	100
# Pregnant Women Annually	294	14.92	35.19	0	300
Residential[1]	347	.47	-	0	1
Outpatient[1]	347	.67	-	0	1
Tobacco[2]	269	76.28	-	0	100
Length of Stay	308	176.15	223.59	0	999
Outpatient Detox	332	0.20	0.40	0	1.00
Residential Detox services[1]	331	0.24	-	0	1
TU mean Attitude Toward Smoking Cessation Treatment	310	3.55	0.54	1.5	5
VA Medical Center[1]	349	.02	-	0	1
Stand Alone Substance Abuse Clinic[1]	349	.59	-	0	1
# of additional med & MH services offered	344	8.70	3.51	0	16
Workforce Predictors					
Attitude toward Smoking Cessation Treatment	3124	3.54	1.06	1	5
Attitudes Toward Evidence Based Practices	2997	7.05	1.31	2	10
ASAM	3024	1.71	.77	1	3
APA	3022	1.68	.64	1	3
Licensure or Certification[1]	3060	.53		0	1
Clinical Hours	1897	21.94	9.84	1	40

Table 3: Parameter estimates for the logistic regression with 20 imputations.

Parameter		Parameter Estimate	Standard Error	T value	P value
Intercept		-7.13	1.42	-5.03	.0001*
Accreditation		-1.02	.66	-1.56	.1183
Size		.00007	.0002	.42	.6731
Attitude		1.12	.03	3.72	.0002*
Youth		.002	.008	.24	.8100
Methadone		-.01	.36	-.03	.9777
Women		.005	.006	.07	.9462
Pregnant		-.01	.007	-1.69	.0915
Residential		.54	.36	1.51	.1320
Outpatient		.24	.34	.71	.4757
Tobacco		.0059	.008	.84	.3997
Length of Stay		-.0001	.0008	-.15	.8779
Residential Detox Services		.88	.38	2.33	.0200*
Substance Abuse only clinic		.20	.29	.76	.4915
Med & MH Services		.31	.06	5.21	.0001*

Table 4: Multiple Regression Parameters for analysis predicting the staff attitudes toward

smoking cessation treatment.

Parameter		Parameter Estimate	Standard Error	T value	P value
Clinic offers Smoking Cessation Treatment		.29	.05	6.46	< .0001*
Size		-.0000001	.00002	-.08	.9384
Youth		-.00002	.001	.12	.9055
Methadone		.08	.05	1.63	.1039
Women		.002	.0009	2.23	.0257*
Pregnant Women		.002	.0007	2.94	.0033*
Residential		.03	.05	0.57	.5665
Outpatient		.04	.05	0.86	.3882
Tobacco use		-.0008	.001	-0.87	.3836
Length of stay		-.00004	.0001	-0.43	.6645
Residential Detox		-.36	.05	-6.58	< .0001*
VA Hospital		.66	.27	2.41	.0160*
Stand Alone AOD program		.04	.04	0.98	.3290
Attitude toward Evidence Based Practices		.07	.02	4.42	< .0001*
ASAM		.12	.03	4.04	.0001*
APA		-.03	.04	-.82	.4107
Licensure		.05	.04	1.27	.2025
Clinical Hours		-.0006	.002	-0.24	.8074
Auxiliary Services		.005	.008	.62	.5372