

Under-Use of Smoking-Cessation Treatments

Results from the National Health Interview Survey, 2000

Vilma E. Cokkinides, PhD, Elizabeth Ward, PhD, Ahmedin Jemal, PhD, Michael J. Thun, MD, MS

Objective: To describe the use of treatment for tobacco dependence in relation to insurance status and advice from a healthcare provider in a population-based national sample interviewed in 2000.

Methods: Analyses are based on 3996 adult smokers who participated in the National Health Interview Survey in 2000, and who provided information on tobacco-cessation treatments used at their most recent quit attempt occurring in the last year. Age-adjusted and weighted categorical analysis was used to compute prevalence estimates of self-reported treatments (pharmacotherapy and behavioral counseling) for tobacco dependence. Multivariate logistic regression analyses were used to examine factors associated with use of treatments.

Results: Overall, 22.4% of smokers who tried to quit in the previous year used one or more types of cessation aid compared to 15% in 1986. Treatment usually involved pharmacotherapy (21.7%) rather than behavioral counseling (1.3%). Smokers attempting to quit were more likely to use cessation aids if covered by private (25.4%) or military (25.0%) insurance than by Medicare (17.8%), Medicaid (15.5%), or no insurance (13.2%). In a multivariate analysis of factors related to use of cessation aids, advice from a healthcare provider to quit smoking and the number of cigarettes smoked per day were significant predictors of treatment use, regardless of insurance status.

Conclusions: Cessation aids are under-used across insurance categories. Advice by a healthcare provider to quit is associated with increased use of effective therapies for tobacco dependence. Systematic efforts are needed to eliminate barriers to appropriate treatment.
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Introduction

Despite significant progress in reducing smoking prevalence and per capita cigarette consumption in the United States, the percentage of smokers who succeed in any given quit attempt remains low.^{1,2} Treatment using a combination of behavioral counseling and pharmacotherapy can increase long-term cessation rates from $\leq 11\%$ to between 15% and 25%.³ Current treatment guidelines recommend that every patient who uses tobacco should be counseled by a healthcare provider to quit smoking and should be offered tobacco dependence treatments in the absence of contraindications.³ Despite the demonstrated efficacy and safety of such treatments,⁴ and their increased availability in the 1990s,^{2,5,6} the prevalence of treatment for tobacco dependence remains low, ranging from 8.5% to 21% in four recent state-based surveys.^{7–11}

The last national prevalence estimate of the use of cessation aids at the last quit attempt (15%) were based

on data collected in 1986.¹² This report provides national estimates of treatments for smoking cessation used at the last quit attempt among smokers, using data collected in 2000 in the National Health Interview Survey (NHIS).

Subjects and Methods

Data Source

Data were used from the 2000 NHIS, Cancer Control Supplement (CCM), to describe the prevalence of treatment for smoking cessation among smokers who attempted to stop for at least 1 day. The NHIS is a cross-sectional, annual, household interview survey of the civilian noninstitutionalized household population of the United States, conducted by the National Center for Health Statistics. Methodologic details of NHIS 2000 can be found elsewhere.^{13,14} A total of 32,374 individuals aged ≥ 18 were surveyed (adult core sample) yielding a response rate of 72%. For current smokers, the CCM included an expanded section about smoking cessation inquiring about healthcare provider advice to quit and use of cessation aids at the last serious attempt to quit smoking.¹⁵

Analytic Sample

Among the 32,374 adult respondents, 4091 were smokers (ever smoked ≥ 100 cigarettes in their lifetime) who had tried

From Epidemiology and Surveillance Research, American Cancer Society, Atlanta, Georgia

Address correspondence and reprint requests to: Vilma Cokkinides, PhD, Epidemiology and Surveillance Research, American Cancer Society, 1599 Clifton Road, NE, Atlanta GA 30329-4251. E-mail: vcokkini@cancer.org.

Table 1. Prevalence of use of cessation aids^a and provider advice to quit^b by health insurance status

Characteristic	Healthcare insurance type ^c					
	Total % (95% CI) (n=3996)	Private % (95% CI) (n=2326)	Military % (95% CI) (n=88)	Medicaid % (95% CI) (n=375)	Medicare % (95% CI) (n=301)	Uninsured % (95% CI) (n=906)
Use of cessation methods^a						
Used any aids	22.4 (20.8–24.0)	25.4 (20.7–30.1)	25.0 (15.4–34.6)	15.5 (11.2–19.8)	17.8 (12.9–22.7)	13.2 (10.5–15.9)
Used any pharmacotherapy ^d aids	21.7 (20.1–23.3)	23.4 (19.3–27.5)	24.2 (14.5–34.6)	14.9 (10.6–19.2)	17.5 (12.6–22.4)	12.5 (9.8–15.2)
Used any behavioral counseling ^e	1.3 (0.9–1.7)	2.6 (–0.1–5.3)	1.4 (–1.1–3.9)	0.9 (–0.1–1.9)	0.9 (–0.5–2.3)	0.9 (0.3–1.5)
Provider advice^b	61.8 (59.6–64.0)	59.1 (54.2–64.0)	72.0 (60.7–83.1)	58.8 (50.8–66.8)	66.8 (60.1–73.5)	58.1 (50.1–66.1)

^aPrevalence of cessation aids used in smokers who attempted to quit for ≥ 1 day within the last year.

