## Title

The California Tobacco Control Program: A Decade of Progress, Results from the California Tobacco Survey, 1990-1999



## Author

Cancer Prevention and Control Program, University of California, San Diego

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# *The California Tobacco Control Program: A Decade of Progress, Results from the California Tobacco Survey, 1990-1999*

California Department of Health Services
Tobacco Control Section

*Prepared by*
*Cancer Prevention and Control Program*
*University of California, San Diego*


**Gray Davis, Governor**
State of California

**Grantland Johnson, Secretary**
California Health and Human Services Agency

**Diana M. Bonta, R.N., Dr.P.H., Director**
California Department of Health Services

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# EXECUTIVE SUMMARY AND KEY FINDINGS

## EXECUTIVE SUMMARY

During the 1990s in California, smoking behavior and attitudes about smoking have changed, as measured from the California Tobacco Surveys (CTS) and other data sources. Some of the most important findings from the CTS are highlighted below. For a more complete summary, see the Key Findings from each chapter of this report, which appear both in this Executive Summary and at the end of each chapter. Throughout this report, results are given with the margin of error (±95% confidence limits).

### Adult Smoking Behavior

- Over the decade, per capita cigarette consumption fell by a factor of 57% in California compared to only 27% in the rest of the United States. By the end of 1999, Californians consumed only 4.1 packs of cigarettes per person per month, compared to 9.1 in the rest of the United States.

- While adult (18+ years) smoking prevalence decreased in the first few years of the decade, after 1994 changes in prevalence were not statistically significant. The most recent CTS indicated that adult smoking prevalence was 18.3±0.3% in 1999.

- Despite relatively stable smoking prevalence since 1993, fewer California smokers are heavy daily smokers, and between 1990 and 1999, the prevalence of daily smoking declined by a factor of 18.6%. These findings explain the decline in per capita cigarette consumption. In 1999, only 13.0±0.3% of Californians were daily smokers. Only 6.4±0.4% of California college graduates were daily smokers.

- Over the decade, the percent of California smokers making a quit attempt lasting a day or longer in the last year increased by a factor of 25.9% to 60.1±1.5% in 1999. Quitters in 1999 appeared to be as successful as those earlier in the decade.

- In California, the cigar fad appears to be dissipating, mostly among adults who have never smoked cigarettes. In 1999, most current California cigar smokers smoke only a few cigars a month (83.2±3.7% smoked <5/month). Cigar smokers who were former cigarette smokers showed the highest level of monthly cigar consumption.

### Adolescent Smoking Behavior

- Although California adolescents showed an alarming increase in smoking prevalence (any smoking in the past 30 days) between 1993 and 1996, by 1999 current smoking prevalence had fallen to 7.7±0.8%, significantly lower than prevalence in 1990.

- Among young adolescents 12-13 years of age, the percentage of committed never smokers rose by a factor of 17.7% between 1996 and 1999 to 65.7±1.9%.

- In 1999, 79.8±6.4 of current adolescent established smokers reported they had tried to quit sometime in the past.

- Adolescent use of other tobacco products is highly related to cigarette smoking. In 1999, rates of adolescent ever experimentation with cigars (15.0±1.2%) and bidis (7.0±0.8) were much higher than for chewing tobacco or snuff (3.1±0.5%).

**Protection of Nonsmokers from Secondhand Tobacco Smoke**

- In 1999, 93.4±0.8% of California indoor workers reported that smoking was not allowed in their workplace, up from 35.0±1.3% in 1990.

- In 1999, the percentage of nonsmokers exposed to someone smoking in their work area in the past two weeks increased significantly from 11.8±1.5% in 1996 to 15.6±1.4% in 1999. Over the decade, however, exposure to secondhand smoke in the workplace decreased by a factor of 46.2%

- In 1999, 73.3±1.1% of Californians lived in smokefree homes, up by a factor of 30% since 1993. Further, nearly half (47.2±1.8%) of current California smokers live in smokefree homes, a factor increase of 135% since 1993.

- Accordingly, the percentage of California children and adolescents protected from secondhand smoke at home increased by a factor of 15.1% since 1993, to 88.6±1.1% in 1999.

**Other Important Findings**

- While adult California smokers were more concerned about the price of cigarettes after the $0.50/pack excise tax increase in January 1999, about 70% buy their cigarettes at the most expensive outlets, only a few (5.4 ±0.8%) bothered to seek out untaxed sources, and 58.2±1.1.39% supported a further tax increase of $0.50 or more.

- In 1999, less than half (48.0±1.5%) of California's adolescent never smokers believed that it is easy to get cigarettes, down by a factor of 16% since 1996.

- Perceived compliance with smokefree school policies increased by a factor of 64% from 1996 to 1999, when 66.6±1.5% of adolescents reported that most of the students who smoke obey the no-smoking rule on school property.

- In 1999, 9.0±0.9% of adolescents had a tobacco promotional item, a factor decrease of 34.5% since 1996. However, 14.9±1.1% of adolescents said they would be willing to use a promotional item. Few adults (1.2±0.2%) reported ever giving such an item to a child or adolescent, but 7.6±0.6% said they were willing to do so.

## KEY FINDINGS

### Chapter 1 - Comparison of California to the Rest of the United States

1. During the decade of the California Tobacco Control Program, a statistical model of adult (18+ years) per capita cigarette consumption indicates that consumption has decreased in California from 9.5 packs/month in December 1989 to 4.1 packs/month in December of 1999, a decline by a factor of 57%.

2. In the rest of the United States, a comparable statistical model indicates per capita cigarette consumption decreased from 12.4 packs/month in December 1989 to 9.1 packs/month in December of 1999, a decline by a factor of 27%. Thus, consumption declined in California by twice as much as it did in the rest of the United States.

3. Over the period of the California Tobacco Control Program, a statistical model indicates that adult smoking prevalence declined by a factor of 24%, compared to 17% in the rest of the United States. In December of 1999, prevalence estimated from the model was 17.5% in California and 21.5% in the rest of the United States.

4. Over the 10-year period, adult smoking prevalence declined more in California than in the rest of the United States. However, most of the decline in California occurred during the early years of the Tobacco Control Program, while the smaller decline in the rest of the country occurred relatively evenly over the period.

5. In recent years, continued declines in per capita cigarette consumption were not accompanied by a change in smoking prevalence. This suggests that California smokers are reducing the number of cigarettes they smoke rather than quitting altogether.

### Chapter 2 – Smoking Prevalence in California: Results of the California Tobacco Surveys (CTS)

1. Smoking patterns are changing among current California adult smokers. An ever smaller fraction of current adult smokers are heavy daily smokers (smoke 15+ cigarettes/day), less than 30% of current smokers in 1999. Further, in 1999 over 20% of current smokers did not smoke every day.

2. Over the decade from 1990 to 1999, the prevalence of daily smoking (standardized) declined by a factor of 18.6%. In 1999, the snapshot estimate of adult prevalence of daily smoking was 13.0±0.3%. Among college graduates, the prevalence of daily smoking was only 6.4±0.4% in 1999.

3. In contrast to adult California females, there are demographic groups of males that show no indication of further reduced smoking prevalence. These include Asians and those with less than a high school education. Young males 18-24 years of age showed an increased smoking prevalence beginning in 1993.

4. There was considerable variability in adjusted smoking prevalence rates among regions. Some regions changed little, and others showed important declines for both adults and adolescents.

5. Adolescent smoking prevalence, any smoking in the past 30 days, was constant between 1990 and 1993, jumped higher by a factor of 29.5% between 1993 and 1996, and then fell by a factor of 33.1% between 1996 and 1999. Overall, the standardized adolescent smoking prevalence was significantly lower in 1999 than at the beginning of the decade. The snap shot estimate of adolescent smoking prevalence in 1999 was 7.7±0.8%.

Chapter 3 – Protection of Nonsmokers

1. In 1999, 93.4±0.8% of California indoor workers reported that smoking was not allowed in their workplace, up from 35.0±1.3% in 1990, a factor increase of 167%.

2. Nonsmoking indoor workers were less exposed to secondhand smoke in their workplace in 1999 (15.6±1.4%) compared to 1990 (29.0±1.8%). Even so, between 1996 and 1999 there was an upturn in such reports.

3. In 1999, indoor workers in plants/factories, stores/warehouses and restaurants/bars reported more exposure to secondhand smoke than workers in classrooms, hospitals or offices. While exposure was lower in workplaces with more than 50 employees, the size of smaller workplaces was not related to reported exposure.

4. More and more California homes are smokefree; in 1999, 73.2±1.1% of California homes had a smokefree policy, compared to 50.9±0.9% in 1993, a factor increase of 43.8%. In 1999, 47.2±1.8% of smokers lived in smokefree homes, up by a factor of 135% from 20.1±1.7% in 1993.

5. With the increase in smokefree homes, children and adolescents are increasingly protected from exposure to secondhand smoke in the home. In 1999, 88.6±1.1% of children and adolescents lived in smokefree homes, up from 77.0±1.4% in 1993, a factor increase of 15.1%.

6. In 1999, 37.1±1.4% of nonsmoking Californians not only lived and/or worked in smokefree environments, but also could not report an instance of exposure to someone smoking in the past 6 months. Among those who did report an instance outside the workplace or home, exposure in restaurants was the most frequent indoor setting mentioned.

7. In 1999, 94.0±0.5% of California adults agreed that secondhand smoke harms the health of babies and children and 83.3±0.7% agreed that it causes cancer in nonsmokers. Older smokers were much less likely to agree that secondhand smoke causes cancer in nonsmokers.

8. In 1999, 35.1±1.3% of nonsmokers reported asking a smoker not to smoke, and this nonsmoker activism was more prevalent among demographic groups with a relatively high smoking prevalence, younger, less educated, lower income persons. Nonsmokers were most likely to ask relatives or friends and acquaintances not to smoke, but the propensity to ask strangers increased with the age of the nonsmoker.

