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Predictors of Tobacco Use Among New York State Addiction Treatment Patients

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Objectives. We used admissions data from the New York State addiction treatment system to assess patient self-reported tobacco use and factors associated with tobacco use.

Methods. We compared prevalence of tobacco use in the state addiction treatment system with that of a national sample of people receiving addiction treatment and with that of the New York general population in 2005 to 2008. A random effects logistic model assessed relationships between patient- and program-level variables and tobacco use.

Results. Prevalence of tobacco use in the New York treatment system was similar to that in national addiction treatment data and was 3 to 4 times higher than that in the general population. Co-occurring mental illness, opiate use, methadone treatment, and being a child of a substance-abusing parent were associated with higher rates of tobacco use.

Conclusions. We call on federal leadership to build capacity to address tobacco use in addiction treatment, and we call on state leadership to implement tobacco-free grounds policies in addiction treatment systems. (*Am J Public Health.* 2015;105:e57–e64. doi:10.2105/AJPH.2014.302096)

Since the 1964 Surgeon General's report,[1] public health and policy efforts have decreased smoking prevalence in the United States from 40% to 18%.[2,3] The decrease in smoking since 2005 has been slight,[4] however, and smoking is now concentrated in subgroups defined by demographics,[5] diagnosis,[6] or behavior.[7–9] Behavioral health populations, especially, have not benefited from the overall population decline in smoking prevalence.[10] People with mental health diagnoses are twice as likely to smoke as those without,[11] and the highest prevalence rates reported are among people who seek treatment for alcohol or drug addiction. National Survey on Drug Use and Health (NSDUH) data show that, among people who reported past-year addiction treatment, annual smoking prevalence for 2000 to 2009 ranged from 67% to 75%.[12]

Four million people receive addiction treatment annually, and 2.3 million receive services in specialty addiction programs.[13] If 70% are smokers,[12] then 1.6 million smokers enter such programs annually. Year after year, these settings serve a substantive proportion of the 43.8 million US adult smokers.[5] Despite high rates of tobacco use, only 1 in 5 addiction treatment facilities in the United States has the financial resources to provide tobacco cessation services.[14] Availability of nicotine replacement therapy in addiction programs decreased over 4 years (from 38% to 34%),[15] and 40% of programs providing cessation counseling in 2006 to 2008 later discontinued this service.[16] According to the 2011 National Survey of Substance Abuse Treatment Services (N-SSATS), only half of all addiction treatment programs screen clients for tobacco use.[17]

Three fourths of all addiction treatment is provided in the public sector,[18,19] and regulation and policy setting for these programs are centralized in Single State Agencies for Substance Abuse Services. Such agencies could disseminate tobacco practice guidelines, mandate counselor education on tobacco dependence,[20] or reimburse programs for tobacco-related services.[21] Several state addiction treatment systems have initiated or contemplated tobacco control efforts.[22–24]

In July 2008, the New York Office of Alcoholism and Substance Abuse Services (OASAS) mandated smoke-free grounds and treatment of tobacco dependence for patients in addiction treatment.[25] The largest such policy in the United States, it affects approximately 1000 programs, 20 000 staff, and 300 000 annual treatment admissions. Interviewing program administrators before and after the regulation, Brown et al.[26] found increased tobacco screening and cessation services for patients. Surveying patients before and after the policy, another study found that smoking prevalence decreased from 69% to 63% ($P<.05$) and that tobacco-related services increased in methadone treatment settings but decreased in residential treatment.[27] Studies assessing clinicians' perspectives on implementation of the OASAS tobacco regulation identified both positive experiences (e.g., increased patient awareness about tobacco abuse) and negative experiences (e.g., enforcement difficulties),[28] coupled with perceived increases in program-level commitment of resources and enforcement efforts over time.[29,30]

Before implementing its tobacco control policy, OASAS included tobacco use status in the patient admission record. The resulting data set permits assessment of the relationships between tobacco use and other factors in statewide addiction treatment samples. By comparison, a review of 42 addiction treatment studies reporting smoking prevalence included sample sizes ranging from 29 to 3472.[12]