^bPrevalence of provider advice to quit using tobacco products among smokers who attempted to quit during the last year, and had seen a healthcare provider in the past year.

^cWeighted prevalence percent was age adjusted for the 2000 Census population.

^dPharmacotherapy methods include nicotine replacement therapy (gum, patch, inhaler, spray) or antidepressants (Bupropion, Zyban[®], or Wellbutrin[®]).

^eBehavioral counseling therapies include booklet, counseling, or smoking clinic.

CI, confidence interval.

to quit for ≥ 1 day during the last year. Of these, 890 no longer smoked at the time of the survey (former smokers) and 3201 had relapsed (current smokers). All provided information on health insurance status. The analyses excluded those with missing information on use of cessation aids at the last quit attempt ($n = 95$, 2.3%).

Measures

Cessation aids used. Current and former smokers who had attempted to quit were asked about the use of nicotine replacement pharmacotherapy (patch, gum, nasal spray, or inhaler), antidepressant therapy (Bupropion, Zyban[®], or Wellbutrin[®]), and behavioral counseling (one-on-one counseling, stop-smoking clinic or program, or self-help cessation guide book or pamphlet) during the last quit attempt of ≥ 1 day during the past year.

Healthcare provider advice to quit smoking. Among the smokers in the analytic sample, 3010 had seen a healthcare provider during the past year. These were asked whether a healthcare provider had advised them to quit smoking or stop using other forms of tobacco during the last year.

Health insurance. Health insurance status categories were private (including health maintenance organization or preferred provider organization), military (including Veterans Administration, CHAMPUS, or Tricare), Medicaid, Medicare, and uninsured.

Statistical analysis. The NHIS has a complex survey design involving stratification, clustering, and multistage sampling, which required use of weights for appropriate statistical analysis.¹⁴ Weighted percentages were age adjusted using the 2000 Census standard population. SUDAAN, version 8.0 (Research Triangle Institute, Research Triangle NC, 1997) was used to calculate appropriate standard errors and 95% confidence intervals (CIs), while taking into account the sample design of the NHIS survey. Multivariate logistic regression analyses were conducted to determine whether predictors of interest (e.g., healthcare provider advice to quit

smoking, number of cigarettes smoked per day, and number of lifetime previous quit attempts) were independently associated with use of cessation aids among smokers trying to quit during the last year. Statistical significance testing employed the Wald test statistic with degrees of freedom adjusted to reflect survey design. Sample size considerations limited the multivariate analyses to all current smokers combined and to those with private health insurance, Medicaid, and no insurance.

Results

Overall, only 22.4% of smokers in the survey who tried to quit in the last year had used any type of cessation aids. The use of any cessation aids was low across all categories of health insurance but was lowest for the uninsured (13.2%) and for smokers with Medicaid (15.5%) and Medicare (17.8%) insurance. Use of pharmacotherapy was more common (21.7%) than use of behavioral counseling (1.3%) (Table 1).

Among 3010 current smokers and former smokers who tried to quit and had seen a healthcare professional in the past year, 61.8% received advice from a physician to quit smoking; the proportion slightly varied from 58.1% among those with no insurance to 72% among those with military insurance (Table 1).

The multivariate analyses found strong relationships between use of cessation aids and receipt of advice to quit by a healthcare provider in the past year. Use of cessation aids was also strongly related to the number of cigarettes smoked per day (Table 2). The association between provider advice to quit smoking and use of cessation aids was stronger for people with Medicaid insurance and the uninsured than for those with private health insurance.

Table 2. Factors associated with use of cessation aids at last quitting,^a stratified by health insurance type