Chapter 4 – Adolescent and Young Adult Smoking

1. By 1999, the percent of California adolescents 12-17 years of age who were committed never smokers was 53.3±1.4%, which, despite a decrease in 1996, was significantly higher than the rate of committed never smokers in 1993, 48.6±1.9%.

2. The percent of adolescents 15-17 years of age who had become established smokers was only 8.0±1.1% in 1999, a factor decrease of 33.9% since 1996.

3. In 1999, 79.8±7.2% of current adolescent established smokers reported they had tried to quit in the past. Some of these quitters (4.2±3.1%) had used nicotine replacement, and this rate of use may not be much different than among adult light smokers.

4. The relation between the timing of the Joe Camel campaign and patterns in youth smoking prevalence since 1990 together with the recent declines in youth smoking prevalence suggests that the increase in young adult smoking in 1999 reflects the maturing of the youth cohort previously influenced by the Joe Camel campaign, rather than more recent tobacco industry campaigns targeting young adults.

5. In 1999, a high proportion of young adult established smokers (approximately 45% of 18-20 year olds) have never smoked daily. About 25% of young adult smokers over 20 years of age have reverted to occasional smoking after a period of daily smoking for at least 6 months.

## Chapter 5 – Parental Influences on Adolescent Smoking

1. Parental reinforcement of strong expectations against smoking for their adolescent is strongly associated with low rates (11.7±1.6% overall) of adolescent ever smoking and is likely a key parenting practice to deter adolescent smoking throughout adolescence and into adulthood, when the risk for smoking uptake drops considerably.

2. The majority of parents who smoke attributed the addictive power of nicotine as the reason they smoke (64.9±5.3%) or relapsed (54.8±10.6%) when they discuss their smoking with their adolescent. According to adolescent reports, many adolescents (40.2±9.7%) appear to accept this explanation.

3. Most parents (78.6±2.0%) reported that parents should discuss the risks of smoking with their children, and two-thirds of adolescents (67.9±2.9%) report that their parents had discussed the risks of smoking with them at some time.

4. The vast majority of parents (90.7±1.7%) reported that parents should ask their adolescents about smoking that occurs among friends at least every now and then, and 47.4±3.0% reported that parents should ask regularly.

5. While most parents (88.7±2.4%) of adolescent committed never smokers reported that their adolescent was not at risk to smoke, many (65.6±3.3%) parents of adolescents who were at risk to start or experiment further with smoking did not perceive their adolescents as being at risk to smoke.

## Chapter 6 – Smoking Cessation: California Smokers are Trying to Quit

1. In 1999, 59.4±1.7% of adult smokers were either occasional smokers or smoked less than 15 cigarettes/day.

2. Quit attempts of a day or longer increased by a factor of 25% from 1990 when 48.9±1.5% of smokers made a quit attempt to 61.5±1.5% in 1999.

3. Despite the increased quitting incidence by 1999, smokers were successful (abstinent at least 90 days) at about the same rate as earlier in the decade.

4. In 1999, the group of smokers (>25 years of age) with no quit attempts in the past year and absolutely no intention to quit in the future comprised 9.1±1.2% of all smokers, unchanged since 1996. Some of these smokers are light smokers who may believe that they don't need to quit.

5. Smokers both living and working in smokefree environments (23.7±1.2% in 1999) were significantly more likely to have made a recent quit attempt and to be light smokers than those with either or neither of these constraints on smoking.

6. The percentage of California smokers using some form of cessation assistance increased by a factor of 21.7% between 1992 when 18.4±2.4% of smokers used assistance and 1999 when 22.4±1.8% did. The percent using nicotine replacement therapy was 12.7±1.1% in 1996 and 14.2±1.3% in 1999, a significant increase by a factor of 11.8%. In 1999, 5.3±0.9% of smokers used an antidepressant while trying to quit.

7. Relatively heavy smokers are much more likely to chose a medical aid for smoking cessation, and in 1999, heavy smokers using such an aid (average use about 4 weeks) stayed off cigarettes longer than those who did not use one. However, by 90 days, the relapse rates were not statistically different.

8. Report of physician advice to quit by smokers visiting a physician in the last year increased by a factor of 20.4% between 1990 (37.8±2.9%) and 1999 (45.5±3.2%). If a physician also provided a referral to a smoking cessation program, smokers reported they were more likely to try to quit than if such a referral was not provided.

Chapter 7 – Price Sensitivity and Taxes

1. In 1999, California smokers experienced an increase of approximately $1.20/pack, resulting from the $0.50/pack excise tax increase due to the passage of Proposition 10 and from two tobacco industry price increases in response to the provisions of the Multi-state Master Settlement agreement.

2. In all survey years, younger smokers and lighter smokers reported paying significantly more per pack than older smokers and heavier smokers.

3. Per capita cigarette consumption in California decreased by a factor of 20% following the 1999 price increases; this decrease was nearly identical to the expected decrease, based on the 52% average real price change between 1998 and 1999.

4. On average, smokers paid approximately $61/month to support their habit in 1999, an increase by a factor of 50% from 1996. Light smokers (1-14 cigarettes/day) spent approximately $34/month; moderate smokers (15-24 cigarettes/day) spent about $87/month; and heavy smokers (25+ cigarettes/day) spent nearly $160/month on smoking in 1999.

5. Monthly expenditures on smoking did not vary by household income, even after controlling for the amount smoked.

6. Only 5.4±0.8% of California smokers avoided the new excise tax by usually purchasing cigarettes over the Internet (0.4±0.3%), at military commissaries (1.9±0.5%), on Indian reservations (0.3±0.3%), or out of state (3.0±0.5%).

7. Nearly 70% of California smoker reported that they usually buy their cigarettes from the most expensive sources—convenience stores, liquor/drug stores, and supermarkets.

8. Overall, over half (52.5±1.9%) of California smokers in 1999 reported that they were worried about how much money they spend on cigarettes, an increase of nearly 50% from 1996 (35.1±1.3%).

9. Even after the Proposition 10 $0.50/pack excise tax increase, approximately 70% of all respondents in 1999 supported an excise tax increase of at least $0.25/pack—and nearly 60% (58.2±1.3%) supported an increase of another $0.50/pack.

10. Based on the price change alone, it was expected that adolescent smoking prevalence would decrease by a factor of 38% between 1996 and 1999; the actual decrease was 36%.

11. Despite the substantial increase in cigarette prices, the majority of adolescent cigarette buyers neither hesitated nor refused to give away cigarettes because of the cost.

12. Adolescent established smokers spent approximately $8/week on cigarettes in 1999, which amounted to approximately 16% of their discretionary income.

13. Nearly all adolescent ever-smokers smoked premium brand cigarettes.

Chapter 8 – Media Influence on Smoking

1. Exposure to tobacco advertising, in the form of seeing logos on televised sporting events, decreased significantly among both adolescents (by a factor of 36.5%) and adults (by a factor of 27.2%) between 1996 and 1999.

2. The percentage of adolescent committed never smokers that named Camel as the brand of their favorite advertisement decreased significantly between 1996 and 1999. However, the percent that named Marlboro as the brand of their favorite ad increased significantly.

3. Among all respondents, having a favorite brand of cigarette advertisements was inversely related to age: around 60% of respondents under age 25 had a favorite ad, while less than half of adults between 25 and 64 years old, and fewer than 30% of those 65 years and older had a favorite ad.

4. Fewer adolescents (by a factor of 34.5%) and adults (by a factor of 18.8%) received tobacco promotional items in 1999, compared to 1996. In 1999, 9.0±0.9% of adolescents received a promotional item.

5. Significantly fewer adolescents (14.9±1.1%) were willing to use a tobacco brand promotional item in 1999, compared to 1996 (23.7±1.2%).

6. In both 1996 and 1999, significantly more adolescents were willing to use a tobacco brand promotional item than actually had such an item, suggesting that there may be some unsatisfied demand for these items across all levels of smoking experience.

7. In 1999, significantly more young adults (18-24 years old) than adolescents were willing to use a tobacco brand promotional item.

8. Overall, only 1.2±0.2% of adults reported that they had ever given a tobacco promotional item to a child or teenager. Significantly more—but still very few—adults (7.6±0.6%) reported that they would be willing to give a child or teenager such an item if they wanted it.

9. In 1999, considerably more Californians between 12-64 years old reported that they were exposed to lots of anti-tobacco messages over the TV, radio, or on billboards, compared to 1996. Some of this increase may reflect the volume of news coverage of the tobacco industry litigation and regulation during 1997-1999.

10. In 1999, 68.9±1.0% of adults reported that they thought schools should prohibit students from wearing clothes with tobacco logos or bringing gear with tobacco logos to school. Nearly as many reported that they thought the industry should not be permitted to offer items in exchange for coupons on cigarette packs (58.0±1.0%) and that the advertising of tobacco products should be completely banned (63.2±0.9%).

Chapter 9 – Access to and Ease of Purchase of Cigarettes

1. For the first time since the CTS began in 1990, never smokers' perceptions that it is easy to get cigarettes decreased significantly (by a factor of 16.1%) from 57.2±1.5% in 1996 to 48.0±1.5% in 1999.

2. Overall, the percent of adolescents who thought it was easy to buy a pack of cigarettes decreased significantly (by a factor of 48.2%) from 51.5±1.4% in 1996 to 26.7±1.3% in 1999.

3. Overall, the percent of adolescents who thought it was easy to get a few cigarettes decreased significantly (by a factor of 31.4%) from 69.1±1.2 in 1996 to 47.4±1.3% in 1999.

