

# SMOKING CESSATION IN NEW YORK STATE

NEW YORK STATE DEPARTMENT  
OF HEALTH  
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# Smoking Cessation in New York State

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Prepared for

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## 1. Introduction

### 1.1 Understanding Smoking Cessation

Although smoking cessation has been thoroughly studied, the dynamics of the smoking cessation process are still not completely understood. Some believe that smokers cycle through a sequence of stages in trying to quit, whereas others hypothesize that smokers move along a continuum of “readiness to quit.” What is clear is that smoking cessation is a dynamic process, and smokers generally make several quit attempts before succeeding.

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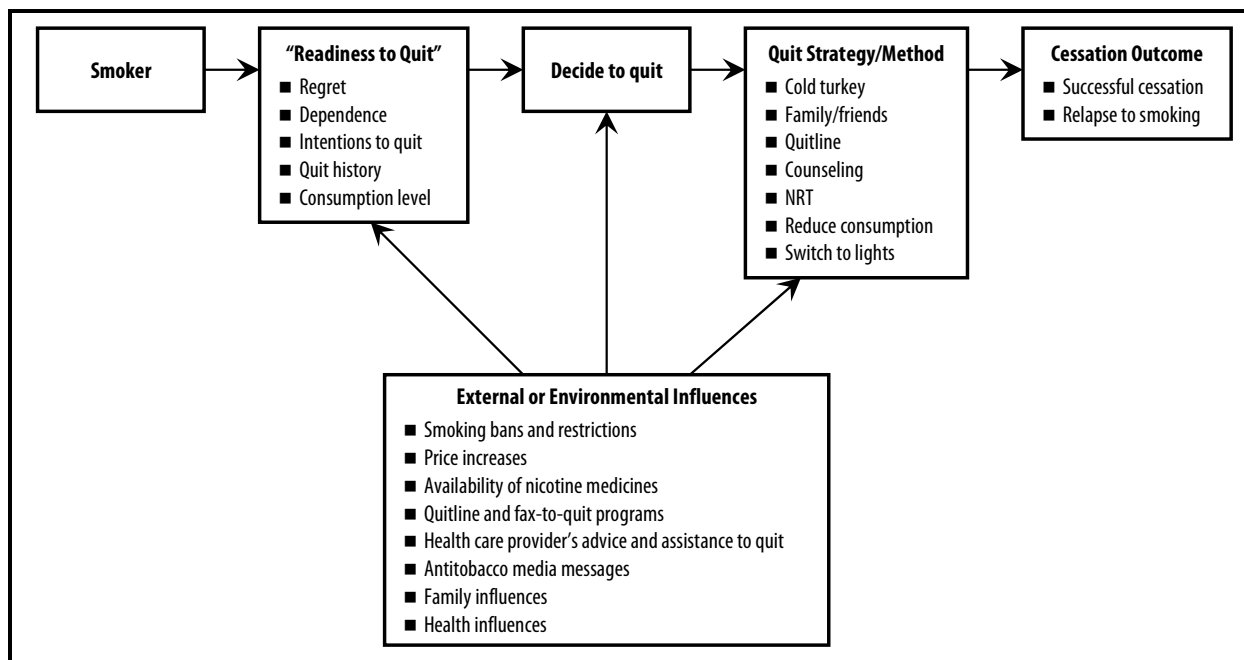
Smoking cessation is a dynamic process, and smokers generally make several quit attempts before succeeding.

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Myriad influences can promote or impede smoking and smoking cessation, including personal factors, such as the smoker’s level of nicotine dependence, health, and social support for quitting; environmental influences, such as restrictions on smoking in public places, the price of cigarettes, and the extent of tobacco advertising and promotion in the area where the smoker lives; and tobacco control efforts, such as antismoking campaigns, telephone quitlines, and reduced price smoking cessation aids. Once a smoker decides to quit, he or she then chooses a cessation strategy. Some smokers decide to quit all at once without any assistance from others, whereas other smokers gradually reduce the number of cigarettes they smoke. Others may seek help from friends, family, counseling, nicotine replacement therapy (NRT), or other sources or use a combination of strategies. Exhibit 1-1 presents a simple conceptual model of the cessation process, which also illustrates the potential influence of tobacco control efforts (including activities of the New York Tobacco Control Program [NYTCP]).

### 1.2 Efforts to Encourage Smoking Cessation

Implementation of effective strategies to promote cessation from tobacco use is a key investment for a tobacco control program to achieve near-term savings in the cost of medical care and reductions in the number of tobacco-related illnesses and deaths (CDC, 1999; USDHHS, 2000; Hopkins et al., 2001). New York had an estimated 2.6 million smokers in 2004. Each year in New York State, 25,000 residents die as a result of cigarette use, losing an average of 14 years of life, and 570,000 residents suffer from serious tobacco-related diseases (CDC, 2002). Each year, the state and its residents spend \$6.4 billion to treat the diseases caused by tobacco use (CDC, 2002). Stopping smoking now greatly reduces the likelihood that a smoker will develop a smoking-related illness or die prematurely as a result of tobacco use.

**Exhibit 1-1. Simple Conceptual Model of the Smoking Cessation Process**

To promote cessation, NYTCP has implemented a number of activities based on strategies recommended by the Task Force on Community Preventive Services ([www.thecommunityguide.org/tobacco](http://www.thecommunityguide.org/tobacco)) as effective in preventing and reducing tobacco use. These strategies include the following:

- multicomponent telephone support systems (quitlines)
- provider reminders alone or with provider education (e.g., Cessation Center programs)
- multicomponent mass media campaigns with interventions
- reducing patient costs for treatment (e.g., NRT starter kits, Medicaid coverage)
- increasing the unit price of tobacco products (e.g., tax increases)

### 1.2.1 *New York State Smokers' Quitline*

Since its inception in 2000, the New York State Smokers' Quitline has received more than 350,000 calls. Recent enhancements to the Quitline include offering callers a 2-week "starter kit" of nicotine patches, gum, or lozenges (beginning in December 2004); making scheduled callbacks to callers who make a quit attempt; and establishing the Fax-to-Quit program that allows health care providers to directly refer patients to the Quitline.

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Strong scientific evidence exists that telephone cessation support is effective in increasing tobacco use cessation when implemented with other interventions.

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Several randomized controlled trials have found telephone quitlines to be effective (e.g., McAlister et al., 2004; Rabinus et al., 2004; Zhu et al., 2002). The *Community Guide* review concludes that “strong scientific evidence exists that telephone cessation support is effective in increasing tobacco use cessation when implemented with other interventions (e.g., other educational approaches, clinical therapies, or a combination) in both clinical and community settings. The minimum intervention with sufficient evidence of effectiveness identified in this evaluation was proactive telephone support combined with patient cessation materials” (Hopkins et al., 2001, p. 42).

In addition, several studies conducted in New York have found that distribution of free NRT can increase calls to a quitline and improve quit rates (Bauer et al., 2006; Cummings et al., 2006, in press). In a 12-month follow-up of participants in a Free Nicotine Patch Giveaway Program, Cummings et al. (in press) found that providing free nicotine patches via the telephone quitline induced smokers to make a quit attempt and stop smoking over and above quitline support alone. These studies concluded that the offer of free NRT appears to be a cost-effective method to induce large numbers of smokers to call the quitline and make a quit attempt.

### **1.2.2 Health Care Providers and Cessation Centers**

About 70% of smokers see a physician or other health care provider in any given year. This encounter provides an opportunity for intervention. The 2000 “Clinical Practice Guideline for Treating Tobacco Use and Dependence” outlines a five-step intervention that clinicians can use to diagnose and treat tobacco use and dependence:

- ask (identify and document tobacco use status for every patient at every visit),
- advise (urge every tobacco user to quit),
- assess (determine whether the tobacco user is willing to make a quit attempt),
- assist (for patients willing to make a quit attempt, use counseling and pharmacotherapy to help him or her quit), and
- arrange (schedule follow-up contact for those willing to make a quit attempt).

This intervention, as described in the federal guideline, has been shown to increase quit attempts and successful quitting. The *Community Guide* review concluded that there was strong scientific evidence supporting the effectiveness of multicomponent health care system interventions that include at least a provider reminder system in increasing both provider

delivery of advice to quit and patient tobacco use cessation (Hopkins et al., 2001). To encourage the implementation and use of screening and reminder systems at health care provider organizations, NYTCP established 19 Cessation Centers throughout the state.

### **1.2.3 Mass Media Messages Promoting Cessation**

NYTCP uses television, radio, print, and transit advertisements from the Centers for Disease Control and Prevention's (CDC's) Media Campaign Resource Center or developed in-house as part of a media campaign designed to motivate and help current smokers to quit. The New York State Smokers' Quitline telephone number has also been consistently included in most of the advertisements. The program's media plans have included several types of advertisements that use intense images to depict the serious health consequences of smoking in addition to severe emotional consequences resulting from family grief. The *Community Guide* review concluded that strong scientific evidence exists supporting the effectiveness of mass media campaigns combined with other interventions in increasing tobacco use cessation and reducing consumption of tobacco products (Hopkins et al., 2001).

### **1.2.4 Reducing the Cost of Cessation Treatment**

In New York, the Medicaid program began providing coverage for prescription tobacco dependence treatment medications in October 1999 and for over-the-counter NRT in February 2000. Data from the New York State Office of Medicaid Management show that expenditures and claims related to coverage of NRT and Zyban increased substantially from implementation in 1999 to 2005. Expenditures rose from approximately \$650,000 in fiscal year 1999/2000 (although coverage only began in October) to approximately \$10.5 million in fiscal year 2004/2005. Claims increased from approximately 7,900 to more than 128,000 over the same period.

### **1.2.5 Increasing the Price of Cigarettes**

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Extensive evidence shows that increasing the price of a pack of cigarettes promotes cessation and reduces cigarette consumption.

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Increasing the excise tax increases the price smokers pay for a pack of cigarettes. Extensive evidence shows that increasing the price of a pack of cigarettes promotes cessation and reduces cigarette consumption (Hopkins et al., 2001). In New York, several recent large tax increases, both statewide and in New York City, have significantly increased the price of tobacco. However, many smokers avoid paying higher prices for cigarettes by purchasing cigarettes from untaxed sources, such as Indian reservations and the Internet. Additional information, including analyses



addressing the impact of taxes and tax avoidance, can be found in the Cigarette Purchasing Patterns Report (Davis et al., 2006).

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Workplace smoking bans have been shown to facilitate smoking cessation.

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### **1.2.6 Eliminating Secondhand Smoke Exposure**

One of the goals of NYTCP is to eliminate exposure to secondhand smoke. Efforts in this area are focused on reducing exposure to secondhand smoke in public places and workplaces and in private homes and cars. Strategies have included enacting local and statewide laws banning smoking in indoor public places and workplaces and at parks, beaches, and recreation areas; educating community members on the dangers of exposure to secondhand smoke; and motivating people to make their homes and cars smoke-free. In particular, workplace smoking bans have been shown to facilitate smoking cessation, with smokers who work in smoke-free workplaces being more likely to succeed in their attempt to quit smoking than those who do not (Farkas et al., 1999; Bauer et al., 2005). Although direct evidence examining the effectiveness of home smoking bans in promoting cessation is limited, at least one study provides evidence suggesting that home smoking restrictions are associated with making progress in quitting (Pierce, Gilpin, and Farkas, 1998).

## **1.3 Measures of Smoking Cessation**

To examine smoking cessation in New York, we identified several cessation outcomes that describe different phases of the cessation process, including the following:

- intentions to quit in the next 30 days, among current smokers
- setting a quit date, among current smokers
- previous quit attempts (within the past year), by current smokers
- successful cessation, defined as the percentage of adults who were smoking 1 year ago who made a quit attempt in the past year and have not smoked for the past 6 months

Intention to quit in the next 30 days, rather than in the next 60 days, is used as the indicator because quit intentions are unstable over time (Hughes et al., 2005). Setting a quit date is also used as an indicator of intentions or readiness to quit. There is no precise cut-point for the duration of a quit attempt such that, if a former smoker makes it past that point, cessation can be considered successful. Evidence suggests that 75% to 80% of those who quit relapse within 6 months, but relapse continues to occur even for those who make it beyond 6 months without smoking (USDHHS, 1990). One study found that relapse can continue to occur for as many as one-third of former smokers even after a year of abstinence

(USDHHS, 1990). The Surgeon General's Report on smoking cessation suggests that, as a general guideline for interpreting cessation outcomes, "the longer the duration of continuous abstinence, the greater the probability those individuals will remain former smokers" (USDHHS, 1990, p. 24).