Factors	Total ^b		Private		Medicaid		Uninsured	
	% (95% CI)	Adjusted OR ^c (95% CI)	% (95% CI)	Adjusted OR ^c (95% CI)	% (95% CI)	Adjusted OR ^d (95% CI)	% (95% CI)	Adjusted OR ^c (95% CI)
Advised to quit smoking								
Yes	31 (28–34)	1.90 (1.4–2.5)	36 (29–42)	1.77 (1.3–2.5)	21 (15–26)	7.13 (2.4–21.0)	22 (16–27)	2.79 (1.4–5.5)
No	16 (14–19)	1.00	16 (13–19)	1.00	7 (2–12)	1.00	8 (5–12)	1.00
Cigarettes per day								
≥21	35 (29–41)	3.83 (2.5–5.7)	40 (32–48)	3.78 (2.7–6.1)	34 (19–48)	29.28 (5.6–98.6)	27 (24–30)	7.21 (2.2–23.5)
16–20	29 (26–32)	2.86 (2.0–4.1)	39 (30–50)	2.55 (1.6–4.0)	23 (13–32)	16.58 (4.5–60.5)	18 (11–24)	5.50 (1.7–18.2)
8–15	22 (18–25)	2.34 (1.6–3.3)	27 (22–31)	2.24 (1.5–3.4)	15 (8–23)	6.51 (1.7–24.1)	15 (9–21)	3.47 (1.0–11.7)
1–7	13 (10–16)	1.00	19 (11–26)	1.00	2 (0–3)	1.00	5 (–0.6–16)	1.00
Quit attempts in lifetime								
≥5	26 (23–29)	1.27 (0.9–1.7)	26 (20–32)	1.19 (0.8–1.8)	21 (13–30)	1.58 (0.6–4.1)	18 (12–23)	1.16 (0.5–2.6)
2–4 times	29 (25–33)	1.33 (0.9–1.9)	44 (40–48)	1.33 (0.7–2.1)	11 (4–18)	0.52 (0.2–1.7)	20 (12–28)	1.00 (0.4–2.5)
1–2 times	18 (15–20)	1.00	30 (21–41)	1.00	16 (8–23)	1.00	11 (6–15)	1.00

^aQuit attempt for ≥1 day within the last year in current smokers.

^bn=3123 current smokers; excludes 873 former smokers.

^cMultivariate models adjusted for age (18–34, 35–44, 45–64, ≥65 years), gender, race/ethnicity (white, black, and other), education (less than high school, high school graduate, college level or greater), family household income (<\$20,000 per year, ≥\$20,000), and usual source of care (yes vs no).

^dMultivariate models adjusted for age (18–34, 35–44, 45–64, ≥65 years), gender, race/ethnicity (white, black, and other), education (less than high school, high school graduate, college level or greater), and usual source of care (yes vs no).

CI, confidence interval.

Discussion

This report shows that based on the national 2000 NHIS survey, the reported use of recommended treatments for smoking cessation was low across insurance categories. Less than 18% of smokers with Medicare, Medicaid, or no health insurance, and only 25% of those with private or military insurance used appropriate treatment. The low overall prevalence observed nationally is consistent with previous state-based reports.^{8–11} The reported use of cessation aids by smokers trying to quit was only seven points higher in the 2000 NHIS survey than in the 1986 national study¹² (22% vs 15%, respectively), despite increases in coverage for tobacco dependence by managed care organizations and Medicaid plans^{16–20} and increased availability of over-the-counter nicotine replacement treatments.²¹ Factors that may explain the variations in utilization between health insurance categories include variation in coverage, variations in physician and patient awareness of coverage,^{22,23} and ability and willingness to pay for treatments not covered (or only partially reimbursed) by insurance plans.

Although recommendations for smoking-cessation therapies were not specifically assessed in the 2000 NHIS-CCM, advice to quit was an important predictor of cessation aids use, particularly in the Medicaid and uninsured group. Only 61.8% of smokers reported that their physician had advised them to quit, despite strong evidence of the effectiveness of this intervention. Several barriers to healthcare providers' compliance with recommendations regarding smoking-cessation counseling have been identified.^{24,25} Healthcare providers' compliance may be enhanced by clinic-based strategies,

such as office-based reminder systems, and incorporation of performance accountability and quality measures in evaluation systems, such as HEDIS 3.0.^{4,26,27}

The limitations of this study include the reliance on self-reported information. Other important variables were unavailable in the 2000 NHIS-CCM, such as the duration of abstinence or whether tobacco-dependence treatments are covered by an individual's health insurance plan. Also unavailable were data about behavioral counseling via telephones (i.e., quit-line services for cessation); thus, this lack of information may have led to underestimation of behavioral counseling.

Encouraging smokers to quit is one of the most effective measures available to improve health and longevity in the population.² Effective treatments for tobacco dependence are still widely underused. Systematic efforts are needed to eliminate the barriers that prevent the delivery of appropriate treatment,²⁸ and to incorporate such treatment into standard medical practice.

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What This Study Adds . . .

Tobacco-dependence treatment can improve long-term cessation rates.

A national survey in 1986 showed low utilization of tobacco-dependence treatments (15%) among smokers trying to quit.

Data were used from the 2000 National Health Interview Survey to assess current patterns of cessation treatment use.

It was found that use of cessation treatments remains low (22.4%), varies by insurance type, and is associated with advice to quit by a health-care provider.

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