NSDUH epidemiological data have been used to assess smoking prevalence among people with mental illness,[31] people with concurrent alcohol and illicit drug misuse,[32] and people receiving addictions treatment in the past year.[12] We know of no studies using NSDUH or similar national data sets to explore factors associated with tobacco use in the addiction treatment population. Such data are of interest because tobacco policies in addictions treatment have potential to reduce tobacco use in a population in which use is highest, in which users are concentrated, and in

which the burden of tobacco-related mortality is disproportionate.[33,34]

We used admissions data from the New York State addiction treatment system (OASAS) over a 6-year period to estimate prevalence of tobacco use. Comparison with statewide data reflects how much people enrolled in the New York addiction treatment system may smoke in comparison with all New York State residents. Comparison with NSDUH data reflects how much people enrolled in the New York addiction treatment system may smoke in comparison with a national sample of people receiving addiction treatment. We also assessed how program and patient characteristics may be associated with tobacco use in this population.

METHODS

OASAS is responsible for licensing and regulation of publicly funded addiction treatment programs in New York State. All programs complete an admission form for each patient, creating a patient-level administrative data set. Analyses for this article were performed by OASAS staff to guard against the release of patients' identifying information.

The OASAS tobacco policy was implemented in July 2008. In support of the policy, OASAS added tobacco-related items to admission forms beginning in 2005. In the present analysis, we used OASAS data for the period August 2006 to July 2008 (2 years preceding policy implementation) and August 2008 to July 2012 (4 years after policy implementation), providing a total 6-year observation period.

Inclusion and Exclusion Criteria

Eligible programs were those licensed by OASAS. In 2006 to 2007, 1116 programs reported to OASAS, and for each subsequent 1-year period the number of programs were 1096, 1077, 1042, 1027, and 999. We excluded education and prevention programs, which provide classroom presentations and skill development workshops, and short-term detoxification or crisis–stabilization programs (≤ 5 days) because these programs allow little opportunity for tobacco intervention. Programs within jail or prison settings were excluded because tobacco use is not allowed in these settings, and 13 treatment centers were excluded because they implemented tobacco-free status before the rest of the state. We also excluded programs identified as adolescent treatment programs and those with 75% or more of patients younger than 18 years. Although many adolescents in addiction treatment smoke,[35] tobacco-related policies are likely to differ between adolescent and adult programs.

Remaining were 960 programs reporting to OASAS in 2006 to 2007, and for each subsequent 1-year period the number of programs in the analysis were 945, 925, 899, 893, and 874. We excluded records for people younger than 18 years at the time of admission, for those in a jail or prison setting just before admission, and for people who were not the primary patient (e.g., family members). The remaining data reflected admission records for adults aged 18 years and older seeking treatment for their own addiction and in settings in which tobacco use was unrestricted except by the OASAS tobacco policy. Using a unique system identifier attached to each person entering the system, we selected the first admission for each person in each year of study, giving 849 478 unique person admissions across 6 years. There were 139 131 unique admissions in 2006 to 2007, and for each subsequent 1-year period the number of unique admissions in the analysis were 143 359, 143 200, 144 554, 140 616, and 138 618. Within each year, each admission record referred to only 1 person, and each person had only 1 admission record per study year. One person could have more than 1 record included if she or he was admitted in more than 1 study year.

Patient and Program Characteristics

A brief admission form is completed for each person entering the OASAS treatment system.[36] From among those variables included in the admissions data, we selected demographic variables including age, gender, Hispanic ethnicity (yes or no), race (Asian American, American Indian/Alaska Native/Pacific Islander, Black, White, other), and primary drug of abuse at admission (alcohol, marijuana, crack or cocaine, opiates, and other drugs). We selected additional variables shown to be related to smoking in previous research, including education,[5] employment status,[37,38] marital status,[39] mental illness,[40] incarceration,[41] and military service.[42] Education was coded using 4 categories (less than high school, high school, some college, college degree), and employment, marital status, history of mental illness, criminal justice involvement (e.g., parole, probation, alternatives to incarceration), and veteran status were dichotomous. Because some research has identified a history of adverse childhood experiences[43] and primary use of the English language as risk factors for smoking,[44] we also included as variables whether the participant had a substance-abusing parent and whether English was the participant's primary language. Last, we included type of program (e.g., methadone, outpatient, residential) because smoking rates are higher in methadone treatment programs than in other programs[12] and a variable for the 6-year period of observation (2006–2012).