4. Consistently, from 1990 to 1999, approximately 40% of never smokers reported that they had been offered cigarettes.

5. The majority of adolescents reported that they usually get their cigarettes from others—61.3±3.4% were given these cigarettes and 21.9±2.5% had others buy cigarettes for them in 1999.

6. Significantly fewer adolescent ever smokers reported that they usually bought their own cigarettes in 1999 (9.3±2.1%) than in 1996 (16.1±2.2%).

7. Over 70% of adolescents who are given cigarettes get them from other underage adolescents, and another 22% get them from friends under the age of 21 years.

8. Most adolescents who buy cigarettes usually get them from gas stations, liquor stores, or small grocery stores—a pattern that has remained consistent since 1996.

9. Social sources of cigarettes are an important factor in adolescents' access to cigarettes.

10. In 1999, approximately one-third (34.3±1.2%) of adults believed that minimum purchase age laws are adequately enforced; this level is over twice as high as in 1990, when only 15.2±0.8% of adults believed that these laws were adequately enforced.

Chapter 10 – School Smoking: Policies and Compliance

1. Adolescents report that compliance with school no-smoking rules has increased dramatically since 1996. At that time 40.7±1.4% of students reported that most or all students who smoke obeyed the rule, and by 1999 66.7±1.5% gave this report, an increase by a factor of 63.9%.

2. Consequently, in 1999 the percentage of students who reported seeing someone smoking on school property within the last two weeks (36.0±1.5%) was lower by a factor of 26.9% compared to 1996 (26.3±1.7%).

3. By 1999, 89.2±0.8% of all students expressed a preference that smoking be banned on school grounds for everyone. Even 64.4±5.1% of current smokers expressed this preference, up from 55.8±4.6% in 1996, a factor increase of 15.4%.

4. The percentage of students who reported that any teachers smoked continued to decline. In 1990, 81.0±1.7% of students perceived that any teachers smoked, which declined to 70.7±1.2% in 1996 and further to 66.9±1.8% by 1999, a factor decrease of 17.4% since 1990.

5. By 1999, all students should have been exposed to smoking prevention curriculum in school, and 77.8±1.4% reported that they had been, up from 73.2±1.8% in 1990, a factor increase of 6.3%.

6. Of students who reported having a class on the health effects of smoking, the percentage who thought that the course was ineffective in making kids more against smoking decreased from 56.9±4.6% in 1996 to 47.7±1.8% in 1999, a factor decrease of 16.2%. This trend was present even in students who had ever smoked or puffed on a cigarette.

Chapter 11 – Other Tobacco Use

1. The use of pipes and smokeless tobacco in adult males continues to decrease. In 1999, only 1.5±0.4% of adult males currently used pipes and only 2.4±0.4% used smokeless tobacco.

2. The cigar smoking fad appears to have peaked. In 1999, adult current cigar use was 4.4±0.3% compared to 4.9±0.5% in 1996. Importantly, current cigar use declined significantly among adults who had never smoked cigarettes, in men from 7.5±1.4% in 1996 to 5.0±0.9% in 1999.

3. Regarding cigar smoking intensity, the 1999 CTS showed that:

   a. Most current cigar smokers only smoke a few cigars a month: 83.2±3.7% smoked fewer than 5 cigars in the last month, and 43.3±5.5% smoked none in the last month.

   b. Current cigar smokers who are former cigarette smokers smoke more cigars than either never smokers or current smokers. Of former cigarette smokers, 10.4±5.4% were daily cigar smokers and 19.0±7.5% smoked more than 10 cigars/month. For never cigarette smokers these rates were 1.5±1.9% and 6.3±4.0%, respectively, and for current cigarette smokers the rates are 3.6±1.8% and 11.6±3.2%.

   c. Current cigarette smokers are more likely to inhale the cigars they smoke (45.7±5.0%), compared to former cigarette smokers (20.5±8.6) or never cigarette smokers (10.8±6.6%).

4. Smokeless tobacco use has continued to decline among adolescent boys. In 1999, the percentage of boys who had used smokeless tobacco in the past 30 days was 0.6±0.2%, compared to 1.7±0.5% in 1993. The percentage of ever use (experimentation) was 3.1±0.5% in 1999, down from 8.7±0.7% in 1993.

5. Adolescents of both genders are experimenting with cigars and a tobacco product new to the United States, bidis, a flavored cigarette imported from Asian countries. In 1999, 11.9±1.1% of adolescents had experimented with cigars, down significantly from 15.0±1.2% in 1996. In 1999, 7.0±0.8% of adolescents reported experimenting with bidis.

6. Adolescent experimentation with other tobacco products is highly associated with their experience with cigarettes. Almost none of the adolescents committed to never smoking cigarettes had used any other tobacco product. Since this portion of the adolescent population is increasing (Chapter 4), there should be declines in the use of other tobacco products over time.

# Chapter 1

# COMPARISON OF CALIFORNIA TO THE REST OF THE UNITED STATES

# CHAPTER 1: COMPARISON OF CALIFORNIA TO THE REST OF THE UNITED STATES

## Introduction

In 1990, the goals outlined for the California Tobacco Control Program included reducing tobacco use in California by 75% by the year 2000 (TEOC, 1991). It was estimated that the rate of decline in per capita cigarette consumption would need to double in California during the 1990's decade to reach the goal. Both per capita cigarette consumption and adult smoking prevalence have been declining in California and the rest of the United States ever since the health consequences of smoking became widely known (USDHS, 1989). This chapter compares the trends in per capita cigarette consumption and adult (18+ years) smoking prevalence in California and the rest of the United States.

To determine whether any decline in tobacco use in California can be attributed to the California Tobacco Control Program (TCP), such a decline should be at a rate faster than before the TCP began, and during the program be faster than any decline observed in the rest of the United States during the same time. The latter comparison is becoming less meaningful as more and more states adopt their own tobacco control programs. Recently, money from the state attorney generals' settlement with the tobacco industry has motivated a number of states to mount serious tobacco control programs. Also, a number of states have followed California's lead and increased the amount of excise tax they levy on a package of cigarettes to support tobacco control programs.

Previously (Pierce et al., 1998a,b), the period of the California Tobacco Control Program was divided into two parts, corresponding to a change in the level of resources devoted to the Program (Balbach et al., 1997) and a decrease in the price of premium brands of cigarettes by the tobacco industry in 1993 (Shapiro, 1993). Funding for the California Tobacco Control Program was reinstated to levels specified by Proposition 99 beginning with fiscal year 1995-96. In January 1999, another large excise tax increase of $0.50/pack occurred following voter approval of Proposition 10 in the Fall of 1998. Also, around the same time, the tobacco industry raised the prices on cigarettes nationally by around the same amount as the recent California excise tax increase to pay for their settlement with the state attorney generals.

Section 1 of this chapter focuses on trends in per capita cigarette consumption. Section 2 is devoted to trends in adult smoking prevalence, and Section 3 summarizes the findings of the chapter.

## 1. Per Capita Cigarette Consumption

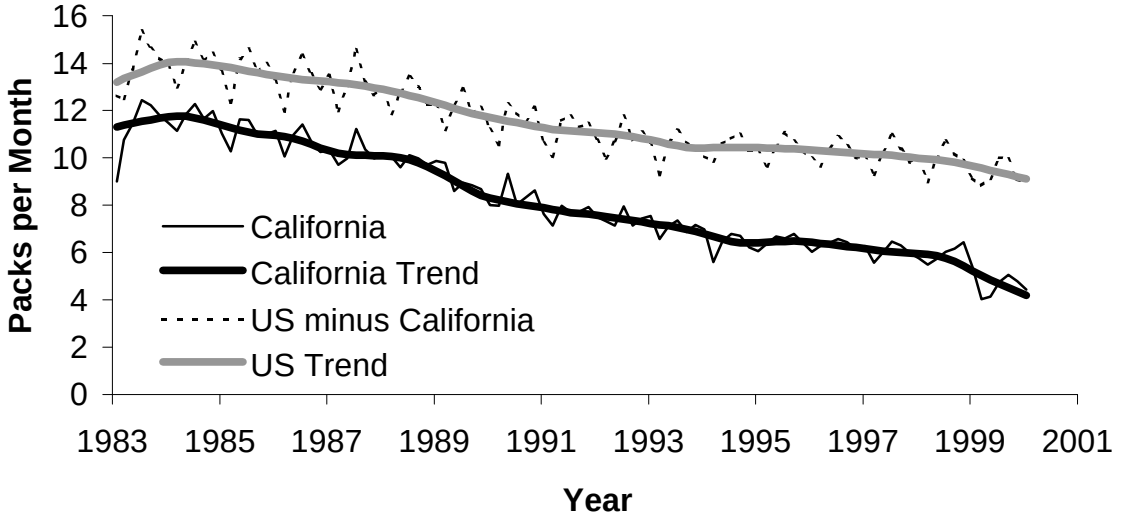
Until late 1998 when it was disbanded, the Tobacco Institute compiled cigarette sales data on a monthly basis in each state for federal tax reporting purposes (The Tobacco

Institute, 1997). Since then, the same group responsible for compilation of the earlier data has been producing it as part of the economic consulting firm, Orzechowski and Walker, with support from the tobacco industry (Orzechowski & Walker, 2000). The board of equalization in each state compiles comparable data. For each pack of cigarettes sold in California, excise tax stamps are required. A careful comparison of data from these two sources for California indicated that they are essentially equivalent. For this report, the data published by the consulting firm Orzechowski and Walker will be used, since it is gathered in a comparable way in each state and will enable a comparison of California with the rest of the United States.