#### **1.4 Structure of Report**

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The purpose of this report is to describe smokers' efforts to quit and factors that promote or impede these efforts.

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The purpose of this report is to describe smokers' efforts to quit and factors that promote or impede these efforts. The report is based on data from the New York Adult Tobacco Survey (ATS) (see Appendix A for details on the survey). Subsequent sections of the report describe who New York smokers are and provide findings on smokers' efforts to quit (Section 2) and external pressures to quit, including mass media messages, health care provider assistance, cigarette price, and smoking bans (Section 3). Section 4 discusses resources and cessation support available for smokers and categorizes these into evidence-based, support-based, and nonevidence-based strategies. Section 5 identifies and discusses correlates and predictors of quitting, and Section 6 discusses the results.

## 2. New York Smokers and Their Efforts to Quit

### 2.1 Who Are New York Smokers?

**A**mong New Yorkers, smoking is most prevalent among young adults (26%) and least prevalent among individuals aged 65 and older (8%). Male New Yorkers (20%) smoke at a higher rate than female New Yorkers (17%). The percentages of white, black, and Hispanic New Yorkers who smoke are essentially equivalent, and smoking is most prevalent among individuals with incomes less than \$30,000. Likewise, individuals with no high school degree are more likely to smoke than individuals with more formal education. Finally, smoking rates are highest among individuals on Medicaid and among those with no health insurance (Exhibit 2-1).

Over 40% of New York smokers consume more than 20 cigarettes per day. Another 40% smoke between 5 and 20 cigarettes per day, and 20% smoke less than 5 cigarettes per day (Exhibit 2-2).

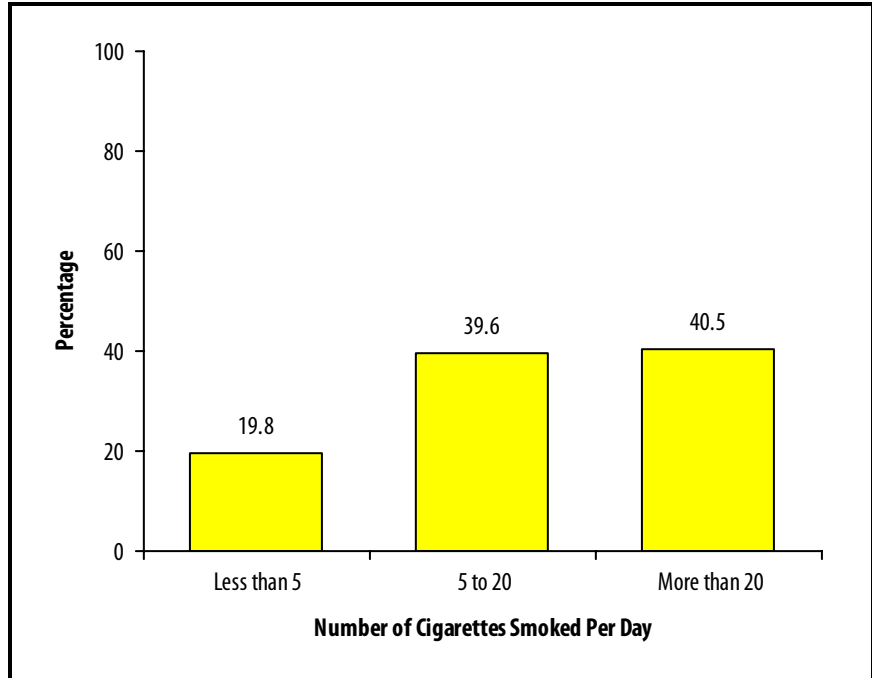
### 2.2 Efforts to Quit among New York Current and Former Smokers

Overall, 25% of all New York current smokers reported that they were planning to stop smoking in the next 30 days, yet only 7% of all current smokers reported setting a quit date (Exhibit 2-3). However, among current smokers who indicated that they were planning to quit smoking in the next 30 days, more than 27% had set a quit date. Nearly half of current smokers (47%) made at least one quit attempt lasting 24 hours or longer in the past 12 months. A smaller percentage of current smokers who made a quit attempt in the past 12 months and former smokers who quit in the past 12 months (20%) were able to sustain their current quit attempt for at least 6 months.

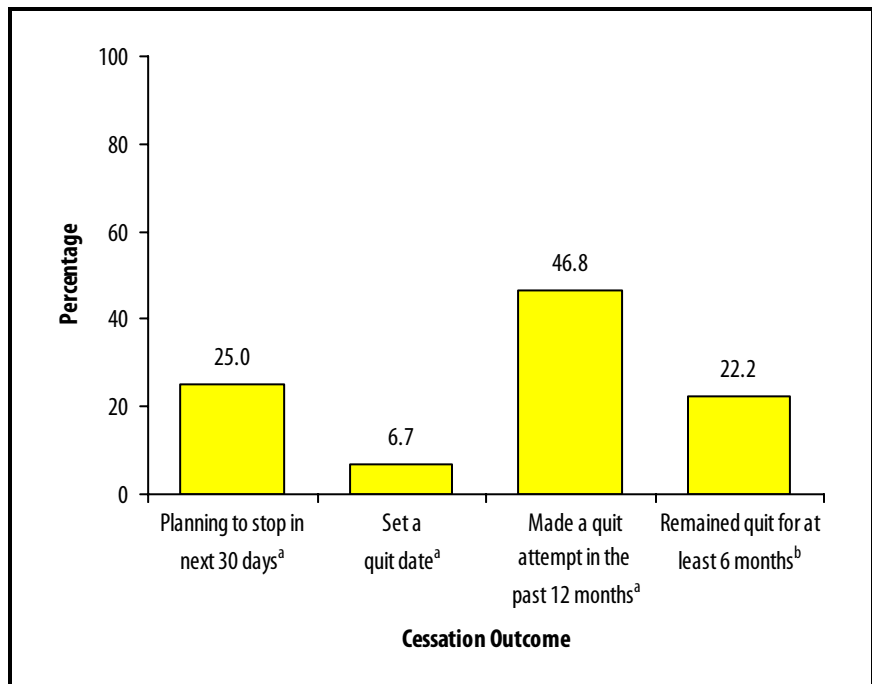
**Exhibit 2-1. Demographic Characteristics, ATS Q3 2003–Q2 2005**

Category	Prevalence of Smoking (%)	Estimated Number of Smokers
<b>Age</b>		
18–24	26.2	463,568
25–39	20.7	834,210
40–64	18.2	1,077,936
65+	8.2	195,706
<b>Race/Ethnicity</b>		
White (non-Hispanic)	18.5	1,657,458
Black (non-Hispanic)	18.4	370,541
Hispanic	18.3	374,403
Other	13.2	142,874
<b>Gender</b>		
Male	19.7	1,460,305
Female	16.6	1,108,136
<b>Income</b>		
Less than \$30,000	24.5	860,548
\$30,000–\$59,999	19.5	723,425
\$60,000–\$89,999	15.9	341,759
\$90,000 and more	11.2	266,662
Missing	15.1	352,695
<b>Education</b>		
Less than high school	28.5	343,581
High school	24.3	914,837
Some college	20.5	693,893
College degree or more	10.4	597,660
<b>Insurance</b>		
Private	15.2	1,341,412
Medicare	11.1	220,443
Medicaid	31.5	332,263
None	28.1	622,492
<b>Overall</b>	<b>18.1</b>	<b>2,545,218</b>

**Exhibit 2-2. Cigarette Consumption among Current Smokers, ATS Q3 2003–Q2 2005**



**Exhibit 2-3. Cessation Outcomes, ATS Q3 2003–Q2 2005**



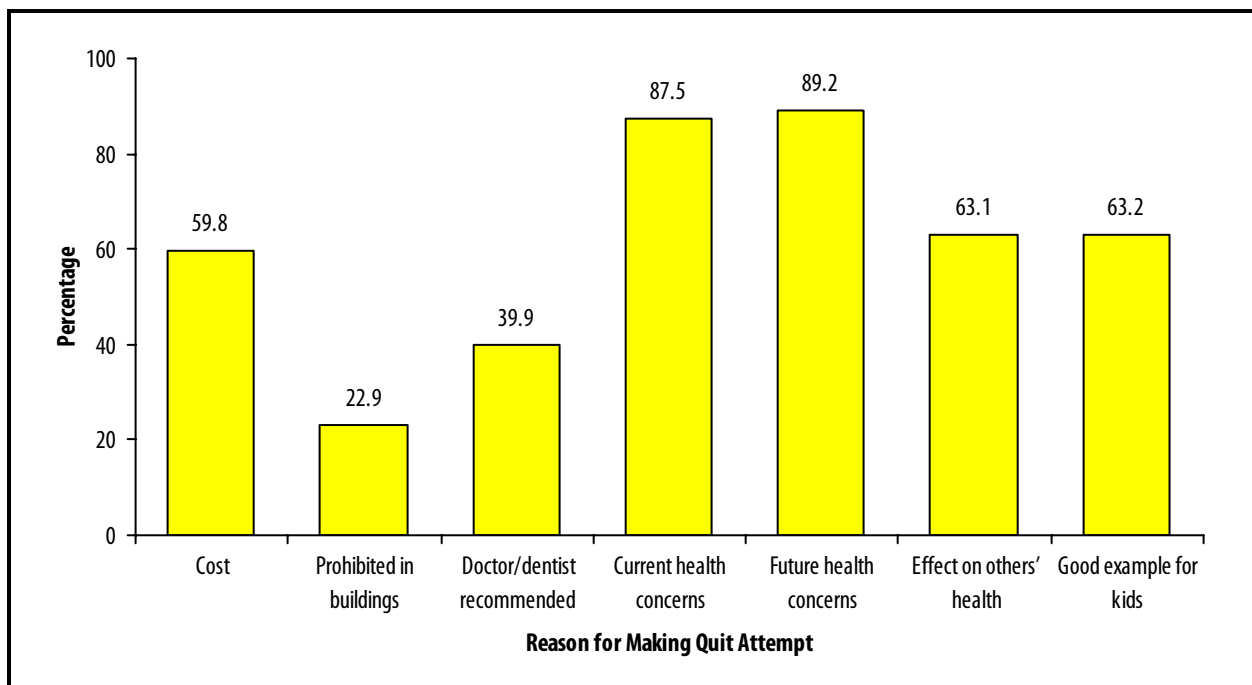
<sup>a</sup>Among current smokers.

<sup>b</sup>Among all persons who were current smokers 1 year ago and made a quit attempt in the past year, regardless of current smoking status.

### 2.3 Reasons New York Smokers Make a Quit Attempt

The majority of New York smokers who reported making a quit attempt in the past 12 months cited concerns about their health (from a list of concerns) as their primary reason for trying to quit. Specifically, 89% indicated that future health concerns prompted their quit attempt, while 88% indicated that current health problems prompted their quit attempt (Exhibit 2-4). Nearly three-fourths (73%) of smokers who made a quit attempt in the past 12 months thought that their smoking had already impacted their health, compared with only 61% of smokers who did not make a quit attempt (not presented). Other reasons for making a quit attempt included cost (60%), health professional recommendation (40%), setting a good example for children (63%), and smoking being prohibited in many buildings (23%).