Tobacco Use

In 2006 to 2009, OASAS patients were asked on admission whether they had either smoked (yes or no) or used smokeless tobacco (yes or no) in the past week. From April 2009 on, patients were asked whether they "ever used tobacco (nicotine)," frequency of use in the past month (none, 1–3 times, 1–2 times/week, 3–6 times/week, daily), and whether use was primarily by smoking or chewing. We coded "any tobacco use in the past week" as use for 2006 to 2009, and we coded "any use in past 30 days" as use from April 2009 onward.

Additional Data Sources

We compared annual prevalence of tobacco use among people in the OASAS system with data derived from NSDUH and from the Centers for Disease Control and Prevention. Following procedures used previously,[12,45] we used the online NDSUH data[46] for the period 2006 to 2012. NSDUH respondents report whether they received treatment for drug or alcohol abuse in the past year and also report any cigarette use in the past month. Filtering for age 18 years or older permits annual national estimates of smoking among people who received recent addiction treatment. From 2007 through 2011, NSDUH data contained 4573 cases in which the participants were aged 18 years or older and had received addiction

treatment in the past 12 months. The CDC annually reports smoking prevalence by state, using the Behavioral Risk Factor Surveillance System.[47] From 2007 through 2012, the Behavioral Risk Factor Surveillance System included 43 734 New York State respondents.

Analysis Plan

For 2006 to 2012, we compared annual prevalence rates for self-reported tobacco use drawn from OASAS data with annual prevalence rates for smoking drawn from NSDUH data and Behavioral Risk Factor Surveillance System New York population data. Prevalence rates were graphed over time to enable visual comparison (Figure 1).

We examined patient and program characteristics for all patients included in the study and the percentage of each demographic category who reported tobacco use. Because these are population data, we compared rates of tobacco use (e.g., by gender, ethnicity, employment status) using the *C* statistic as a measure of effect size (ES) rather than traditional *P* values.

To identify factors associated with tobacco use, a fixed effects logistic model assessed multivariate adjusted relationships of each variable to tobacco use at admission, in the presence of all other variables. Variables in the model were age, gender, Hispanic ethnicity, race, primary drug, education, employment, marital status, a history of mental illness, criminal justice involvement, veteran status, English as primary language, whether the patient had a substance-abusing parent, program type, and year of admission (when the data were collected). In any year, approximately 30% of OASAS admissions were people who also had an OASAS admission in a prior year. Given this pattern of repeat admissions, the model controlled for repeated measures.

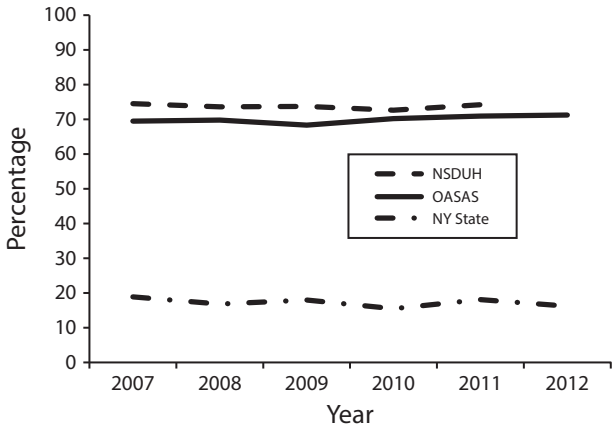
RESULTS

Over the 6-year period, 549 464 people reported tobacco use at admission. Beginning in 2006 and for each study year, these tobacco use rates were, respectively, 69.5%, 69.8%, 68.3%, 70.2%, 70.9% and 71.2%. Comparable smoking prevalence rates derived from NSDUH were 74.5%, 73.6%, 73.7%, 72.6%, and 74.2%, respectively (2012 data were not available at this writing). Behavioral Risk Factor Surveillance System New York State smoking prevalence rates for the same time periods were 18.9%, 16.8%, 18.0%, 15.5%, 18.1%, and 16.2%. Figure 1 shows these proportions graphically. The top line shows that NSDUH estimates for smoking prevalence in any year were 2.4% (2010) to 5% (2007, 2009) higher than tobacco use prevalence in the OASAS data. These differences are small but statistically significant for all years except 2010 ($P = .11$). The lowest line shows that New York State population smoking rates were far below those seen in either the New York (OASAS) or the national (NSDUH) data.