As these data are from wholesale warehouse removals, there is considerable variation from one month to the next; in particular, the levels of removals in the last month of any quarter is strongly correlated with the removals in the first month of the next quarter. This variation has little to do with actual consumption and likely reflects business practice. In order to remove this source of variability, data were combined into 2-month intervals with December/January, February/March, etc., treated as single intervals. To convert the sales data to per capita cigarette consumption, the mean number of packs removed from warehouses in a given interval was divided by the total population of adults aged 18 and older in California (or the rest of the United States) at that time. Annual population totals are available from the US Bureau of the Census (US Bureau of the Census, 1990, 1996, 1999), and these were interpolated to obtain the population at given times (interval midpoints) during the year. Finally, to better visualize the trends in the computed per capita cigarette consumption, a special statistical procedure was applied to smooth the data (Gilpin et al., 2001).

Figure 1.1 presents the trends in per capita cigarette consumption as packs/month from January-February 1983 through December 1999-January 2000 for persons aged 18 years and older for California and the remainder of the United States. Over the entire period, Californians consumed fewer cigarettes per capita than did people in the rest of the United States. In California, around the time the TCP began, the rate of decline in per capita cigarette consumption appeared to change. This increase in the rate of decline occurred several months before the passage of Proposition 99 and almost 18 months before the start of the first TCP intervention. However, the faster rate of decline is coincident with the start of the $24 million media campaign mounted by the tobacco industry to convince voters to defeat Proposition 99.

Beginning in 1994, the rate of decline in per capita consumption slowed in California, perhaps because of lower levels of resources devoted to TCP. Although resources were increased again in fiscal year 1995-1996, the disruption in funding necessitated the hiring and training of new staff at all program levels, so that considerable time elapsed before the TCP was back on track. There was no noticeable increase in the rate of decline in per capita consumption until at least late 1996. There appears to be another change in the rate of decline in per capita cigarette consumption in the last two years, corresponding to the unprecedented increase in the price of cigarettes because of the tobacco industry settlement and because of the $0.50/pack excise tax increase in January of 1999.

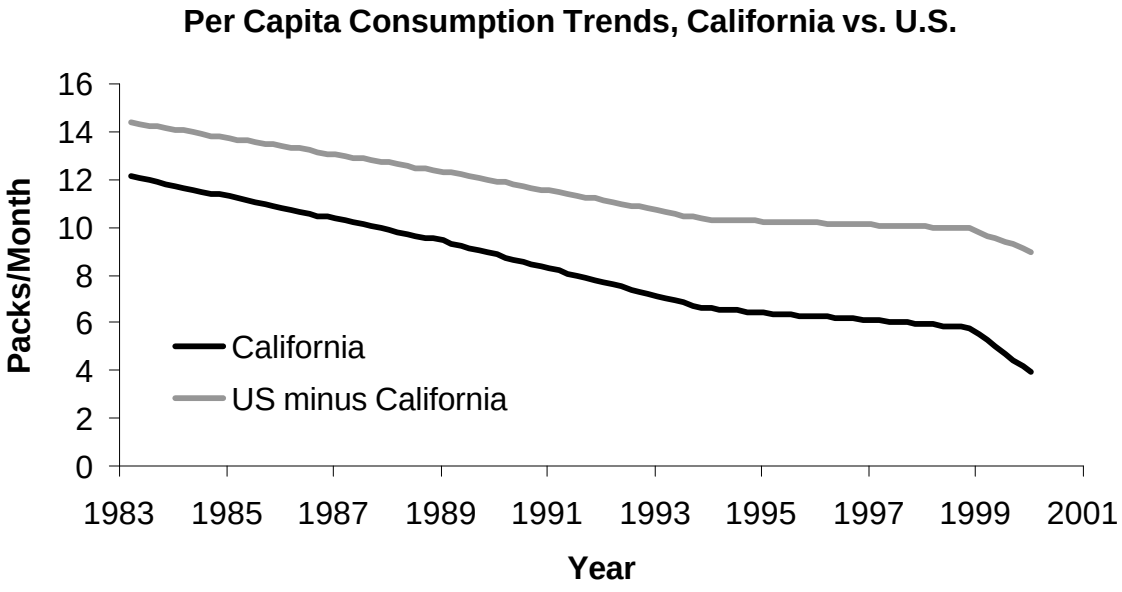



Source: Tobacco Institute; Orzechowski & Walker; U.S. Bureau of Census

Figure 1.1

In the rest of the United States, the decline in per capita cigarette consumption observed during the 1980s halted beginning in 1993, around the time the tobacco industry reduced prices on premium brands of cigarettes, and the per capita consumption level has remained fairly steady, except a recent downturn following the tobacco industry price increase.

Because there did not appear to be a change in the rate of decline in per capita consumption in California when funding was restored in fiscal year 1995-1996, the analysis presented below uses the period from the beginning of 1989 through the end of 1993 as the early period, the period from the beginning of 1994 through Fall 1998 as a mid period (Pierce et al., 1998b), and then includes a new more recent period, beginning around the time the tobacco industry began raising prices to compensate for the settlement with the states in the fall of 1998. More precisely, the date demarking the preprogram and early program periods was December 31, 1988, the date demarking the early and mid program periods was December 31, 1993, and the date demarking the most recent period was October 31, 1998. Because there are only 7 bimonthly data points in the most recent period, the results must be interpreted with caution. Figure 1.2 plots the regression lines fitted to deseasonalized bimonthly consumption data before the beginning of the TCP and for each period during the Program. The regression model employed (Gilpin et al., 2001) can evaluate whether the change in the slope of the regression line from one period to the next is statistically significant.




Source: Tobacco Institute; Orzechow ski & Walker; U.S. Bureau of the Census Figure 1.2

The computed slopes and the estimates of per capita cigarette consumption obtained from the models are presented in Table 1.1.

**Table 1.1**
**Summary of Decreases in Per Capita Cigarette Consumption**

| | California | | Rest of US | |
|---|---|---|---|---|
| **Period** | **Rate of Decline** | **Per Capita Packs/Month[1]** | **Rate of Decline** | **Per Capita Packs/Month[1]** |
| Pre-Program (1/83-12/88) | -0.46 | 9.5 | -0.35 | 12.4 |
| Early Program (1/89-12/93) | -0.58 | 6.6 | -0.40 | 10.3 |
| Mid Program (1/94-10/98) | -0.16 | 5.8 | -0.07 | 10.0 |
| Recent Program (10/98-12/99) | -1.56 | 4.1 | -0.78 | 9.1 |

[1]Packs/person: December 1988, December 1993, October 1998, December 1999
Source: Tobacco Institute; Orzechowski and Walker; U.S. Bureau of Census

Before the excise tax increase in California in January 1989, monthly consumption had been declining at an annual rate of 0.46 packs/person so that in December 1988, Californians were consuming an average of 9.5 packs/person. After the start of the TCP, the annual rate of decline in monthly consumption increased significantly from 0.46 to 0.58 packs/person, so that in June 1993, Californians were consuming an average of 6.6 packs/person. Thus, the early period in the TCP was associated with an increase by a factor of 31% in the annual rate of decline in per capita cigarette consumption in the state.

In the mid period of the TCP, the annual rate of decline in monthly consumption decreased to 0.16 packs/person. This reduction in the rate of decline represented a

statistically significant change from the rate of decline in the early period. The model indicated that in October of 1998, monthly per capita consumption was 5.8 packs/person. Further, the model indicated that the rate of decline seen in the most recent period is significantly greater than in the mid period, and estimated that Californians were consuming 4.1 packs/person in December of 1999.

Before the start of the TCP, monthly cigarette consumption had also been declining in the rest of the United States at an annual rate of 0.35 packs/person. By December 1988, residents in the rest of the United States were consuming an average of 12.4 packs/person; this was higher than the per capita consumption in California by a factor of 31%. During the early period of the TCP (through 1993), the annual rate of decline in monthly consumption in the rest of the United States increased slightly but not significantly from 0.35 to 0.40 packs/person to a consumption level of 10.3 packs/month in December 1993. At this time, the level of consumption in the rest of the United States was higher than in California by a factor of 46%. During the mid period of the TCP, the annual rate of decline in monthly cigarette consumption in the rest of the United States was only 0.07 packs/person, and, as in California, this was a significant decrease from the early program years. Just as in California, the rate of decline increased significantly in the most recent period, so that the model estimates that in December of 1999 per capita consumption in the rest of the US was 9.1 packs/person, higher than that in California by a factor of 55%.

The increase in the rate of decline in per capita consumption seen both in California and the rest of the United States in the most recent period corresponding to major increases in the price of cigarettes may or may not be sustained. It may only represent a shock that will return to a more modest level of decline after a few more months. This may have also been the situation following the initial $0.25/pack excise tax from Proposition 99 (Figure 1.1).

Over the entire period from the beginning of the TCP through December 1999, per capita cigarette consumption declined by a factor of 57% in California and by a factor of 27% in the rest of the United States. Thus, over this period, California cut per capita cigarette consumption twice as much as the rest of the United States.