**Exhibit 2-4. Reasons for Making a Quit Attempt among New York Current Smokers with a Quit Attempt in the Past 12 Months, ATS Q3 2003–Q2 2005**

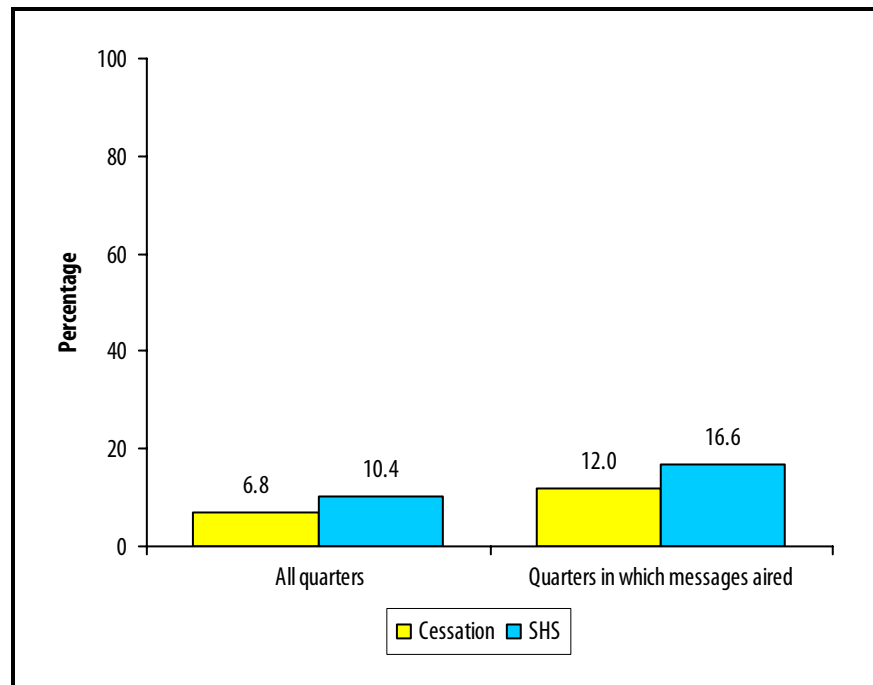


### 3. External Pressures to Quit

#### 3.1 Mass Media Campaigns

Over the time period captured by the ATS (Q3 2003–Q2 2005), relatively few smokers were aware of cessation (6.8%) and secondhand smoke (10.4%) media messages sponsored by NYTCP (Exhibit 3-1). However, recent reports indicate that awareness of state-sponsored messages has increased over time (RTI, 2005). Further, when examining only the specific quarters where media messages sponsored by NYTCP were aired, confirmed awareness of both types of messages increased.

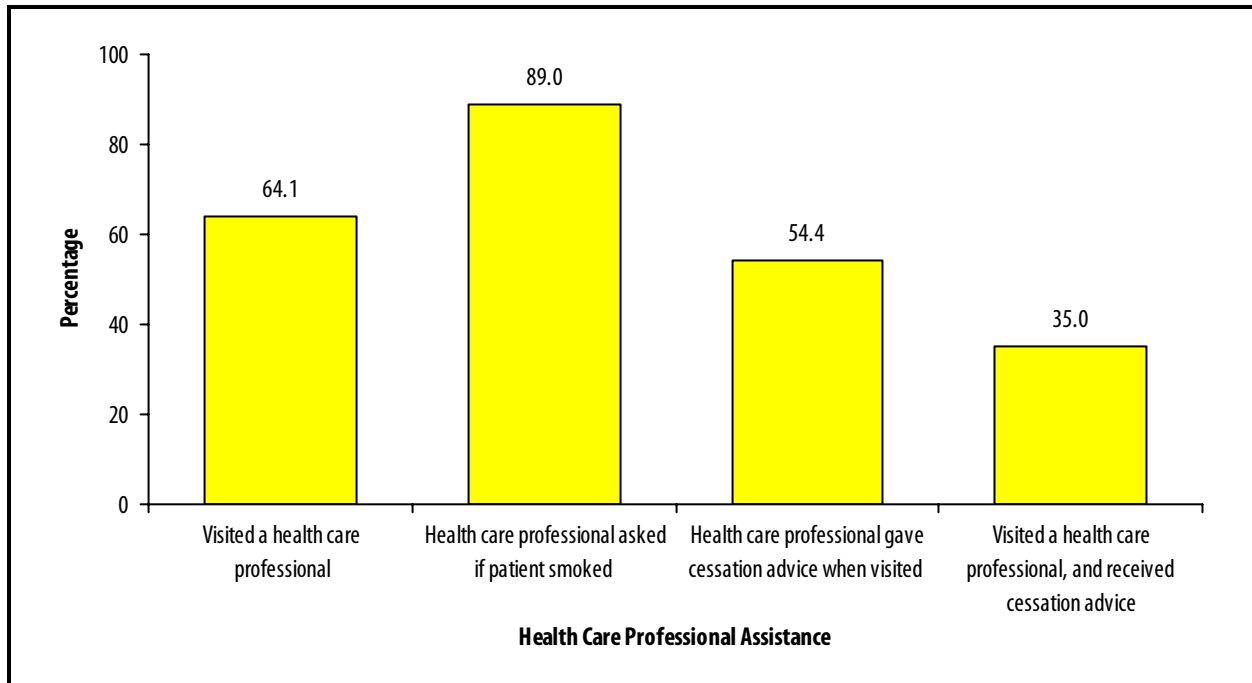
**Exhibit 3-1. Confirmed Awareness of State-Sponsored Mass Media Messages, ATS Q3 2003–Q2 2005**



#### 3.2 Health Care Providers

Health care providers can only intervene with smokers whom they see. In all, 64%, or 1.63 million, New York State smokers reported visiting a health care professional in the past year (Exhibit 3-2). Among these, 89% (1.45 million) reported being asked about their smoking status, and 79% (1.15 million) of those who were asked were advised to quit. Because 64% of smokers went to a health care provider, this suggests that 51% of all smokers were advised to quit by a health care provider.

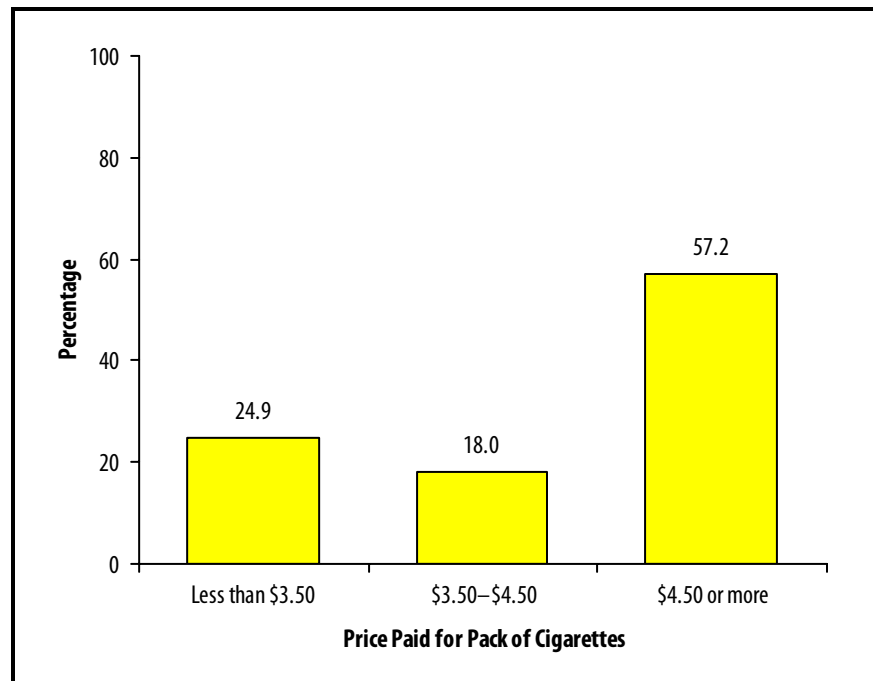
**Exhibit 3-2. Health Care Professional Assistance among Smokers, ATS Q3 2003–Q2 2005**



### 3.3 Price Paid for Cigarettes

Currently, most New York smokers pay \$4.50 or more (57%) for a pack of cigarettes. Twenty-five percent of smokers usually pay less than \$3.50 per pack, while 18% pay between \$3.50 and \$4.50 per pack (Exhibit 3-3).

**Exhibit 3-3. Price Paid for a Pack of Cigarettes among Current Smokers, ATS Q3 2003–Q2 2005**

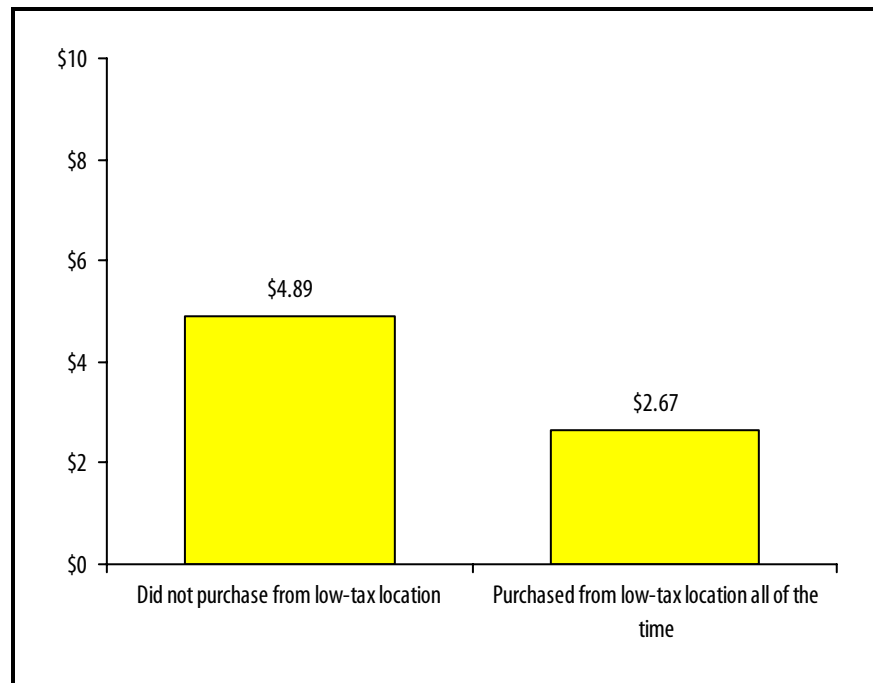




Despite the recent increases in state cigarette excise taxes, 19% of smokers reported purchasing cigarettes “all the time” from tax-free sources, such as Indian reservations.

Despite the recent increases in state cigarette excise taxes, 19% of smokers reported purchasing cigarettes “all the time” from tax-free sources, such as Indian reservations (not presented). The price that smokers pay for cigarettes influences smoking cessation and daily cigarette consumption; therefore, the availability of low- or no-tax cigarettes undermines the impact of price increases (e.g., through tax increases) and the corresponding impact on overall smoking levels. Exhibit 3-4 demonstrates the relationship between self-reported price paid per pack and self-reported purchase of cigarettes from low- or no-tax sources. On average, smokers who indicated that they purchased cigarettes from any low-tax location (including Indian reservations, toll-free phone numbers, duty free shops, the Internet, or from out of state) all of the time paid over \$2.00 less per pack than smokers who did not purchase their cigarettes all the time from a low- or no-tax source.