Table 1 shows patient and program characteristics for all cases and for those reporting tobacco use. Effect sizes, shown in the right column, offer an estimate of the difference in tobacco use between groups that is independent of sample size. Cohen[48] identified .10 as a small ES and .30 as a medium ES. All effect sizes shown are small or are nearer to small than to medium. Nonetheless, a small ES may have clinical or policy relevance when considered at a population level. From the variables in Table 1, we selected for interpretation those with an ES higher than .07, corresponding to an approximate difference in proportion of 8% or more between categories.

Using this guideline, both age (ES = .103) and education (ES = .128) were inversely associated with tobacco use. Those who were employed (ES = .115) or married (ES = .073) had lower rates of tobacco use, whereas those with English as a primary language had higher rates (ES = .089). The primary drug for which the participant sought treatment was associated with tobacco use, such that people using opiates had rates 18.5% higher than those using alcohol (ES = .158). Tobacco use was higher among those with a history of mental illness (ES = .094), those who had a substance-abusing parent (ES = .083), and those in methadone maintenance programs (ES = .113).

Results of a logistic regression predicting tobacco use are summarized in Table 2. All covariates in the model are shown in the table. For categorical variables, the first category listed was used as the reference category. For dichotomous variables, the reference is people not having the characteristic indicated (e.g., Hispanic ethnicity vs not of Hispanic ethnicity, employed vs not employed). Because of the large sample size, all predictors in the model were significantly associated with tobacco use. To focus on those of greater magnitude, we interpret odds ratios (ORs) greater than 1.2,



Note. NSDUH = National Survey on Drug Use and Health; NY = New York; OASAS = Office of Alcoholism and Substance Abuse Services. New York State data are derived from Behavioral Risk Factor Surveillance System data.

FIGURE 1—Comparison of tobacco use for NSDUH national sample of people receiving addiction treatment among New York State OASAS addiction treatment admissions and New York State general population: 2007–2012.

TABLE 1—Descriptive Characteristics for All Patients and for Those Reporting Tobacco Use Entering Addiction Treatment in New York State: 2006–2012

Characteristic	All Patients (n = 849 478), No. (%)	Patients Using Tobacco[a] (n = 594 464), No. (%)	ES[b]
Age, y			.103
18–19	39 011 (4.6)	26 715 (68.5)	
20–29	245 784 (28.9)	176 104 (71.6)	
30–39	197 691 (23.3)	142 273 (72.0)	
40–49	230 244 (27.1)	164 455 (71.4)	
50–59	111 700 (13.1)	73 555 (65.9)	
≥ 60	25 048 (2.9)	11 362 (45.4)	
Gender			.050
Male	613 425 (72.2)	420 516 (68.6)	
Female	236 053 (27.8)	173 948 (73.7)	
Education			.128
< high school/GED	272 782 (32.1)	203 104 (74.5)	
Vocational, high school, GED	334 157 (39.3)	239 898 (71.8)	
Some college	143 706 (16.9)	97 121 (67.6)	
AA, BA, BS, and higher	98 833 (11.6)	54 341 (55.0)	
Ethnicity			.033
Non-Hispanic	678 079 (79.8)	479 696 (70.7)	
Hispanic	171 399 (20.2)	114 768 (67.0)	
Race			.035
AI, AN, PI, H	7843 (0.9)	5625 (71.7)	
Asian	4345 (0.5)	2765 (63.6)	
Black	264 246 (31.1)	186 495 (70.6)	
White	414 113 (48.7)	293 328 (70.8)	
Other	158 931 (18.7)	106 251 (66.9)	
Employment status			.115
No	603 306 (71.0)	442 720 (73.4)	
Yes	246 093 (29.0)	151 689 (61.6)	
Married[c]			.073
No	688 824 (81.1)	493 210 (71.6)	
Yes	160 654 (18.9)	101 254 (63.0)	
Veteran			.004
No	817 716 (96.3)	572 561 (70.0)	
Yes	31 762 (3.7)	21 903 (69.0)	
English primary language			.089
No	62 531 (7.4)	34 634 (55.4)	
Yes	786 947 (92.6)	559 830 (71.1)	
Primary of drug use			.158
Alcohol	355 056 (41.8)	223 424 (62.9)	
Marijuana	176 640 (20.8)	122 495 (69.3)	
Crack, cocaine	124 294 (14.6)	93 924 (75.6)	
Opiates	178 067 (21.0)	144 884 (81.4)	
Other	15 421 (1.8)	9737 (63.1)	