Per Capita Cigarette Consumption from Sales Data and Smoker Reported Consumption

Per capita cigarette consumption for California can also be estimated from the California Tobacco Surveys, since each current smoker responding to the surveys is asked about his or her level of cigarette consumption. In all the CTS, smokers were asked the following questions:

***Daily smokers***

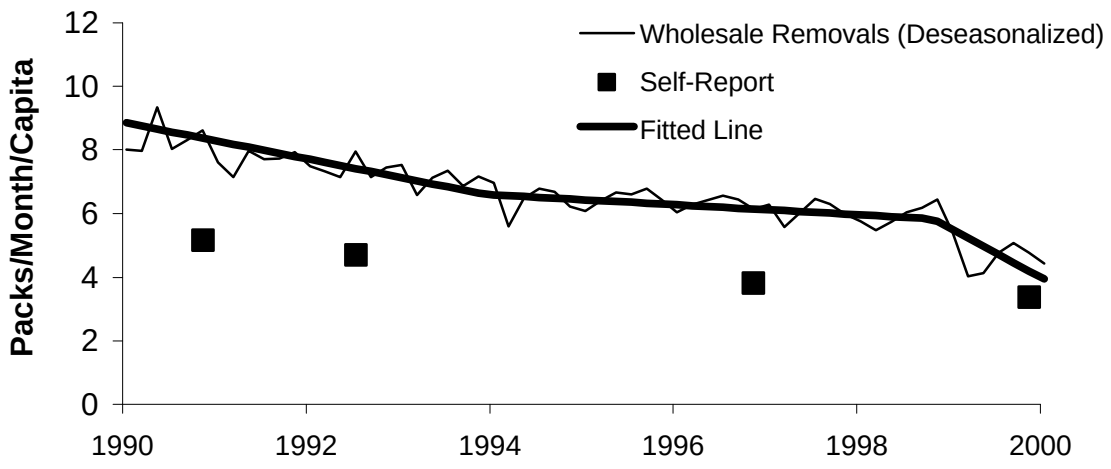
- *On average how many cigarettes do you smoke each day?*

***Occasional smokers***

- *How many days did you smoke in the past month?*
- *On the days you did smoke, about how many cigarettes did you smoke?*

For daily smokers, packs/month was computed by multiplying reported daily cigarette consumption by 30 days and dividing the result by 20 cigarettes per pack. For occasional smokers, the number of days the smoker smoked was multiplied by the number of cigarettes usually smoked those days and the result divided by 20 cigarettes per pack.

Figure 1.3 shows the same sales data shown in Figure 1.1 and the self-reported consumption from the 1990 through 1999 CTS. The 1993 survey is not included, because it did not query occasional smoking. The data plotted in the figure are summarized in Table 1.2, along with the difference between the self-reported consumption from the survey and the value from the model (Figure 1.2).




Source: CTS 1990, 1992, 1996, 1999; Figures 1.1 and 1.2

Figure 1.3

**Table 1.2**
**Smokers' Self-Reported Cigarette Consumption**

| | Self-Reported Consumption (packs/month) | Estimate from Model of Cigarette Sales Data (packs/month) | Factor Lower % |
|---|---|---|---|
| 1990 CTS,10-11/1990 | 5.2 (±0.2) | 8.4 (8.3-8.5) | -38.2 |
| 1992 CTS, 4-5/1992 | 4.7 (±0.4) | 7.4 (7.3-7.5) | -36.5 |
| 1996 CTS, 10-11/1996 | 3.8 (±0.1) | 6.1 (6.0-6.3) | -37.7 |
| 1999 CTS,10-11/1999 | 3.4 (±0.1) | 4.2 (3.9-4.5) | -19.6 |

Mean consumption is shown with 95% confidence intervals.
Source: CTS 1990, 1992, 1996, 1999; Figures 1.1 and 1.2

In California, the self-reported consumption data consistently underestimated the sales data compared to the model estimate; this phenomenon has been identified previously in national surveys (USDHHS, 1989). This difference has been attributed to rounding down

to the nearest half pack when smokers, particularly heavy smokers, report their average daily consumption and to the fact that not all cigarettes purchased are consumed. However, in 1999 the CTS estimate of per capita consumption shows less of a differential. It is possible that with considerably reduced consumption, smokers estimate their average daily consumption more accurately with less rounding. While heavy smokers may still round down to the nearest half pack, light smokers may be giving an accurate estimate of how many cigarettes they smoke a day.

## 2. Adult Smoking Prevalence

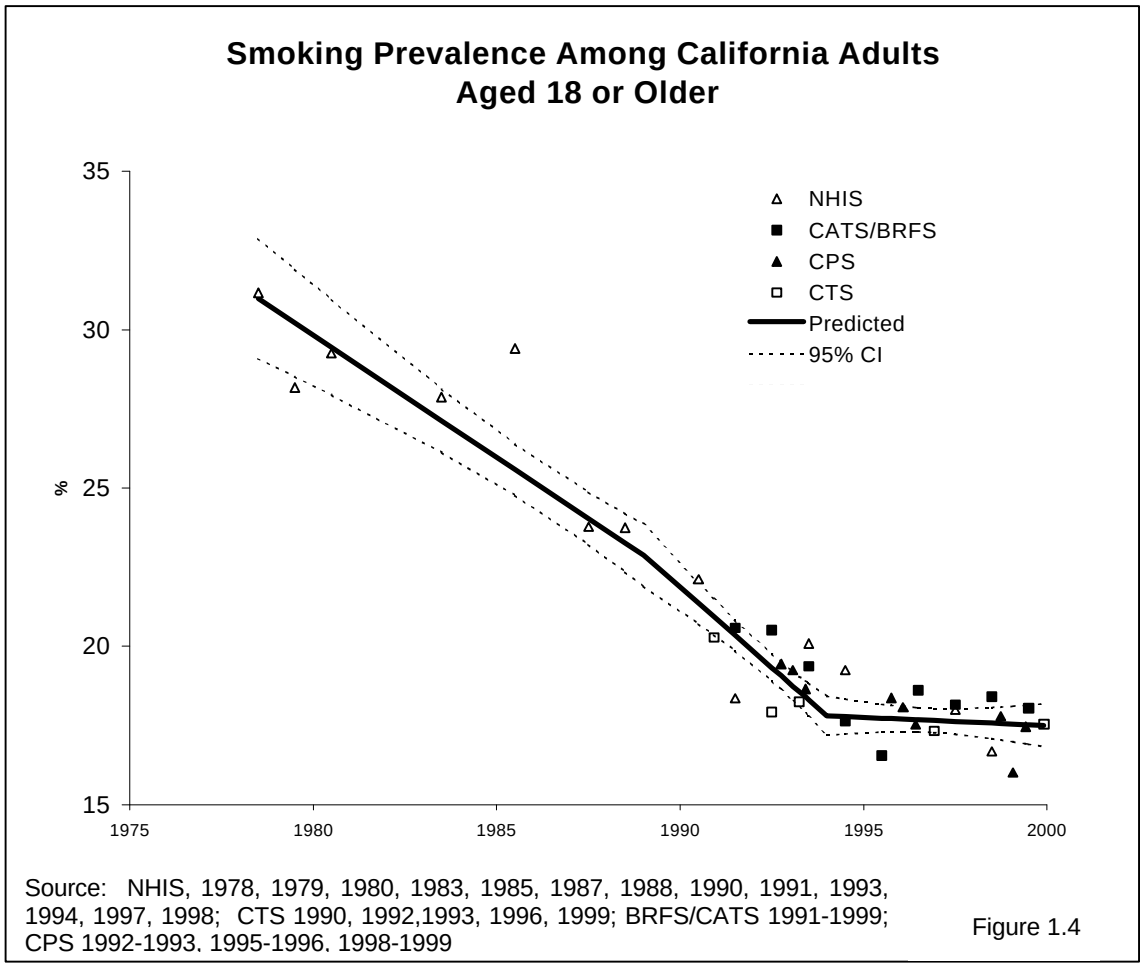
A number of surveys conducted nationally and within California ask respondents about their smoking status. Data from all methodologically sound population surveys conducted since 1974 were considered for the analysis of smoking trends in California compared to the rest of the United States. With the exception of the 1985 Current Population Survey (CPS), the only large-scale national population surveys conducted on a regular basis prior to 1988 in the United States were the National Health Interview Surveys (NHIS). Subsequently, in addition to the NHIS (1990, 1992, 1993, 1994, 1997, 1998), there have been multiple CPS (1989, 1992, 1993, 1995, 1996, 1998, 1999). The NHIS and CPS are large enough, and California is a large enough fraction of the sample, that prevalence estimates for California can be computed. Since the beginning of the California Tobacco Control Program, there have also been statewide surveys for tobacco use surveillance: These are the California Tobacco Surveys (CTS) (1990, 1992, 1993, 1996, 1999) and the California Adult Tobacco Surveys (CATS) (1993, 1994, 1995, 1996, 1997, 1998, 1999). The CATS are supplements to the Behavioral Risk Factor Surveys (BRFS) conducted each year in California. Data from the BRFS (1991, 1992) are considered as well. All of these surveys are described in detail elsewhere (Pierce et al., 1998a). There are differences in survey methodology (e.g., sample selection, survey mode, sample size, question format and how a current smoker is defined) that will lead to differences in prevalence estimates between surveys in the same year.

Having considered all of these surveys, some were excluded from the analysis for several reasons. Two surveys, the 1976 and 1977 NHIS did not interview persons as young as 18 years of age. The 1974 NHIS and the 1985 and 1989 CPS had unacceptably high rates (>2%) of missing data for smoking status. Finally, due to budget cuts, the 1992 NHIS was terminated prematurely, with consequences regarding sample size, response rate, and representativeness.

In comparing smoking prevalence rates over time, changes in the composition of the population need to be taken into consideration. Also, the demographic profile of California differs from the rest of the United States. Accordingly, the prevalence estimates from each survey were standardized to the same 1999 California population totals used for weighting the 1999 CTS. This assures that the prevalence estimates for California from the 1999 CTS screener survey will be the same, standardized or not. As

a result, however, prevalence estimates for previous years will differ from those reported previously. The standardization variables were gender, age, race and educational level.[1]

Figure 1.4 shows all the prevalence estimates for California and Figure 1.5 plots all the estimates for the rest of the US. Each figure also shows a regression fit to the data using the same basic model used to describe the per capita cigarette consumption data.