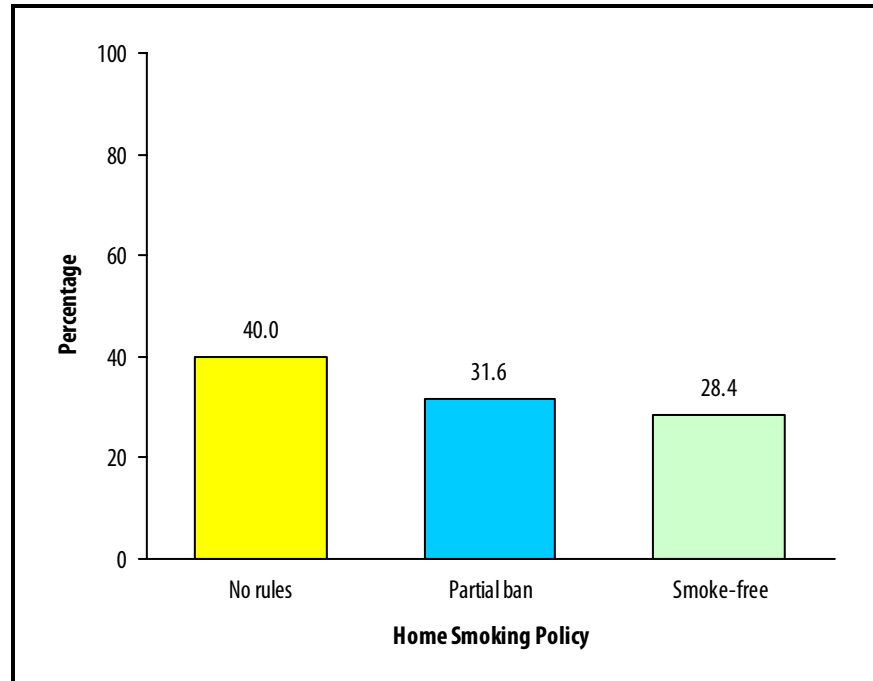
**Exhibit 3-4. Price Paid for a Pack of Cigarettes among Current Smokers (by Purchasing from a Low- or No-Tax Source), ATS Q3 2003–Q2 2005**



### 3.4 Home and Workplace Smoking Bans

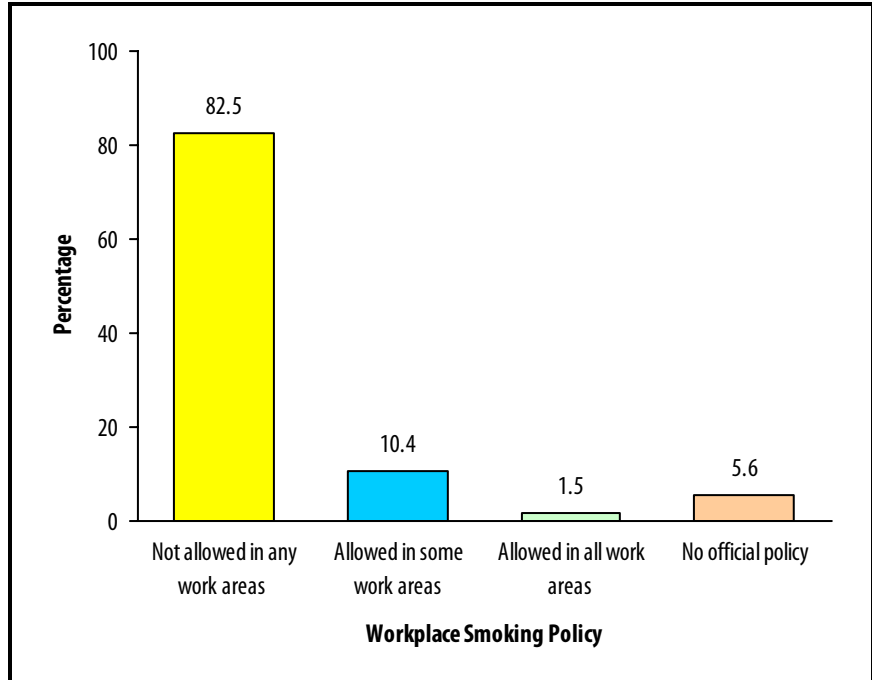
Currently, 28% of smokers live in homes where no smoking is permitted, and 32% live in homes with partial smoking bans. The remaining 40% of smokers have no restrictions on smoking in their home (Exhibit 3-5).

**Exhibit 3-5. Home Smoking Policies among Adult Smokers, ATS Q3 2003–Q2 2005**



In contrast to home smoking bans, the majority of New Yorkers (83%) worked in workplaces that did not allow smoking in any public area (Exhibit 3-6). This percentage should be high given the implementation of the statewide Clean Indoor Air Act, which went into effect on July 24, 2003, and banned smoking in virtually all indoor workplaces, including bars, restaurants, bowling facilities, taverns, and bingo halls. In fact, it is somewhat surprising that the reported percentage is not higher. Unfortunately, we cannot determine from the data why more New Yorkers do not report that their workplaces are smoke-free.

**Exhibit 3-6. Workplace Smoking Policies (Overall), ATS Q3 2003–Q2 2005**



## 4. Cessation Strategies, Resources, and Support Available for Smokers

### 4.1 Cessation Strategies

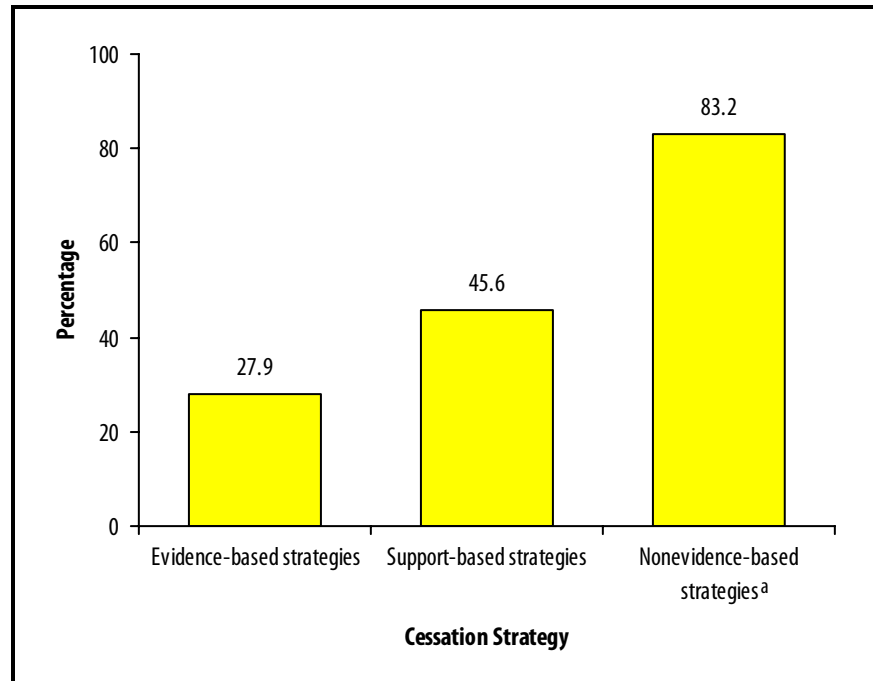
A wide variety of methods, strategies, and tools are available to New Yorkers to quit smoking. Overall, these can be separated into three groups that are loosely based on guidelines and an evidentiary review conducted by the Task Force on Community Preventive Services: evidence-based strategies, support-based strategies, and nonevidence-based strategies. Evidence-based strategies are strategies and methods that have been shown to significantly improve smoking cessation at the community level (Hopkins et al., 2001) and in some cases at the individual level (Lancaster et al., 2000). Some of these techniques include taking cessation classes; visiting clinics or support groups; counseling; using telephone quitlines; and using medication, such as nicotine gum, patches, and lozenges or Zyban. Support-based strategies are primarily based on individual-level support and include using cessation Web sites; support from family and friends; using books, pamphlets, and videos; and quitting with a friend. Nonevidence-based strategies include strategies whose effectiveness may be unsubstantiated at the community level but that have been used by many individuals in attempts to quit smoking. Strategies in this category include quitting “cold turkey,”<sup>1</sup> gradually cutting back, herbal remedies, acupuncture, and hypnosis.

Exhibit 4-1 demonstrates the use of these three broad groups of strategies among New York current smokers and recent quitters (former smokers who successfully quit in the previous 12 months). Approximately 83% of New York smokers and recent quitters reported using at least one nonevidence-based strategy to quit, nearly 46% reported using at least one support-based strategy, and 28% reported using at least one evidence-based strategy.

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<sup>1</sup> Respondents were classified as having “quit cold turkey” if they reported using this cessation strategy and no other. Respondents who reported using “quitting cold turkey” and another cessation strategy were coded as using the other strategy and not as also using “quitting cold turkey.” Thus, by definition, “quitting cold turkey” cannot be combined with another cessation strategy.

**Exhibit 4-1. Cessation Strategies Used by New York Current Smokers and Recent Quitters (Overall), ATS Q3 2003–Q2 2005**



<sup>a</sup>Includes respondents who reported using “quitting cold turkey” as a cessation strategy.

## 4.2 Evidence-Based Strategies

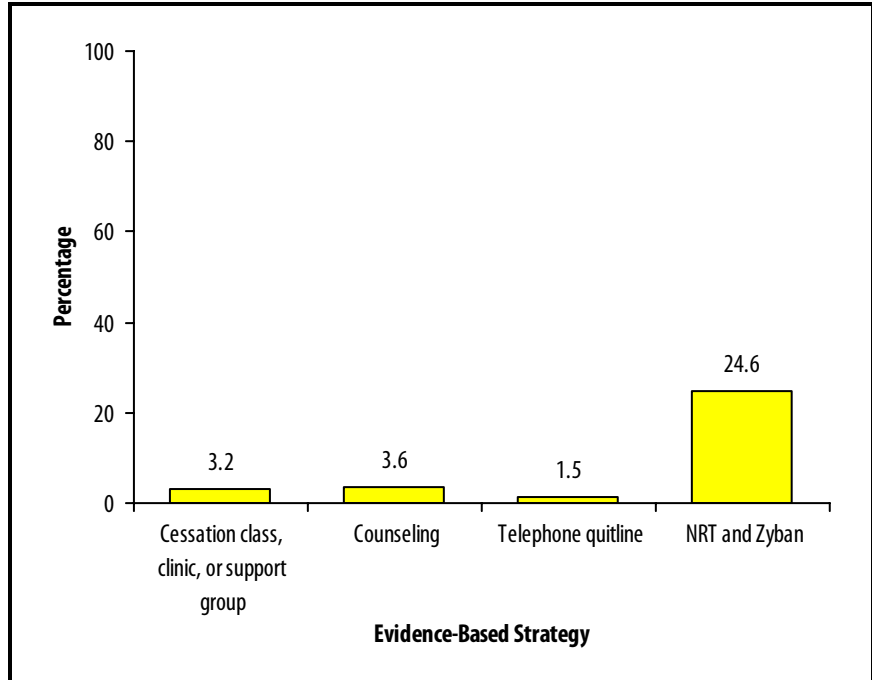
### 4.2.1 Overall

Examining the use of evidence-based strategies among New York smokers and recent quitters in more detail reveals that more individuals used NRT or Zyban (25%) than any other strategy in this category (Exhibit 4-2). Other strategies used included counseling (4%), taking cessation classes or going to a clinic or support group (3%), and calling a telephone quitline (1.5%).

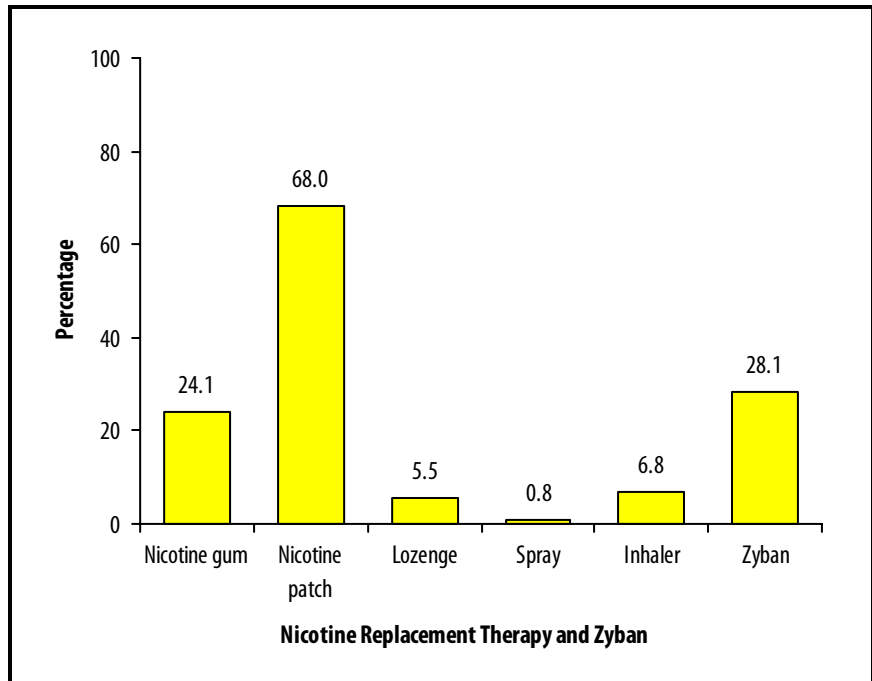
### 4.2.2 Nicotine Replacement Therapies and Zyban

Among New York smokers and recent quitters who have used medication to help them quit smoking, over 67% reported using a nicotine patch (Exhibit 4-3). Other medications used include Zyban (29%), nicotine gum (25%), nicotine inhaler (7%), lozenges (5%), and nasal spray (1%).