Continued

meaning that there is an estimated difference of at least 20% in the odds of tobacco use between the category and its referent. In the case of ORs less than 1, their protective value may be translated as 1/OR. For example, the protective value of OR = 0.81 for Hispanic ethnicity may be interpolated as 1/0.81 = 1.23, giving the interpretation that people of Hispanic ethnicity in this population had 23% lower odds of tobacco use, controlling for all other variables in the model.

Using these interpretation rules, age, gender, criminal justice involvement, veteran status, and year of admission were not related to tobacco use in the study population. Hispanic ethnicity was protective, whereas both Asian (OR = 1.34; 95% confidence interval [CI] = 1.25, 1.43) and White (OR = 1.19, 95% CI = 1.18, 1.21) respondents had higher odds of smoking than Black respondents. People reporting opiates (OR = 1.88; 95% CI = 1.85, 1.91) and cocaine or crack (OR = 1.51; 95% CI = 1.49, 1.54) as their primary drug had higher odds of smoking than those whose primary drug was alcohol. Education was inversely related to tobacco use. Respondents with less than a high school education had more than double the odds of tobacco use (OR = 2.29; 95% CI = 2.25, 2.33) than those who had at least a 2-year college degree. Those who were employed had 23% lower odds of tobacco use (OR = 0.81; 95% CI = 0.80, 0.82), and those who were married had 19% lower odds of tobacco use (OR = 0.84; 95% CI = 0.83, 0.85). People who had a history of mental illness (OR = 1.34; 95% CI = 1.33, 1.36), who had an alcohol- or drug-using parent (OR = 1.30; 95% CI = 1.28, 1.31), who spoke English as their primary language (OR = 1.67; 95% CI = 1.64, 1.70), or who were admitted to methadone treatment (OR = 1.67; 95% CI = 1.63, 1.73) had higher odds of tobacco use than the referent category.

DISCUSSION

This is among the first reports of prevalence of, and factors associated with, tobacco use in a statewide addiction treatment system. Ward et al.[49] reported on current smokers who had received addiction treatment in Tennessee, relating nicotine dependence to demographic, drug use, and mental health characteristics.

TABLE 1—*Continued*

Mental illness problem			.094
No	524 582 (61.8)	349 247 (66.6)	
Yes	324 896 (38.2)	245 217 (75.5)	
Criminal justice[d]			.036
No	448 588 (52.8)	321 013 (71.6)	
Yes	400 890 (47.2)	273 451 (68.2)	
Child of alcohol or drug user			.083
No	526 762 (62.0)	352 807 (67.0)	
Yes	322 716 (38.0)	241 657 (74.9)	
Program type			.113
Inpatient	178 043 (21.0)	134 955 (75.8)	
Outpatient	613 898 (72.3)	411 160 (67.0)	
Methadone	57 537 (6.8)	48 349 (84.0)	

Note. AI = American Indian; AN = Alaska Native; ES = effect size; GED = general equivalency diploma; H = Hawaiian native; PI = Pacific Islander.
[a]The number of tobacco-using patients was 594 464. Percentages in this column are not based on this number but are the percentage of all people in a category who use tobacco. For example, of 39 011 people aged 18–19 years in the population, 26 715 (68.5%) used tobacco.
[b]Effect size for difference in smoking prevalence by demographic group.
[c]Married or living as married.
[d]Criminal justice involvement defined as on probation or parole at time of admission.