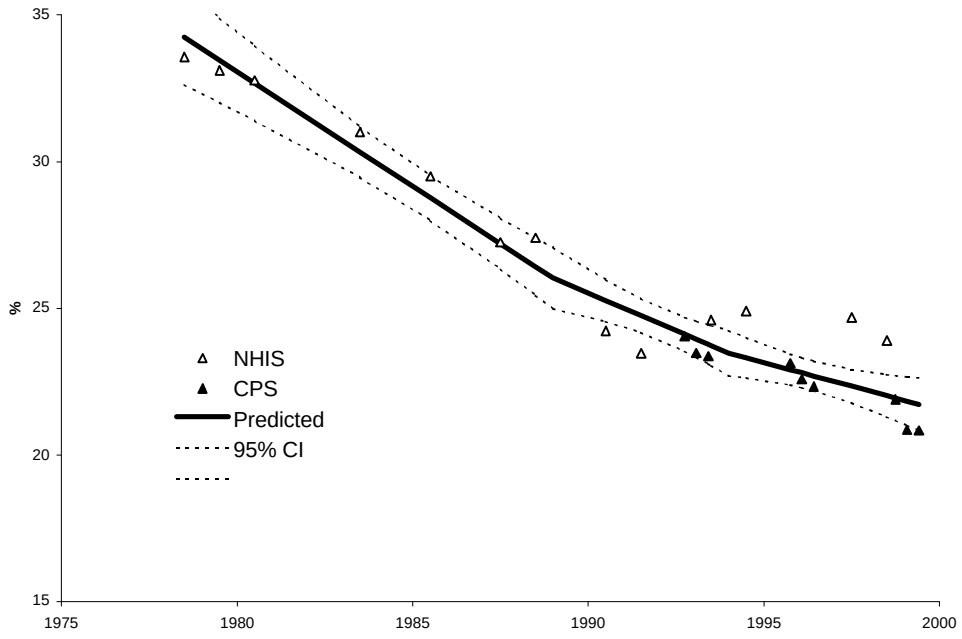



Source: NHIS, 1978, 1979, 1980, 1983, 1985, 1987, 1988, 1990, 1991, 1993, 1994, 1997, 1998; CTS 1990, 1992,1993, 1996, 1999; BRFS/CATS 1991-1999; CPS 1992-1993, 1995-1996, 1998-1999

Figure 1.4

However, the mid and recent periods were not broken out because in the most recent period there were not enough prevalence points for valid modeling. In the regression analysis the standardized estimates were weighted by the inverse of the sample size so that small surveys were not given undue emphasis.

[1] The data from each survey were standardized to the January 1999 California population distribution for gender, age (18-29,30-39,40-49,50-59,60+), race (White, Non-White) and educational level (college, no college) (Gilpin et al., 2001).




Source: NHIS, 1978, 1979, 1980, 1983, 1985, 1987, 1988, 1990, 1991, 1993, 1994, 1997, 1998; CTS 1990, 1992,1993, 1996, 1999; BRFS/CATS 1991-1999; CPS 1992-1993, 1995-1996, 1998-1999

Figure 1.5

Before summarizing the results of the regression analysis, the data points deserve some comment. The screener survey as used for the 1999 CTS California prevalence estimate, despite the change in question used to query smoking status. The NHIS also changed its question in the same way beginning in 1992. Further, the estimates from the CTS and all of the other surveys include the criterion that smokers must report smoking at least 100 cigarettes in their lifetime to be considered a current smoker. The January 1999 CPS prevalence estimate for California was much lower than the November 1998 estimate or the May 1999 estimate (Figure 1.4), whereas the estimates for January and May of 1999 for the rest of the Unites States (Figure 1.5) were very close. The California result could be because of a rash of quitting in January 1999 following the $0.50/pack excise tax increase. Survey respondents in January 1999 may have been in the middle of a quit attempt when surveyed, but when the May 1999 survey was being conducted, many smokers who quit earlier in the year had relapsed and were counted as current smokers. Because of this, the prevalence for California is probably better estimated from the September 1998 and May 1999 survey results, which closely agree with the 1999 CTS estimate.

The results from the regression analysis including model estimates of smoking prevalence and slopes (rate of decline) are presented in Table 1.3

**Table 1.3**
**Summary of Decreases in Smoking Prevalence**

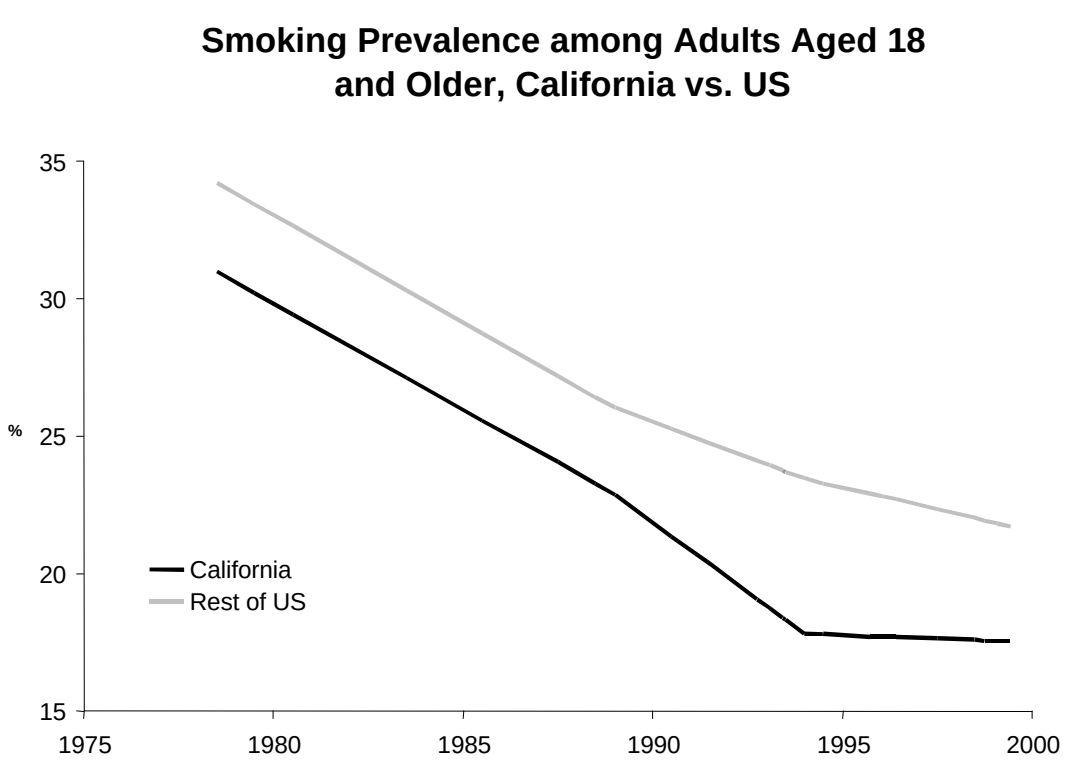
| | California | | Rest of the US | |
|---|---|---|---|---|
| **Period** | **Rate of Decline** | **Model Prevalence Estimate[1]** | **Rate of Decline** | **Model Prevalence Estimate[1]** |
| Pre-Program (1/83-12/88) | -0.77 | 22.9 | -0.78 | 26.0 |
| Early Program (1/89-12/93) | -1.01 | 17.8 | -0.51 | 23.5 |
| Mid/Recent Program (1/94-12/99) | -0.05 | 17.5 | -0.32 | 21.5 |

[1]Prevalence in December 1988, December 1993, December 1999.
Source: NHIS 1978, 1979, 1980, 1983, 1985, 1987, 1988, 1990, 1991, 1993, 1994, 1997, 1998; CTS 1990, 1992, 1993, 1996,
1999; BRFS/CATS 1991-1999; CPS 1992-1993, 1995-1996, 1998-1999

The introduction of the TCP in California was associated with an increase by a factor of 31% in the rate of decline in smoking prevalence (from 0.77 to 1.01%/year) so that estimated smoking prevalence was 17.8% in December 1993. The early years of the TCP coincided with a reduction in smoking prevalence in California by a factor of 22%. During the later period of the TCP, the decline in prevalence in California halted, a statistically significant change from the early period. By December 1999, the model estimates smoking prevalence in California to be 17.5%, which represents a decline by a factor of 24% from the pre-program level.

The rate of decline in prevalence in the rest of the United States slowed slightly during the early period of the TCP, and it slowed again (significantly) during the later period. Over the entire period, the model estimate of smoking prevalence in the rest of the United States indicates a decline by a factor of 17%.

Figure 1.6 shows the regression models for both California and the rest of the United States. Despite the slowing of the decline in prevalence in California during the later period of the TCP, the prevalence differential between California and the rest of the United States at the end of 1999 is still greater than before the TCP began. In December of 1988, smoking prevalence in California was lower than that in the rest of the United States by a factor of 12%, and by the end of 1999, it was lower by a factor of 19%. If the rest of the United States and California maintain their present rates of decline, smoking prevalence will be at comparable levels in the year 2015.




Source: NHIS, 1978, 1979, 1980, 1983, 1985, 1987, 1988, 1990, 1991, 1993, 1994, 1997, 1998; CPS 1992-1993, 1995-1996, 1998-1999

Figure 1.6

## 3. Summary

While the goal of reducing tobacco use by 75% was not achieved by the year 2000, important progress was achieved during the decade. Despite a slowing in the rate of decline in smoking during the mid period of the California Tobacco Control Program (TCP), California has shown a greater reduction in both per capita cigarette consumption and smoking prevalence between December 1988 and December 1999 than occurred in the rest of the United States. Over the period of the TCP, California reduced its per capita cigarette consumption by a factor of 57% compared to 27% in the rest of the United States. It reduced adult (18+ years) smoking prevalence by a factor of 24% compared to 17% in the rest of the United States. However, if California is to maintain this differential in smoking prevalence, increased efforts are required to spur its rate of decline in smoking prevalence.