**Exhibit 4-2. Evidence-Based Strategies Used by New York Current Smokers and Recent Quitters, ATS Q3 2003–Q2 2005**



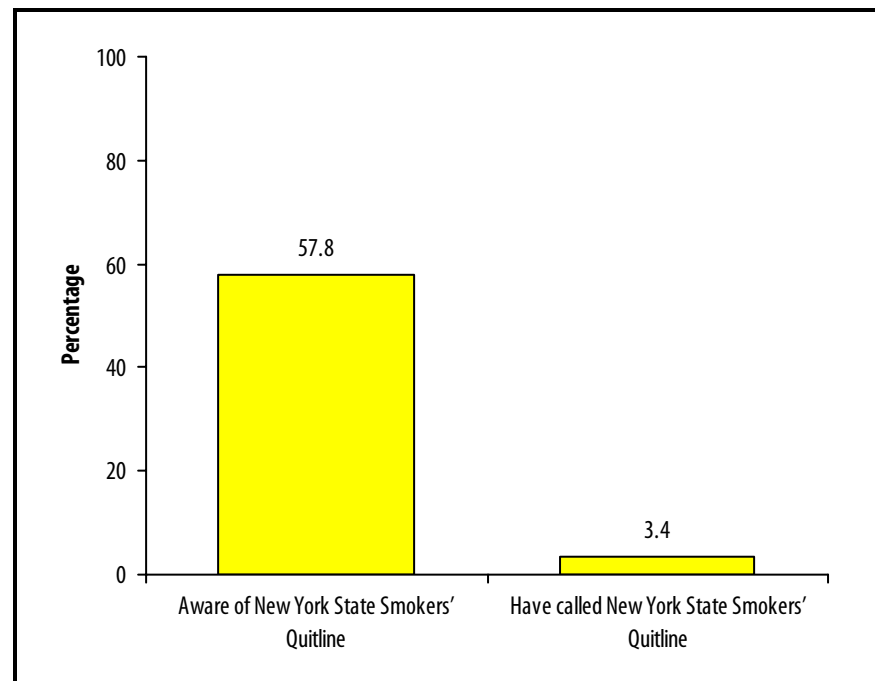
**Exhibit 4-3. Types of NRT Used by New York Current Smokers and Recent Quitters, ATS Q3 2003–Q2 2005**



### 4.2.3 New York State Smokers' Quitline

The New York State Smokers' Quitline was established in 2000 to provide support, education, and informational materials to smokers wishing to quit or nonsmokers wishing to help someone they know quit smoking. Services evolved over time to include behavioral counseling, prerecorded motivational messages and quitting tips of the day, scheduled call backs, faxed referrals, and NRT. Overall, 58% of smokers reported having heard of the New York State Smokers' Quitline. About 3% of New York smokers have called the Quitline (Exhibit 4-4). It is worth noting, however, that the frequency of statewide mass media messages, a primary vehicle through which the Quitline is promoted, has fluctuated, with no statewide messages aired during the third and fourth quarters of 2003 or 2004.

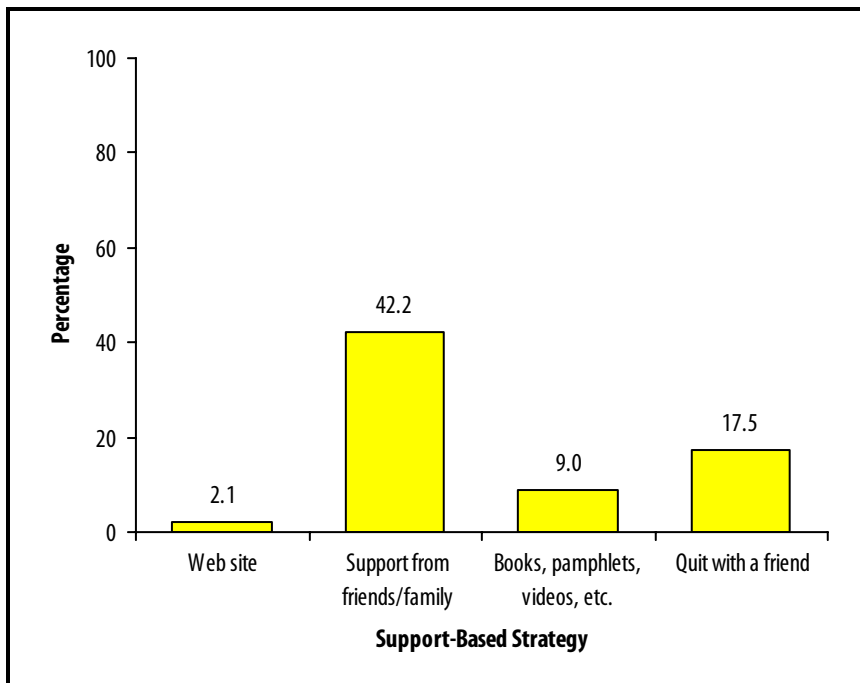
**Exhibit 4-4. Awareness and Use of New York State Smokers' Quitline among Smokers, ATS Q3 2003–Q2 2005**



### 4.3 Support-Based Strategies

The most commonly used support-based strategy among New York current smokers and recent quitters is support from family and friends (42%) (Exhibit 4-5). Other frequently used sources of support include quitting with a friend (18%); using books, pamphlets, videos, and other media (9%); and using cessation support Web sites (2%).

**Exhibit 4-5. Support-Based Strategies Used by New York Current Smokers and Recent Quitters, ATS Q3 2003–Q2 2005**




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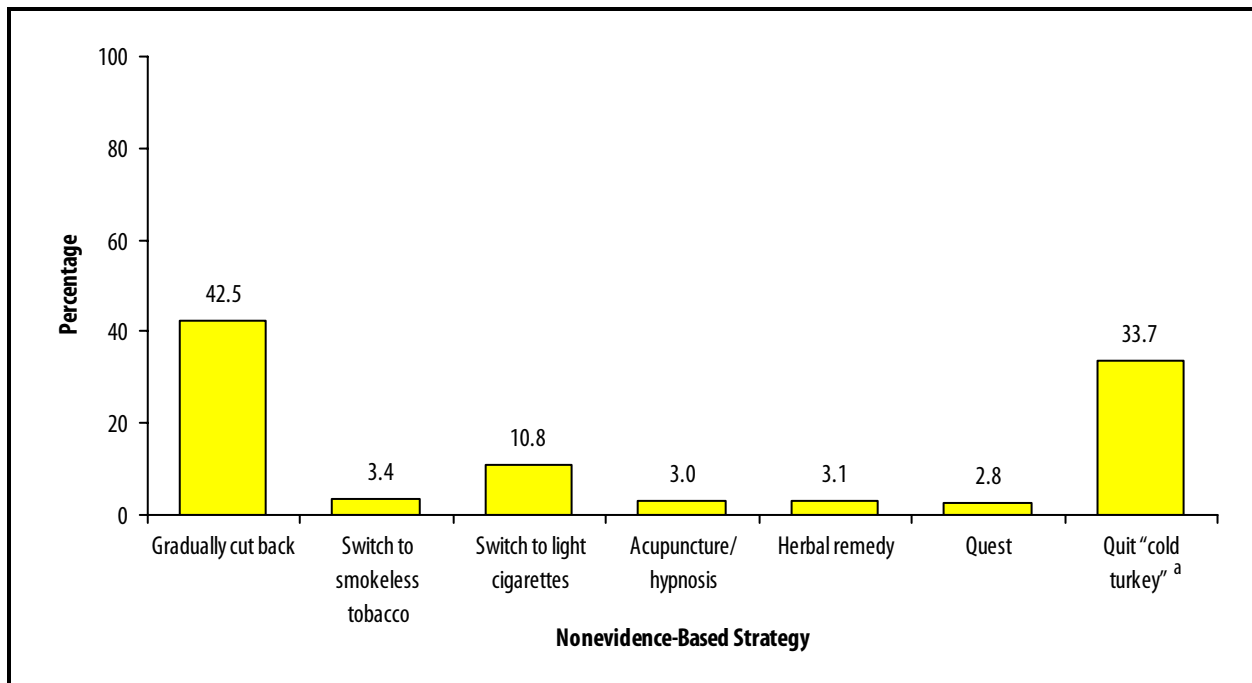
Despite their use as smoking cessation aids, there is no evidence that smokeless tobacco or light or low nicotine cigarettes aid in smoking cessation.

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#### 4.4 Nonevidence-Based Strategies

Overall, among New York smokers and recent quitters, the two most commonly used nonevidence-based strategies are quitting “cold turkey” (34%) and gradually cutting back on cigarettes (43%) (Exhibit 4-6). Other nonevidence-based strategies include using acupuncture or hypnosis (3%) and using herbal remedies (3%). Many New York smokers also reported using other forms of tobacco as a means by which to quit smoking cigarettes. These include switching to light cigarettes (11%); switching to smokeless tobacco (3%); and using Quest, a low nicotine cigarette (3%). Despite their use as such, there is no evidence that smokeless tobacco or light or low nicotine cigarettes aid in smoking cessation. Furthermore, consumers are misinformed about the relative health risks of smokeless tobacco products, light cigarettes, and low nicotine cigarettes compared with regular cigarettes (Cummings et al., 2004a, 2004b).



**Exhibit 4-6. Nonevidence-Based Strategies Used by New York Current Smokers and Recent Quitters, ATS Q3 2003–Q2 2005**

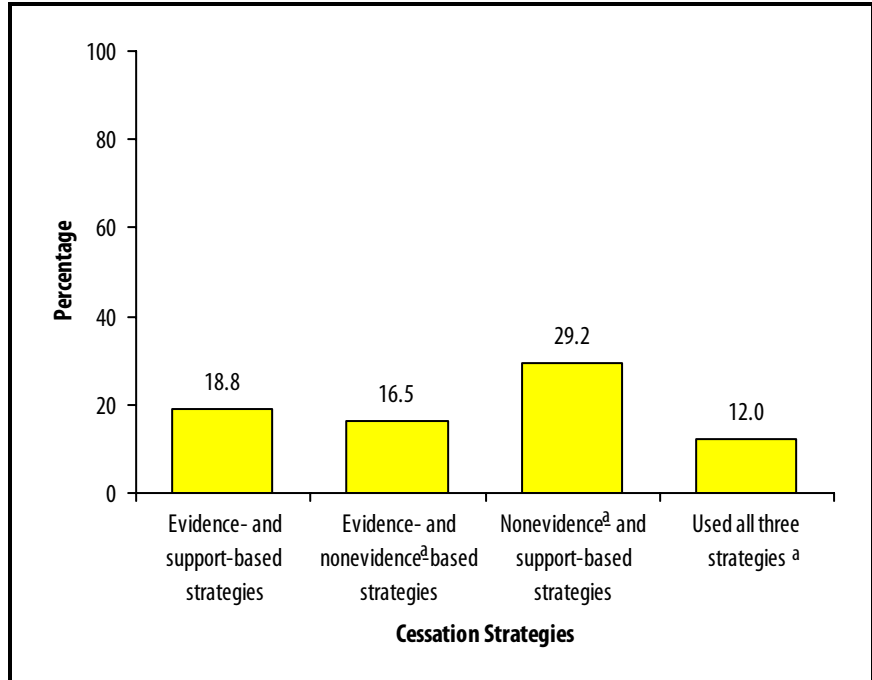
<sup>a</sup>Includes respondents who only reported using "quitting cold turkey" as a cessation strategy.