Brown et al.[26] used OASAS data to examine tobacco use at admission and patient receipt of tobacco cessation medications before and after the tobacco policy was implemented. A 2011 review identified 42 US articles reporting smoking prevalence in addiction treatment samples.[12] By comparison, the current analysis offers population-based tobacco use prevalence for people entering addiction treatment.

Similarity between the New York (state) and NSDUH (national) tobacco use rates validates the algorithm used to estimate smoking prevalence in NSDUH data.[12,45] Comparison of the OASAS data with New York population data confirms that prevalence of tobacco use in addiction treatment populations is 3 to 4 times that in the general population.[12,45] Higher rates of tobacco-related illness can be expected in addiction treatment populations, and 2 articles have reported higher tobacco-related mortality in addiction treatment populations.[33,34]

Education,[5] employment,[38] and marital status[39] are associated with reduced tobacco use in the addiction treatment population, as they are in the general population. Also as in the general population, smoking prevalence in addiction treatment is higher among Whites and lower among Hispanics, as compared with Blacks.[5] Unexpected was the result that Asians in the OASAS system reported the lowest tobacco use prevalence by race (63.6%) but had the highest adjusted risk of tobacco use (OR = 1.39; 95% CI = 1.30, 1.48). Asians were more inclined (vs Blacks) to have characteristics associated with a lower odds of using tobacco (e.g., educated, married, employed) and less likely to have characteristics associated with higher odds of using tobacco (primary use of English language). Once those variables were controlled for in the analysis, the relationship reversed, and Asians appeared more likely to use tobacco. We discount this adjusted result as an artifact of efforts to control for these differences and because the Asian group represented a small proportion (0.5%) of the study population.

The association between English as a primary language and smoking may relate to nativity. Pérez-Stable et al.[50] identified higher levels of smoking among US-born Hispanics than among Hispanics living in the United States but born elsewhere, and a similar pattern has been reported for Asian Americans.[51] English as a primary language has been associated with higher rates of lifetime smoking among Hispanic and Asian American adolescents.[44]

The association between mental illness and higher smoking prevalence is consistent with existing literature.[11,52,53] Although tobacco use is prevalent among people in addiction treatment[12] and people with mental illness,[54] tobacco use appears to be highest when these problems co-occur. Smoking prevalence appears higher among people with a history of adverse childhood experiences, including living with a substance-abusing parent.[43,55] Often, however, the influence of having a substance-abusing parent is difficult to isolate because such studies measure the combined risk of several adverse experiences.

Primary use of opiates and admission to methadone treatment both predicted tobacco use at admission. This finding is consistent with research reporting higher smoking rates in primary heroin users[56] and among people in methadone maintenance treatment.[12,57,58] Numerous studies have observed how the culture of addiction treatment may either support smoking or undermine smoking cessation intervention.[54,59–61] We have found no literature to suggest that the culture of addiction treatment has a differential impact in methadone treatment as compared with other types of treatment, but there may be a biological interaction between nicotine and opiate drugs. The dopaminergic pathway, activated both directly and indirectly by nicotine,[62] is implicated in all drugs of abuse. Both animal and human models suggest that nicotine acts on the endogenous opioid system,[63] and this system is involved in nicotine tolerance[64] and withdrawal.[65] Activation of the dopamine pathway by nicotine offers a biological underpinning for the high prevalence of tobacco use among people in addiction treatment. That the highest smoking prevalence is found among people in methadone maintenance treatment, however, may reflect synergistic interactions between nicotine and methadone.[66]

Limitations include the use of administrative data sets, which are developed for management and reporting purposes rather than for research. The outcome measure of tobacco use changed in 2009 from tobacco use in the past week to frequency of use in the past month. This change corresponds to a small increase in the percentage of use (68.3% before the change to 70.2% after), which is

TABLE 2—Multiple Logistic Regression Analysis of Factors Associated With Tobacco Use in Addiction Treatment With Repeated Measures (n = 849 399): New York State, 2006–2012