The decline in per capita cigarette consumption has been much larger than the decline in smoking prevalence in California. From the beginning of the TCP until December of 1999, per capita cigarette consumption declined by a factor of 57%, while smoking

prevalence only declined by a factor of 24%. This is consistent with the self-reported consumption data (Table 1.2), and data presented in Chapters 2 and 6 which show that fewer Californians are daily smokers and an ever increasing percentage of California smokers have joined the ranks of light smokers, those who smoke fewer than 15 cigarettes/day. It is possible that in response to the increased price of cigarettes, including the major excise tax increase, many more California smokers are choosing to cut consumption in the short term rather than to quit altogether.

Reducing daily cigarette consumption may or may not lead to a lower level of nicotine addiction. Some smokers may be getting more nicotine from each cigarette they smoke. For smokers who do manage to reduce their level of nicotine intake, successful quitting may be more likely to occur in the long term (Pierce et al., 1998c).

## CHAPTER 1: KEY FINDINGS

1. During the decade of the California Tobacco Control Program, a statistical model of adult (18+ years) per capita cigarette consumption indicates that consumption has decreased in California from 9.5 packs/month in December 1989 to 4.1 packs/month in December of 1999, a decline by a factor of 57%.

2. In the rest of the United States, a comparable statistical model indicates per capita cigarette consumption decreased from 12.4 packs/month in December 1989 to 9.1 packs/month in December of 1999, a decline by a factor of 27%. Thus, consumption declined in California by twice as much as it did in the rest of the United States.

3. Over the period of the California Tobacco Control Program, a statistical model indicates that adult smoking prevalence declined by a factor of 24%, compared to 17% in the rest of the United States. In December of 1999, prevalence estimated from the model was 17.5% in California and 21.5% in the rest of the United States.

4. Over the 10-year period, adult smoking prevalence declined more in California than in the rest of the United States. However, most of the decline in California occurred during the early years of the Tobacco Control Program, while the smaller decline in the rest of the country occurred relatively evenly over the period.

5. In recent years, continued declines in per capita cigarette consumption were not accompanied by a change in smoking prevalence. This suggests that California smokers are reducing the number of cigarettes they smoke rather than quitting altogether.

## CHAPTER 1: GLOSSARY

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Daily smoker* – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes everyday (new question).

*Occasional smoker* – a *current smoker* who smoked on at least 1 day in the past month (old question sequence) or who says he or she now smokes some days (new question).

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# Chapter 2

# SMOKING PREVALENCE IN CALIFORNIA: RESULTS OF THE CALIFORNIA TOBACCO SURVEYS (CTS)

# CHAPTER 2: SMOKING PREVALENCE IN CALIFORNIA: RESULTS OF THE CALIFORNIA TOBACCO SURVEYS (CTS)

## Introduction

A decrease in population smoking prevalence is generally the main goal and measure of success of a tobacco control program. However, focusing only on population smoking prevalence can mask important changes in smoking behavior that may have resulted from a tobacco control program. For instance, smokers may cut down on the amount they smoke, even to the extent of not smoking every day, thereby reducing their chances of a smoking-related health outcome. The present chapter begins with an examination of the smoking patterns of current smokers, and then describes trends in the prevalence of daily smoking, still a serious health threat, in more detail.

While Chapter 1 presented overall trends in current smoking prevalence in California and the rest of the US over the decade of the California Tobacco Control Program, this chapter features trends within demographic subgroups in California. All the analyses in this chapter are restricted to data from the California Tobacco Surveys (CTS). The CTS were mandated by the State Legislature for surveillance of smoking behavior in the California population (LRC, 1995), and the first survey was fielded in late 1990, just as the TCP was getting underway. Additional surveys were conducted in 1992, 1993, 1996 and 1999. Complete descriptions of these surveys are presented elsewhere (Pierce et al., 1998, Gilpin et al., 2001).

The CTS are random-digit-dialed telephone surveys. When a selected telephone number is answered, the interviewer establishes that the number is for a residence and asks to speak to an available household adult (18+ years of age) about the household, who lives there and whether or not each resident is a smoker. In the various survey years, between 14,736 and 91,174 households were enumerated. Once the household is enumerated in this fashion, some adults and adolescents are selected for an extended interview concerning smoking behavior and attitudes/opinions on smoking-related issues. The initial household "screening" interview takes about 5 minutes to complete, and the extended interviews about 20-25 minutes.

The 1996 CTS was a transitional survey; it introduced a new question to define smoking prevalence on the adult interview with the previous question from earlier CTS retained on the screener interview. Then, in 1999, the new question was utilized on both the screener and adult interviews. Because of the change in question, the trends in prevalence over time need to be interpreted within two time frames: (1) from 1990 to 1996 using the screener survey for a large sample size with a consistent smoking status question, and (2) from 1996 to 1999 using the adult interview with a consistent smoking status question. Details about the changes in the smoking status question and definition of a current smoker are explained in the Appendix to this chapter.

Also, when comparing trends in smoking prevalence over time it is essential to take into account any changes in the demographic composition of the California population (largely from migration). For this reason, the results presented in the main body of this chapter are standardized estimates. The unstandardized or snap-shot estimates of smoking prevalence are presented in the Appendix. These are the best estimates to use when the question is: What was the prevalence rate in a given year?

Section 1 of this chapter presents the changing patterns of smoking behavior among current California adult smokers over the decade. Section 2 presents trends in the prevalence of adult daily smoking. Section 3 describes the trends in total or overall adult current smoking prevalence by demographic subgroups. Similar trends for the 18 regions in California are shown in Section 4. Section 5 reports on adolescent smoking prevalence, and section 6 summarizes the results of this chapter.

## 1. The Changing California Adult Smoker

As pointed out in Chapter 1, since 1994 per capita cigarette consumption has declined by more than a third in California but concurrently there was little decline in adult smoking prevalence. To better understand this apparent contradiction, this section looks more closely at the behavior of smokers and presents evidence that current smokers are modifying their smoking patterns. Current smokers are broken out as daily or occasional smokers, and the daily smokers are further described according to their level of daily cigarette consumption. For the method of determining whether a smoker is a daily or an occasional smoker, see the Appendix at the end of this chapter.

Table 2.1 shows the profile of current smokers for two age groups. The percentages are standardized within age group by race/ethnicity and education. Details of the rationale for this standardization are in the technical documentations (Gilpin et al., 2001).

**Table 2.1**
**Percentage of Current Smokers Who Are Daily and Occasional Smokers**
**Estimated from Adult Survey WITH 100 Cigarette Criterion**

| | **1990 %** | **1992 %** | **1996 %** | **1999 %** |
|---|---|---|---|---|
| Age 18-44 | | | | |
| Daily | 76.3 (±2.5) | 74.1 (±3.3) | 67.9 (±2.1) | 63.6 (±2.1) |
| ≥15cigs/day | 44.4 (±1.8) | 44.0 (±3.2) | 33.9 (±1.6) | 30.2 (±1.7) |
| <15cigs/day | 31.9 (±2.2) | 30.2 (±3.6) | 34.0 (±2.1) | 33.4 (±2.0) |
| Occasional | 23.7 (±2.5) | 25.9 (±3.3) | 32.1 (±2.1) | 36.4 (±2.1) |
| Age 45+ | | | | |
| Daily | 86.3 (±2.7) | 87.9 (±1.7) | 83.1 (±2.2) | 79.5 (±3.0) |
| ≥15cigs/day | 60.9 (±3.4) | 61.2 (±3.6) | 56.4 (±2.7) | 52.7 (±3.2) |
| <15cigs/day | 25.4 (±3.0) | 26.7 (±3.2) | 26.7 (±2.4) | 26.8 (±3.0) |
| Occasional | 13.7 (±2.7) | 12.1 (±1.7) | 16.9 (±2.2) | 20.5 (±3.0) |

Table entries are standardized (1999) percentages and 95% confidence limits
Source: CTS 1990, 1992, 1996, 1999

The percent of occasional smokers of all current smokers for the 1990 and 1992 adult CTS remained fairly constant, but there was an increase between 1992 and 1996. While some of this increase may be from smokers switching from daily to occasional smoking, some of the increase is because of the change in the question used to determine smoking status (see Appendix to this chapter). However, the fraction of occasional smokers further increased between 1996 and 1999, when the survey question was the same.

The percent of current smokers that are heavy daily smokers (15+ cigarettes/day) has declined considerably in the younger age group, by a factor of 32.0%. The shift in the older age group was not as marked, a factor of 13.5%. In both age groups, while heavy daily smoking has decreased and occasional smoking has increased, light daily smokers make up just about the same percent of current smokers in all years. With these data, it cannot be determined whether heavy daily smokers are becoming light daily smokers who in turn are becoming occasional smokers or whether heavy daily smokers are converting to occasional smoking. Nevertheless, in both age groups, it is apparent that current smokers are smoking less in 1999 than they were in 1990.

The decline in daily smoking, particularly heavy daily smoking, over the decade may reflect a success of the California Tobacco Control Program in reducing the harm to the population from cigarette smoking. While total current smoking prevalence has not declined as much as would be desired, at least smokers are smoking less. Since the harm from cigarette smoking is dose dependent, a reduced prevalence of daily smoking should yield public health benefits in the long term.

## 2. Daily Smoking Among California Adults

**In 1999, only 13.0±0.3% of California adults were daily smokers, and the prevalence of daily smoking has declined consistently throughout the 1990s, by a factor of 18.6%.**

Since nondaily (or occasional) smoking does not present the same level of health risk as daily smoking, it is more important to track trends in the prevalence of daily smoking. The standardized prevalence of daily smoking computed from the adult survey (screener does not distinguish daily from occasional smokers) was compared for the 1990, 1992, 1996 and 1999 surveys. The 1993 survey did not differentiate daily smoking. The unstandardized rates for daily smoking are also shown in Figure 2.1 for comparison. From the standardized rates, it can be seen that the population prevalence of daily smoking declined significantly over the decade by a factor of 18.6%. Unstandardized daily smoking prevalence rates for demographic subgroups of the population are presented in the Appendix to this chapter.