#### 4.5 Combining Strategies

Evidence-based, support-based, and nonevidence-based strategies are not mutually exclusive; smokers can use strategies in one, two, or even all three categories to help them quit smoking. Exhibit 4-7 demonstrates this point, with 29% of current smokers and recent quitters reporting that they used both nonevidence-based and support-based strategies to help them quit smoking, 17% reporting that they used both evidence-based and nonevidence-based strategies, and 12% reporting that they used both evidence-based and support-based strategies.<sup>2</sup>

<sup>2</sup> By definition, "quitting cold turkey" cannot be combined with other cessation strategies; therefore, "quitting cold turkey" is not included as a nonevidence-based strategy in Exhibit 4-7.

**Exhibit 4-7. Multiple Cessation Strategies Used by New York Current Smokers and Recent Quitters, ATS Q3 2003–Q2 2005**



<sup>a</sup>Excludes respondents who reported using “quitting cold turkey” as a cessation strategy.

## 5. Correlates and Predictors of Quitting

The previous sections of this report discuss the use of various cessation strategies and methods by New York smokers to quit smoking. This section examines whether tobacco control policies and programmatic interventions are associated (correlated) with smoking cessation outcomes. Specifically, it examines the association of a variety of factors with the four cessation outcomes highlighted in Section 2.2: intentions to quit in the next 30 days; setting a quit date; previous quit attempts (within the past year); and successful cessation, defined as the percentage of adults who were smoking 1 year ago who made a quit attempt in the past year and have not smoked for the past 6 months. Explanatory factors include visiting a health care professional and receiving cessation advice from a health care professional, awareness of state mass media messages, awareness of the New York State Smokers' Quitline, whether an individual sought to evade taxes by purchasing "all the time" from a tax-free location, and the number of cigarettes consumed daily. The effect of various home smoking policies was also assessed, as was smokers' insurance status. A number of sociodemographic characteristics were also incorporated into the analyses, including age, race/ethnicity, gender, and geographic location within the state of New York.

### 5.1 Intentions to Quit

#### 5.1.1 *Planning to Quit Smoking in the Next 30 Days*

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Smokers who reported receiving cessation advice from their health care professional were more likely to be planning to quit smoking than those who did not.

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Examining the results presented in Exhibit 5-1, smokers who reported receiving cessation advice from their health care professional were more likely to be planning to quit smoking than those who did not. Likewise, smokers who were aware of state smoking cessation mass media messages were also more likely to be planning to quit smoking than smokers who were unaware of the media messages. The availability of low- or no-tax sources for cigarettes, coupled with a smoker's willingness to buy cigarettes from these sources, was negatively associated with planning to quit smoking. The amount of cigarettes consumed by a smoker was also a strong predictor of a smoker's plans to quit smoking. Smokers who consumed between 5 and 20 or 20+ cigarettes per day were less likely than those who consumed less than 5 cigarettes per day to be planning to quit smoking. Smokers on Medicaid were more likely to report that they were planning to quit than smokers with private health

insurance, and older smokers (aged 65+) were more likely to report that they were planning to quit smoking than younger smokers (aged 18 to 24). For complete results, see Exhibit A-1 in Appendix A.

**Exhibit 5-1. Predictors and Correlates of “Planning to Quit Smoking in the Next 30 Days,”  
ATS Q3 2003–Q2 2005**

Explanatory Variables	Planning to Quit Smoking in the Next 30 Days—Odds Ratio	
Did not visit a health care professional in the last 6 months	1.19	(0.83–1.70)
Health care professional gave cessation advice when visited	1.48*	(1.06–2.06)
Aware of cessation media messages	1.76*	(1.12–2.78)
Aware of secondhand smoke media messages	1.03	(0.64–1.63)
Purchased “all of the time” from at least one of five tax-free locations	0.61*	(0.42–0.89)
<b>Rules of Smoking at Home (reference: no rules)</b>		
Partial ban	1.12	(0.80–1.56)
Smoke-free	1.30	(0.89–1.90)
<b>Insurance (reference: private)</b>		
Medicare	1.23	(0.70–2.17)
Medicaid	1.71*	(1.12–2.62)
No insurance	1.24	(0.86–1.80)
<b>Average Number of Cigarettes Per Day (reference: less than 5)</b>		
5–20	0.66*	(0.45–0.95)
20+	0.61*	(0.40–0.93)
<b>Age (reference: 18–24 years)</b>		
25–39	1.67	(1.00–2.79)
40–64	1.80*	(1.09–2.98)
65+ years	1.68	(0.82–3.43)
<b>Race/Ethnicity (reference: white)</b>		
African American	1.43	(0.93–2.20)
Hispanic	0.84	(0.52–1.36)
Other	0.82	(0.43–1.57)
<b>Gender (reference: female)</b>		
Male	0.95	(0.72–1.27)
Children below 5 years in the household	1.25	(0.81–1.93)
Children between 5–17 years in household	1.14	(0.83–1.57)
Number of quarters since baseline	0.99	(0.93–1.05)
Number of observations	2,375	

Note: 95% confidence intervals are presented in parentheses.

\*Significant at 5%.

### **5.1.2 *Setting a Quit Date***

In addition to examining smokers' intentions to quit in the next 30 days, another measure of a smoker's intention to quit is whether the smoker has set a quit date. Examining the results presented in Exhibit 5-2, smokers on Medicare were more likely than smokers with private health insurance to have set a quit date. Smokers aged 40 to 65 were more likely than smokers aged 18 to 24 to have set a quit date. Total home smoking bans were also associated with setting a quit date, although only at the 10% level. For complete results, see Exhibit A-2 in Appendix A.

## **5.2 *Quit Attempts***

### **5.2.1 *Made a Quit Attempt in the Past 12 Months***

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Purchasing cigarettes from tax-free sources was associated with lower odds of having tried to quit in the past 12 months.

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Predictors and correlates of making a quit attempt are awareness of cessation media messages, receiving assistance from a health professional, and daily cigarette consumption (Exhibit 5-3). Purchasing cigarettes from no-tax sources was associated with lower odds of having tried to quit in the past 12 months. For complete results, see Exhibit A-3 in Appendix A.

### **5.2.2 *Quit Smoking for at Least 6 Months in the Past Year***

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Individuals on Medicaid were less likely than those with private health insurance to have successfully quit smoking for at least 6 months in the past year.

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Turning to "successful" quit attempts lasting 6 months or longer, having complete bans on smoking in the home, compared with having no home smoking rules, was found to be significantly associated with successful cessation (Exhibit 5-4). Further, individuals on Medicaid were less likely than those with private health insurance to have successfully quit smoking for at least 6 months in the past year. Again, age was a predictor of successful cessation, with older individuals (65+) being more likely than younger ones (aged 18 to 24) to report successful cessation. Finally, the number of quarters since June 2003 was also positively associated with successful cessation. This result suggests that the further removed from many of the major programmatic interventions, such as enactment of the CIAA in 2003 and the most recent set of excise tax increases in 2002, the more likely individuals are to successfully quit smoking. This result also indicates that these programmatic interventions may have a significant impact on cessation well into the future as they continue to provide the additional pressures that smokers with multiple quit attempts need to successfully quit. For complete results, see Exhibit A-4 in Appendix A.

**Exhibit 5-2. Predictors and Correlates of “Setting a Quit Date,” ATS Q3 2003–Q2 2005**

<b>Explanatory Variables</b>	<b>Setting a Quit Date—Odds Ratio</b>	
Did not visit a health care professional in the last 6 months	0.93	(0.46–1.87)
Health care professional gave cessation advice when visited	1.84	(0.98–3.47)
Aware of cessation media messages	1.66	(0.91–3.05)
Aware of secondhand smoke media messages	0.97	(0.37–2.55)
Purchased “all of the time” from at least one of five tax-free locations	0.70	(0.37–1.33)
<b>Rules of smoking at home (reference: no rules)</b>		
Partial ban	1.17	(0.59–2.30)
Smoke-free	2.17	(0.98–4.81)
<b>Insurance (reference: private)</b>		
Medicare	2.89*	(1.06–7.90)
Medicaid	0.79	(0.30–2.08)
No insurance	1.83	(0.88–3.80)
<b>Average Number of Cigarettes Per Day (reference: less than 5)</b>		
5–20	1.16	(0.58–2.33)
20+	1.18	(0.49–2.86)
<b>Age (reference: 18–24 years)</b>		
25–39	1.31	(0.52–3.34)
40–64	2.45*	(1.00–5.97)
65+ years	1.00	(0.28–3.54)
<b>Race/Ethnicity (reference: white)</b>		
African American	0.89	(0.38–2.08)
Hispanic	1.15	(0.46–2.88)
Other	0.47	(0.16–1.41)
<b>Gender (reference: female)</b>		
Male	0.61	(0.31–1.20)
Children below 5 years in the household	1.52	(0.66–3.53)
Children between 5–17 years in household	1.00	(0.58–1.71)
Number of quarters since baseline	0.95	(0.83–1.10)
Number of observations	1,561	

Note: 95% confidence intervals are presented in parentheses.

\*Significant at 5%.

\*\*Significant at 1%.

**Exhibit 5-3. Predictors and Correlates of “Made a Quit Attempt in the Last 12 Months,”  
ATS Q3 2003–Q2 2005**

Explanatory Variables	Made a Quit Attempt in the Last 12 Months—Odds Ratio	
Did not visit a health care professional in the last 6 months	0.80	(0.60–1.06)
Health care professional gave cessation advice when visited	1.78**	(1.33–2.38)
Aware of cessation media messages	1.61*	(1.08–2.41)
Aware of secondhand smoke media messages	1.00	(0.68–1.48)
Purchased “all of the time” from at least one of five tax-free locations	0.63**	(0.48–0.84)
<b>Rules of smoking at home (reference: no rules)</b>		
Partial ban	1.23	(0.93–1.61)
Smoke-free	1.27	(0.93–1.72)
<b>Insurance (reference: private)</b>		
Medicare	1.54	(0.93–2.54)
Medicaid	1.19	(0.81–1.74)
No insurance	0.87	(0.64–1.19)
<b>Average Number of Cigarettes Per Day (reference: less than 5)</b>		
5–20	0.70*	(0.51–0.97)
20+	0.46**	(0.32–0.64)
<b>Age (reference: 18–24 years)</b>		
25–39	1.11	(0.74–1.64)
40–64	0.90	(0.61–1.32)
65+ years	0.65	(0.35–1.22)
<b>Race/Ethnicity (reference: white)</b>		
African American	1.28	(0.87–1.88)
Hispanic	1.14	(0.72–1.79)
Other	1.32	(0.80–2.18)
<b>Gender (reference: female)</b>		
Male	1.11	(0.87–1.41)
Children below 5 years in the household	0.94	(0.65–1.36)
Children between 5–17 years in household	1.02	(0.79–1.32)
Number of quarters since baseline	0.95	(0.90–1.00)
Number of observations	2,725	

Note: 95% confidence intervals are presented in parentheses.

\*Significant at 5%.

\*\*Significant at 1%.

**Exhibit 5-4. Predictors and Correlates of “Quit Smoking for at Least 6 Months in the Last Year,” ATS Q3 2003–Q2 2005**

Explanatory Variables	Quit Smoking for at Least 6 Months in the Last Year—Odds Ratio	
Did not visit a health care professional in the last 6 months		N/A
Health care professional gave cessation advice when visited		N/A
Aware of cessation media messages	0.56	(0.32–1.00)
Aware of secondhand smoke media messages	0.71	(0.42–1.19)
Purchased “all of the time” from at least one of five tax-free locations		N/A
<b>Rules of smoking at home (reference: no rules)</b>		
Partial ban	0.77	(0.38–1.54)
Smoke-free	3.61**	(2.24–5.84)
<b>Insurance (reference: private)</b>		
Medicare	1.01	(0.57–1.79)
Medicaid	0.30**	(0.15–0.60)
No insurance	0.84	(0.44–1.58)
<b>Average Number of Cigarettes Per Day (reference: less than 5)</b>		
5–20		N/A
20+		N/A
<b>Age (reference: 18–24 years)</b>		
25–39	0.80	(0.36–1.77)
40–64	1.36	(0.63–2.96)
65+ years	3.05*	(1.30–7.15)
<b>Race/Ethnicity (reference: white)</b>		
African American	0.69	(0.37–1.29)
Hispanic	1.04	(0.53–2.06)
Other	1.22	(0.56–2.66)
<b>Gender (reference: female)</b>		
Male	0.93	(0.65–1.33)
Children below 5 years in the household	1.07	(0.64–1.77)
Children between 5–17 years in household	0.99	(0.65–1.50)
Number of quarters since baseline	1.13**	(1.05–1.23)
Number of observations		2,191

Note: 95% confidence intervals are presented in parentheses.