Variable	OR[a] (95% CI)
Age at admission	0.99 (0.99, 0.99)
Female (vs male)	1.11 (1.09, 1.12)
Hispanic (vs not)	0.81 (0.79, 0.83)
Race	
Black (Ref)	1.00
AI, AN, PI, H	1.19 (1.13, 1.25)
Asian	1.34 (1.25, 1.43)
White	1.19 (1.18, 1.21)
Other	1.05 (1.03, 1.08)
Drug of choice	
Alcohol (Ref)	1.00
Marijuana and hashish	1.09 (1.07, 1.10)
Cocaine or crack	1.51 (1.49, 1.54)
Opiates	1.88 (1.85, 1.91)
Other drug	0.93 (0.89, 0.96)
Education	
College degree (Ref)	1.00
< high school or GED	2.29 (2.25, 2.33)
Vocational, high school, GED	1.92 (1.89, 1.95)
Some college	1.50 (1.47, 1.53)
Employed FT or PT (vs not)	0.81 (0.80, 0.82)
Married[b] (vs not)	0.84 (0.83, 0.85)
Mental problem admission (vs not)	1.34 (1.33, 1.36)
Criminal justice[c] (vs not)	0.96 (0.95, 0.97)
Veteran (vs not)	1.14 (1.11, 1.17)
English primary language (vs not)	1.67 (1.64, 1.70)
Child of alcohol or substance abuser (vs not)	1.30 (1.28, 1.31)
Treatment type	
Outpatient (Ref)	1.00
Inpatient	1.21 (1.19, 1.22)
Methadone	1.67 (1.63, 1.73)
Study year (of admission)	1.01 (1.011, 1.016)

Note. AI = American Indian; AN = Alaska Native; CI = confidence interval; FT = full time; GED = general equivalency diploma; H = Hawaiian native; OR = odds ratio; PI = Pacific Islander; PT = part time.
[a]All *P*s < .001.
[b]Married or living as married.
[c]Criminal justice involvement defined as on probation or parole at time of admission.

likely an artifact of the change in measurement. NSDUH data are based on self-report of past-month cigarette use (not past-month tobacco use), and Behavioral Risk Factor Surveillance System data are based on the item "Do you now smoke cigarettes every day, some days, or not at all?" Comparisons between these data sets involve estimates using different measures of tobacco use. OASAS data rely on patient self-report of tobacco use status. We can think of no reason for overreporting tobacco use, but underreporting could occur as patients learn that state policy restricts tobacco use on program grounds. Use of the same program inclusion criteria over time resulted in a decreasing number of programs, from 1116 in the first year to 999 in the last year. OASAS has found an annual 2% to 3% reduction in number of all treatment programs in recent years. However, N-SSATS data show an annual fluctuation of ±1% in the number of programs eligible for the survey from 2008 to 2011.[67–70] The small but downward trend in New York programs may reflect a regional trend of programs closing or merging, owing to changes in funding or health care delivery. Notwithstanding limitations, the OASAS data set is the largest available with which to study tobacco use in addiction treatment.

With the possible exceptions of patients with schizophrenia[71] and criminal justice populations,[72,73] tobacco use prevalence in the range of 69% to 70% is found in no other subpopulation in the United States. Any other health risk factor at this level in any other population would be regarded as epidemic and would mobilize substantial intervention. We recommend that tobacco control agencies prioritize addiction treatment and partner at the state level with both mental health and addiction treatment systems[74]; that state addiction treatment systems implement tobacco-free grounds policies following the examples of New York[27] and Oregon[23] and as recommended by others[75]; that the Center for Substance Abuse Treatment initiate a large-scale capacity expansion initiative to address tobacco in addiction treatment systems, as it has done in numerous other areas; that the National Institute on Drug Abuse request proposals, with funding set aside, to develop and test effective policy and person-level tobacco intervention strategies in addiction treatment and to speed implementation of effective approaches; and that the Food and Drug Administration fully consider the health impacts of tobacco use on addiction treatment and other vulnerable populations in the unfolding course of tobacco regulation. ■

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Contributors

J. Guydish conceptualized the study and led the study team. J. Yu was an active partner in the development, analyses, and reporting of this article. T. Le supported data interpretation. A. Pagano drafted sections of the article. K. Delucchi provided statistical guidance and expertise.

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Note. The findings and opinions expressed in this publication are those of the authors and do not necessarily represent official views of the National Institutes of Health, the FDA, or OASAS.

Human Participant Protection

This study was approved by the University of California, San Francisco Committee on Human Research.

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