\*\*Significant at 1%.



## 6. Discussion and Implications

Whether viewed as a continuum of “readiness to quit” or stages of change, it is apparent that smoking cessation is a dynamic process where smokers struggle to quit and remain abstinent. This report provides a snapshot of tobacco control and smoking cessation efforts in New York State and illustrates how programmatic and policy interventions can promote quitting within the state.

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Nearly half of New York smokers (47%) made a quit attempt in the past year, and one in four expressed a desire to quit in the next month.

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Nearly half of New York smokers (47%) made a quit attempt in the past year, and one in four expressed a desire to quit in the next month. Despite these figures, only 7% had set a quit date. This figure was higher among current smokers who indicated that they were planning to quit smoking in the next 30 days, reaching more than 27%. Further, maintaining a quit attempt is difficult; 20% of those who were smoking 1 year ago and tried to quit in the past year maintained a quit attempt for at least the past 6 months.

The primary strategies NYTCP uses to promote cessation include establishing Cessation Centers to promote the provision of advice to quit and quitting support, airing television ads aimed at promoting cessation, raising the price of cigarettes through taxation, banning smoking in all indoor workplaces, and establishing the New York State Smokers’ Quitline. In January 2005, NYTCP established 19 Cessation Centers to provide technical assistance to hospitals and other health care organizations to encourage them to adopt the clinical guideline for cessation. The centers promote and facilitate the implementation of systems to identify and treat tobacco users. The centers also inform and train health care providers about the resources available to individuals interested in quitting, such as the New York State Smokers’ Quitline and the Fax-to-Quit Program. The potential impact of these systems on tobacco use cessation is demonstrated in this report.

Overall, we found that two-thirds of smokers visited a health professional in any given year; of these smokers, 90% were asked if they smoked and 55% were given some form of advice or assistance regarding smoking cessation. We also found that smokers who received advice from a health care professional about smoking cessation were more likely than those who did not receive advice to have made a quit attempt. Although limited to those smokers who actually visit a health professional and are asked about their smoking status, advice from a health care professional is shown to be an effective mechanism to promote cessation. It is too soon to tell if the Cessation Centers have had any meaningful impact on

cessation, but the premise on which they were established is well founded. As such, they have the potential to have a meaningful and lasting impact on tobacco cessation within the state.

In addition to advice and support from health care providers, tobacco cessation messages have been aired to the public in a series of television advertisements. Evidence supporting mass media messages as a mechanism to promote cessation is widespread; however, the effectiveness of these media messages is limited to the time they are on the air, which has not been often in New York to date. Awareness of cessation media messages is reported at 7% overall and at 10% during the quarters when media messages were shown, far below recommended levels (RTI, 2005). Despite the low awareness, awareness of cessation messages is associated with planning to stop smoking in the near future. Although there have been periods when awareness of cessation messages was considerably higher than 7% (e.g., first quarter of 2005), it is important for these messages to be consistently aired to have a meaningful effect on cessation (RTI, 2005).

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The effectiveness of recent New York State and City cigarette excise tax increases is limited by the availability of low-tax and no-tax alternatives.

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Cigarette excise taxes have long been recognized as an effective mechanism to increase the price of cigarettes and thus reduce smoking. However, the effectiveness of recent New York State and City cigarette excise tax increases is limited by the availability of low-tax and no-tax alternatives, such as purchasing cigarettes from Indian reservations. In 2004, more than half of all smokers in New York purchased cigarettes from low-tax or no-tax sources. Furthermore, 19% of New York smokers reported that they always purchase their cigarettes from these venues (Davis et al., 2006; Hyland et al., 2005). The existence of these low-tax and no-tax outlets is undermining both the health benefits from reduced use and the incentives to quit generated by the higher price. Despite the presence of tax evasion, the results presented in this report confirm that the price of cigarettes can be an effective mechanism to facilitate cessation. Smokers who did not avoid paying excise taxes and who did not purchase cigarettes from low-tax and no-tax sources were more likely to have attempted quitting and more likely to be thinking about quitting. Given this result, a new law requiring wholesalers to affix the state excise tax stamp prior to selling cigarettes to retailers (including Indian retailers) has the potential to curb the sale of untaxed cigarettes from their primary source and to promote cessation.

As with all of the evidence-based strategies implemented by NYTCP, quitlines have been shown to effectively support tobacco cessation by providing resources for individuals seeking to quit. Overall, 58% of New York smokers reported awareness of the New York State Smokers' Quitline, and 3% reported ever using the service. We found that

awareness of the Quitline was positively associated with smokers setting a specific quit date. As noted previously, there is a strong evidence base demonstrating that the use of quitlines is associated with increased cessation (Hopkins et al., 2001). It is too early to tell whether the recent introduction of free NRT starter kits will increase population-level cessation outcomes, but once again the evidence base suggests that this is an effective strategy. As noted previously, several studies conducted in New York have found that distribution of free NRT can increase calls to a quitline and may improve quit rates (Bauer et al., 2006; Cummings et al., 2006, in press). The study by Cummings et al. (in press) found that provision of free nicotine patches via the telephone quitline induced smokers to make a quit attempt and stop smoking over and above quitline support alone. These studies concluded that the offer of free NRT appears to be a cost-effective method to induce large numbers of smokers to call the quitline and make a quit attempt. Both studies concluded that the offer of free NRT appears to be a cost-effective method to induce large numbers of smokers to call the quitline and make a quit attempt.

Another program objective with potential relevance to smoking cessation is the promotion of smoking restrictions in private households. Currently, 28% of smokers report complete bans on smoking in the home; however, 32% of smokers report partial bans and 40% report no restrictions at all. In addition to potentially increasing cessation, limiting exposure to secondhand smoke in the home also protects nonsmokers from related adverse health effects. We found that smokers who had complete bans on smoking within their homes were more likely to have set a quit date (marginal statistical significance), and to have successfully quit for at least 6 months. Overall, convincing smokers to implement a home ban on smoking contributes significantly to the probability of successful cessation. It is important to note, however, that an individual's intention to quit or efforts to quit may have preceded any implementation of a home smoking ban. In fact, it could be that the home smoking ban was implemented by the smoker as part of an effort to help maintain a quit attempt. We cannot determine from the data the timing of quit behaviors relative to the implementation of smoking bans in the home. We cannot say if home smoking bans cause cessation behaviors or if cessation behaviors cause home smoking bans. What we can say is that the two are associated.

The number of cigarettes smoked daily was also found to be an important factor in successful cessation. Specifically, smokers who smoked less than five cigarettes per day were more likely to plan to quit in the next month and to have made a quit attempt in the past year than

smokers who smoked more. This association may reflect the fact that those who are more likely to quit use cutting back on the number of cigarettes as a strategy for quitting.

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Medicaid recipients were more likely to try to quit but were less likely to do so successfully.

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Overall, these results suggest some important program implications. We found that Medicaid recipients were more likely to try to quit but were less likely to do so successfully. In addition, Medicaid recipients were more likely to think about quitting in the next month. Coverage of behavioral counseling in the Medicaid program could increase successful quitting in a group that is more likely to want to quit and to try to quit.

It is also noteworthy that we did not find any significant differences in cessation outcomes across racial/ethnic or gender groups, suggesting that supplemental interventions tailored to these groups may not be required to promote cessation. However, we did find important differences by age and insurance status, which may provide opportunities for specific interventions aimed at these groups.

It is important to note that a greater percentage of New York smokers currently indicate that they are thinking about quitting and a greater percentage indicate that they have made a successful quit attempt in the past year than at the beginning of the evaluation period. The results in this report highlight the potential for increased cessation in the future as the Cessation Centers work progresses, as callers to the Quitline make use of NRT, and as cigarette taxes are applied to purchases on Indian reservations by nontribal members. Overall, the program's strength with respect to smoking cessation is its foundation on evidence-based strategies that should pay dividends with continued and improved support. It is important that the core foundations upon which the program goals are based are maintained and that additional work and analysis is conducted to ensure that future interventions follow this lead.

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## Appendix A: Regression Methods and Results

### A.1 Data

#### A.1.1 *Adult Tobacco Survey*

The Adult Tobacco Survey (ATS) was initially developed by the Centers for Disease Control and Prevention (CDC) and then adapted to the needs of New York by the New York Tobacco Control Program (NYTCP) in partnership with RTI International (RTI). The survey was first fielded on June 26, 2003, by RTI. The target population for ATS is adults aged 18 and older living in residential households in New York. The purpose of ATS is to monitor progress toward program goals by measuring tobacco use behaviors, attitudes, and related influences on tobacco use. In addition, the survey monitors awareness and use of NYTCP activities and services.

#### A.1.2 *Survey Design and Data Collection*

ATS is a random-digit-dial (RDD) telephone survey designed to produce statewide representative samples of New York adults aged 18 and older. To provide timely surveillance of program activities and targeted outcomes, ATS is collected quarterly and includes approximately 2,000 New York adults in each survey.

The sample follows a stratified dual-frame design. The two frames are defined as an RDD frame and a residential listed frame. This kind of design provides a representative sample while increasing the “hit rate” of current residential units to improve data collection efficiency. The list-based frame also ensures that lead letters reached more households, and more potential respondents, than would be reached with only an RDD frame. Each household is then screened to determine the number of adults aged 18 and older and the smoking status of each adult (nonsmoker or smoker). The household screener follows an algorithm to randomly select smoking adults at a much higher rate (80%) than nonsmoking adults to increase the proportion of smokers in the sample. Once households are screened and the appropriate respondent is identified, interviewers either conduct the interview immediately or schedule a callback time that is more convenient for the respondent.

For all analyses in this report, we pooled all available quarters of the New York ATS (Q3 2003–Q2 2005).

## **A.2 Measures**

### **A.2.1 Cessation Outcomes**

Ultimately, increasing the successful quit rate is a central objective for Goal 3 and the program as a whole. To examine how cessation-related outcomes are changing over time, we explored several measures of quitting motivated by descriptions of smoking cessation as a process. Specifically, the cessation outcomes examined in this report include

- current smokers who intend to quit in the next 30 days (coded as 1 if the respondent reported planning to quit in the next 30 days and 0 if not),
- current smokers who have set a quit date (coded as 1 if the respondent reported setting a quit date and 0 if not),
- current smokers who have made at least one quit attempt in the past year (coded as 1 if the respondent reported making a quit attempt in the past year and 0 if not), and
- percentage of adults who were smoking 1 year ago who made a quit attempt in the past year and have not smoked for the past 6 months (successful cessation) (coded as 1 if the respondent quit successfully and 0 if not)

We used intentions to quit in the next 30 days as an indicator of quit intentions rather than intentions to quit in the next 6 months because of evidence that quit intentions are unstable over time (Hughes et al., 2005). We also view setting a quit date as an indicator of intentions or readiness to quit.

### **A.2.2 Factors Examined as Potentially Associated with Cessation Outcomes**

In this report, we examined a number of variables that are plausibly related to smoking cessation outcomes. These variables include several measures of programmatic or policy variables, insurance status, cigarette consumption, and sociodemographic factors.

#### *Programmatic or Policy Variables*

All indicator variables are dichotomous and are coded such that 1 indicates the described action or event occurred and 0 indicates it did not.

- An indicator for whether the respondent visited a health care professional
- An indicator for whether a health care professional provided any cessation-related advice or information to the respondent (for those who were advised to quit by their health care professional, nurse, or other health professional, did that health provider [1] prescribe or recommend



cessation medications such as nicotine patch, nicotine gum, nasal spray, or inhaler, or pills such as Zyban; [2] suggest the respondent set a quit date or suggest the respondent use a smoking cessation class, program, or counseling; [3] suggest the respondent call a quitline; [4] provide self-help materials, such as booklets and videos; or [5] schedule a follow-up visit?)

- An indicator for whether the respondent heard of the New York State Smokers' Quitline
- An indicator for whether the respondent was aware of any cessation ad
- An indicator for whether the respondent was aware of any secondhand smoke ad
- An indicator for whether the respondent had purchased from at least one of five tax-free locations "all of the time" (the locations considered as tax-free were [1] Indian reservation, [2] duty-free shop, [3] outside the state or country, [4] using toll-free number, and [5] via Web or Internet)
- An indicator for whether the respondent has a total or partial ban on smoking in the home versus no rules/ restrictions on smoking in the home, a separate indicator created for total home smoking ban versus no home smoking rules and for a partial smoking ban versus no home smoking rules

#### *Insurance Status*

- Indicators for insurance status (self-reported by the respondent): Medicaid, Medicare, no insurance (private is the referent category). Separate indicators for each insurance category are included, with each being compared to private. (Note: we excluded Military [CHAMPUS, TriCare, or the VA], Indian Health Service, and "other" from the analyses.)

#### *Cigarette Consumption*

- Average number of cigarettes smoked per day (less than 5 is referent, 5 to 20, 20 or more). We created a measure of the number of cigarettes smoked per day by multiplying the reported number of cigarettes smoked per day (on days smoked) by the number of reported days smoked in the past 30 days and then dividing by 30. We then collapsed this continuous measure into three categories (those who smoked on average less than 5 cigarettes per day, 5 to 20, and 20 or more). In all analyses, we used those who smoked less than 5 cigarettes per day as the comparison group.

### *Sociodemographic Factors*

- Age (we created separate indicators for those aged 25–39, 40–64, and 65+, with 18–24 years as the referent category)
- Race/ethnicity (we created separate indicators for African-American, Hispanic, and other race/ethnicity groups, with white being the referent group)
- Gender (we created an indicator for male, with female being the referent group)
- Children in the home (we created separate indicators for the presence of children less than 5 and 5 to 17 years of age in the home, with no children being the referent category)
- Area (we included separate indicators for the eight program areas in New York, with NYC/Long Island being the referent category for each; thus, in the regressions, each area is compared with NYC/Long Island)

## **A.3 Statistical Methods**

### **A.3.1 Regression Models**

Given the purpose of the report—to examine and identify variables associated with cessation outcomes—the primary methods/approaches used are multivariable logistic regression models. Logistic regression models are appropriate for the dichotomous (0/1) cessation outcomes we examine—these models examine predictors of the probability of a response being a 1 versus a 0. Thus, we used multivariable logistic regression to examine variables associated with (1) planning to quit in the next 30 days, (2) having set a quit date, (3) having tried to quit in the past year, and (4) being currently quit and having maintained the current quit for at least 6 months. These models were estimated using a statistical software program (Stata) and an estimator that accounts for the complex sample design of the survey (adjusts the standard errors and confidence intervals of estimates for stratification and clustering of the sample).

Given that we used all quarters of the ATS pooled, the regression models estimated included a time trend variable (measuring months since baseline) to control for secular trends in the data. Also, all descriptive statistics represent a pooled average across all quarters of the ATS.

### **A.3.2 Results of Regression Models**

Exhibits A-1 through A-4 present results of regression models.

**Exhibit A-1. Planning to Stop Smoking in the Next 30 Days**

<b>Dependent Variables</b>	<b>Planning to Stop Smoking in the Next 30 Days—Odds Ratio</b>	
Did not visit a health care professional in the last 6 months	1.19	(0.83–1.70)
Health care professional gave cessation advice when visited	1.48*	(1.06–2.06)
Aware of cessation media messages	1.76*	(1.12–2.78)
Aware of secondhand smoke media messages	1.03	(0.64–1.63)
Purchased “all of the time” from at least one of five tax-free locations	0.61*	(0.42–0.89)
<b>Rules of Smoking at Home (reference: no rules)</b>		
Partial ban	1.12	(0.80–1.56)
Smoke-free	1.30	(0.89–1.90)
<b>Insurance (reference: private)</b>		
Medicare	1.23	(0.70–2.17)
Medicaid	1.71*	(1.12–2.62)
No insurance	1.24	(0.86–1.80)
<b>Average Number of Cigarettes Per Day (reference: less than 5)</b>		
5–20	0.66*	(0.45–0.95)
20+	0.61*	(0.40–0.93)
<b>Age (reference: 18–24 years)</b>		
25–39	1.67	(1.00–2.79)
40–64	1.80*	(1.09–2.98)
65+ years	1.68	(0.82–3.43)
<b>Race/Ethnicity (reference: white)</b>		
African American	1.43	(0.93–2.20)
Hispanic	0.84	(0.52–1.36)
Other	0.82	(0.43–1.57)
<b>Gender (reference: female)</b>		
Male	0.95	(0.72–1.27)
Children below 5 years in the household	1.25	(0.81–1.93)
Children between 5–17 years in household	1.14	(0.83–1.57)
Number of quarters since baseline	0.99	(0.93–1.05)
<b>Area (reference: NYC-Long Island area)</b>		
Buffalo Area	0.79	(0.49–1.27)
Hudson Valley Area	0.88	(0.54–1.43)
N. Capital Area	0.96	(0.49–1.86)
N. Central Area	0.67	(0.37–1.21)
Rochester Area	0.58	(0.31–1.09)
S. Capital Area	0.73	(0.42–1.28)
S. Central Area	0.94	(0.57–1.57)
Number of observations	2,375	

Note: 95% confidence intervals are presented in parentheses.

\*Significant at 5%.

\*\*Significant at 1%.

**Exhibit A-2. Have Set a Quit Date**

<b>Dependent Variables</b>	<b>Have Set a Quit Date—Odds Ratio</b>	
Did not visit a health care professional in the last 6 months	0.93	(0.46–1.87)
Health care professional gave cessation advice when visited	1.84	(0.98–3.47)
Aware of New York State Smokers' Quitline	1.66	(0.91–3.05)
Aware of secondhand smoke media messages	0.97	(0.37–2.55)
Purchased "all of the time" from at least one of five tax-free locations	0.70	(0.37–1.33)
<b>Rules of Smoking at Home (reference: no rules)</b>		
Partial ban	1.17	(0.59–2.30)
Smoke-free	2.17	(0.98–4.81)
<b>Insurance (reference: private)</b>		
Medicare	2.89*	(1.06–7.90)
Medicaid	0.79	(0.30–2.08)
No insurance	1.83	(0.88–3.80)
<b>Average Number of Cigarettes Per Day (reference: less than 5)</b>		
5–20	1.16	(0.58–2.33)
20+	1.18	(0.49–2.86)
<b>Age (reference: 18–24 years)</b>		
25–39	1.31	(0.52–3.34)
40–64	2.45*	(1.00–5.97)
65+ years	1.00	(0.28–3.54)
<b>Race/Ethnicity (reference: white)</b>		
African American	0.89	(0.38–2.08)
Hispanic	1.15	(0.46–2.88)
Other	0.47	(0.16–1.41)
<b>Gender (reference: female)</b>		
Male	0.61	(0.31–1.20)
Children below 5 years in the household	1.52	(0.66–3.53)
Children between 5–17 years in household	1.00	(0.58–1.71)
Number of quarters since baseline	0.95	(0.83–1.10)
<b>Area (reference: NYC-Long Island area)</b>		
Buffalo Area	0.85	(0.38–1.91)
Hudson Valley Area	0.81	(0.28–2.31)
N. Capital Area	0.31	(0.07–1.38)
N. Central Area	0.46	(0.14–1.49)
Rochester Area	0.32*	(0.12–0.82)
S. Capital Area	0.71	(0.28–1.80)
S. Central Area		
Number of observations	1,561	

Note: 95% confidence intervals are presented in parentheses.

\*Significant at 5%.

\*\*Significant at 1%.

**Exhibit A-3. Made a Quit Attempt  
in the Past 12 Months**

<b>Dependent Variables</b>	<b>Made a Quit Attempt in the Last 12 Months (current smokers only)—Odds Ratio</b>	
Did not visit a health care professional in the last 6 months	0.80	(0.60–1.06)
Health care professional gave cessation advice when visited	1.78**	(1.33–2.38)
Aware of cessation media messages	1.61*	(1.08–2.41)
Aware of secondhand smoke media messages	1.00	(0.68–1.48)
Purchased “all of the time” from at least one of five tax-free locations	0.63**	(0.48–0.84)
<b>Rules of Smoking at Home (reference: no rules)</b>		
Partial ban	1.23	(0.93–1.61)
Smoke-free	1.27	(0.93–1.72)
<b>Insurance (reference: private)</b>		
Medicare	1.54	(0.93–2.54)
Medicaid	1.19	(0.81–1.74)
No insurance	0.87	(0.64–1.19)
<b>Average Number of Cigarettes Per Day (reference: less than 5)</b>		
5–20	0.70*	(0.51–0.97)
20+	0.46**	(0.32–0.64)
<b>Age (reference: 18–24 years)</b>		
25–39	1.11	(0.74–1.64)
40–64	0.90	(0.61–1.32)
65+ years	0.65	(0.35–1.22)
<b>Race/Ethnicity (reference: white)</b>		
African American	1.28	(0.87–1.88)
Hispanic	1.14	(0.72–1.79)
Other	1.32	(0.80–2.18)
<b>Gender (reference: female)</b>		
Male	1.11	(0.87–1.41)
Children below 5 years in the household	0.94	(0.65–1.36)
Children between 5–17 years in household	1.02	(0.79–1.32)
Number of quarters since baseline	0.95	(0.90–1.00)
<b>Area (reference: NYC-Long Island area)</b>		
Buffalo Area	1.00	(0.68–1.45)
Hudson Valley Area	1.07	(0.69–1.64)
N. Capital Area	1.04	(0.62–1.76)
N. Central Area	1.27	(0.79–2.03)
Rochester Area	0.85	(0.55–1.31)
S. Capital Area	1.19	(0.79–1.81)
S. Central Area	1.16	(0.75–1.78)
Number of observations	2,725	

Note: 95% confidence intervals are presented in parentheses.

\*Significant at 5%.

\*\*Significant at 1%.

**Exhibit A-4. Quit Smoking for at Least 6 Months in the Past Year**

Dependent Variables	Quit Smoking for at Least 6 Months in the Last Year—Odds Ratio	
Aware of cessation media messages	0.56	(0.32–1.00)
Aware of secondhand smoke media messages	0.71	(0.42–1.19)
<b>Rules of Smoking at Home (reference: no rules)</b>		
Partial ban	0.77	(0.38–1.54)
Smoke-free	3.61**	(2.24–5.84)
<b>Insurance (reference: private)</b>		
Medicare	1.01	(0.57–1.79)
Medicaid	0.30**	(0.15–0.60)
No insurance	0.84	(0.45–1.58)
<b>Age (reference: 18–24 years)</b>		
25–39	0.80	(0.36–1.77)
40–64	1.36	(0.63–2.96)
65+ years	3.05*	(1.30–7.15)
<b>Race/Ethnicity (reference: white)</b>		
African American	0.69	(0.37–1.29)
Hispanic	1.04	(0.53–2.06)
Other	1.22	(0.56–2.66)
<b>Gender (reference: female)</b>		
Male	0.93	(0.65–1.33)
Children below 5 years in the household	1.07	(0.64–1.77)
Children between 5–17 years in household	0.99	(0.65–1.50)
Number of quarters since baseline	1.13**	(1.05–1.23)
<b>Area (reference: NYC-Long Island area)</b>		
Buffalo Area	0.91	(0.46–1.79)
Hudson Valley Area	0.93	(0.57–1.50)
N. Capital Area	0.69	(0.34–1.41)
N. Central Area	0.26**	(0.14–0.50)
Rochester Area	0.92	(0.53–1.59)
S. Capital Area	1.11	(0.58–2.14)
S. Central Area	1.11	(0.57–2.16)
Number of observations	2,191	

Note: 95% confidence intervals are presented in parentheses.

\*Significant at 5%.

\*\*Significant at 1%.



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