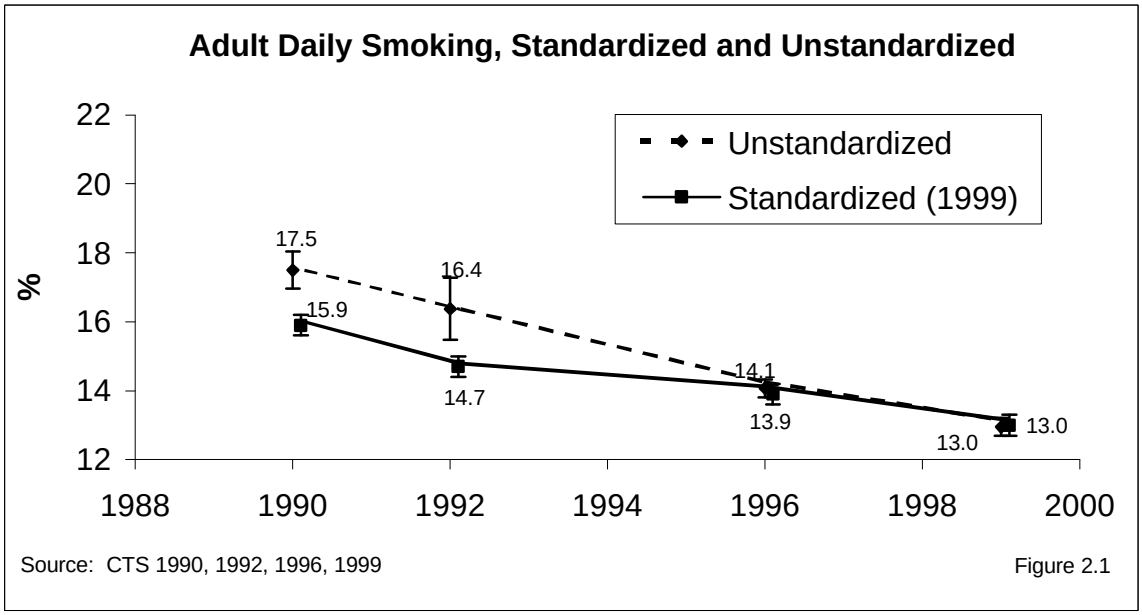



Table 2.2 shows the standardized prevalence of daily smoking by demographic subgroup.

**Table 2.2**
**Standardized California Adult Daily Smoking Prevalence**
**WITH the 100-Cigarette Criterion**

| | 1990 % | 1992 % | 1996 % | 1999 % | Factor Decrease 1990-1999 % |
|---|---|---|---|---|---|
| Overall | 15.9 (±0.4) | 14.7(±0.7) | 13.9(±0.3) | 13.0(±0.3) | 18.6 |
| Gender | | | | | |
| Male | 18.2 (±0.8) | 17.0 (±1.1) | 16.0 (±0.4) | 15.4 (±0.5) | 15.4 |
| Female | 13.8 (±0.5) | 12.3 (±0.7) | 11.9 (±0.3) | 10.8 (±0.5) | 21.5 |
| Age | | | | | |
| 18-24 | 13.7 (±1.4) | 12.9 (±2.0) | 13.8 (±0.9) | 13.0 (±0.8) | 5.2 |
| 25-44 | 17.1 (±0.6) | 15.9 (±1.3) | 15.0 (±0.4) | 14.1 (±0.5) | 17.9 |
| 45-64 | 17.4 (±1.2) | 16.8 (±2.0) | 14.9 (±0.7) | 14.0 (±0.8) | 20.0 |
| 65+ | 10.5 (±1.4) | 9.0 (±1.9) | 8.0 (±0.8) | 7.5 (±1.1) | 28.4 |
| Race/Ethnicity | | | | | |
| African-American | 22.9 (±3.0) | 17.7 (±3.6) | 17.6 (±1.5) | 13.6 (±1.5) | 40.5 |
| Asian/PI | 11.7 (±2.4) | 9.8 (±2.4) | 9.9 (±1.1) | 9.2 (±1.4) | 21.7 |
| Hispanic | 10.8 (±1.4) | 9.9 (±3.2) | 9.0 (±0.7) | 8.7 (±0.7) | 20.0 |
| Non Hispanic White | 18.3 (±0.7) | 17.3 (±1.7) | 16.4 (±0.3) | 15.3 (±0.4) | 16.4 |
| Education | | | | | |
| <12 | 18.3 (±1.7) | 15.9 (±3.1) | 14.8 (±0.7) | 14.9 (±1.0) | 18.6 |
| 12 | 19.3 (±0.9) | 19.2 (±1.7) | 19.0 (±0.5) | 17.6 (±0.7) | 8.9 |
| 13-15 | 16.6 (±1.1) | 14.8 (±1.1) | 14.8 (±0.7) | 13.9 (±0.6) | 16.5 |
| 16+ | 9.6 (±0.9) | 8.3 (±0.8) | 7.3 (±0.5) | 6.4 (±0.4) | 33.3 |

Table entries are standardized (1999) percentages and 95% confidence limits
Source: CTS 1990, 1992, 1996, 1999

**The prevalence of daily smoking was very low among those with a college education (6.4±0.4%).**

Adult women showed lower rates of daily smoking in each year. Daily smoking prevalence was less in adults age ≥65 years, and by 1999 only 7.5±1.1% of adults in this age group smoked daily, a decrease by a factor of 28.4% since 1990. The only age group that did not show a substantial decline in daily smoking was young adults 18-24 years of age.

African American adults started with the highest prevalence of daily smoking in 1990, and showed a large factor decrease of 40.5%**,** bringing their prevalence of daily smoking lower than Non-Hispanic Whites by 1999. Hispanics and Asians also showed a large factor decrease in daily smoking over the decade (about 20%), so that daily smoking prevalence was only 8.7±0.7% in 1999 for Hispanics and 9.2±1.4% for Asians.

**Over the decade, reductions in daily smoking by a factor approaching 30% or more were observed for those 65 years and older, African-Americans, and those with a college education.**

Compared to the less educated, Californians who graduated college showed the largest factor decrease between 1990 and 1999 (33.3%), bringing daily smoking prevalence in this group to a very low rate of 6.4±0.4% in 1999. However, even adults who never graduated high school showed a decline in daily smoking prevalence over the decade by a factor of 18.6%.

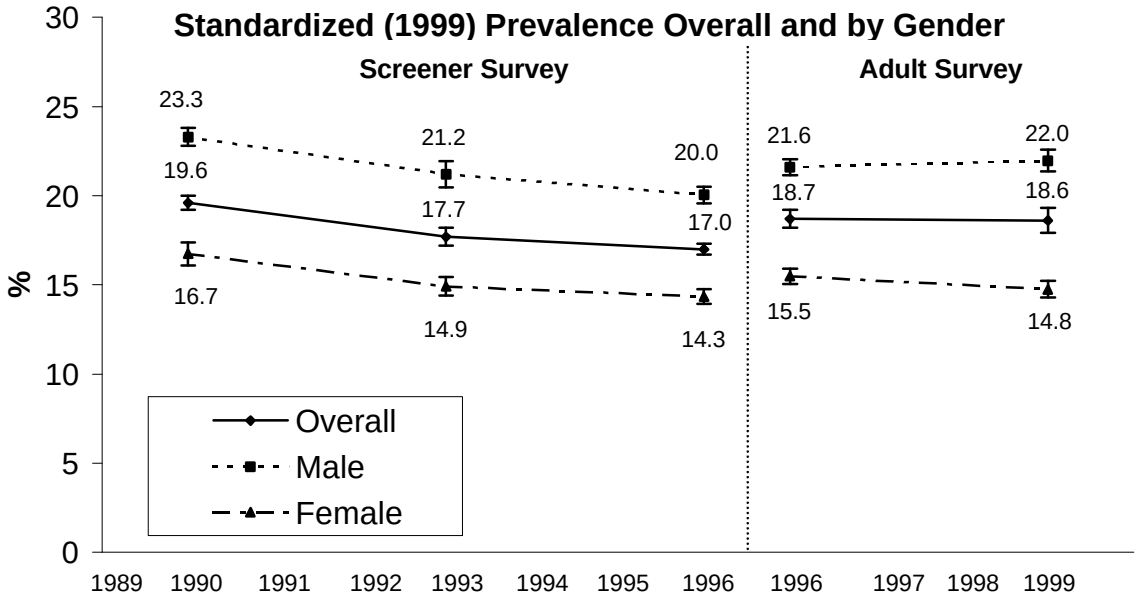
### 3. Demographics of Total Adult Current Smoking

In the subsections below, standardized current smoking prevalence is presented for different demographic subgroups of the adult population. The results presented in the figures and tables of this section show standardized prevalence estimates from the 1990, 1993, and 1996 screener surveys that had a consistent question to determine smoking status. Data are also shown from the 1996 and 1999 adult extended interviews with the new smoking status question so that recent trends can be discerned. Figure 2.2 illustrates the effect of the question change, and indicates that overall standardized adult smoking prevalence has not changed between 1996 (18.7±0.5%) and 1999 (18.6±0.7%).

When current smoking prevalence is shown by demographic subgroups, the sample size is diminished and differences must be much larger to be considered statistically significant. Nevertheless, it is important to identify subgroups of the population that appear to have failed to change much over the decade so that tobacco control efforts can be focused on these groups in the future. The Appendix in this chapter gives unstandardized prevalence estimates.

#### Gender

Figure 2.2 shows the current smoking prevalence for men and women, standardized for race/ethnicity and educational level. The decline from 1990 to 1996 occurred in a fairly uniform manner for both men and women. Neither men nor women showed a statistically significant change in prevalence from 1996 to 1999.

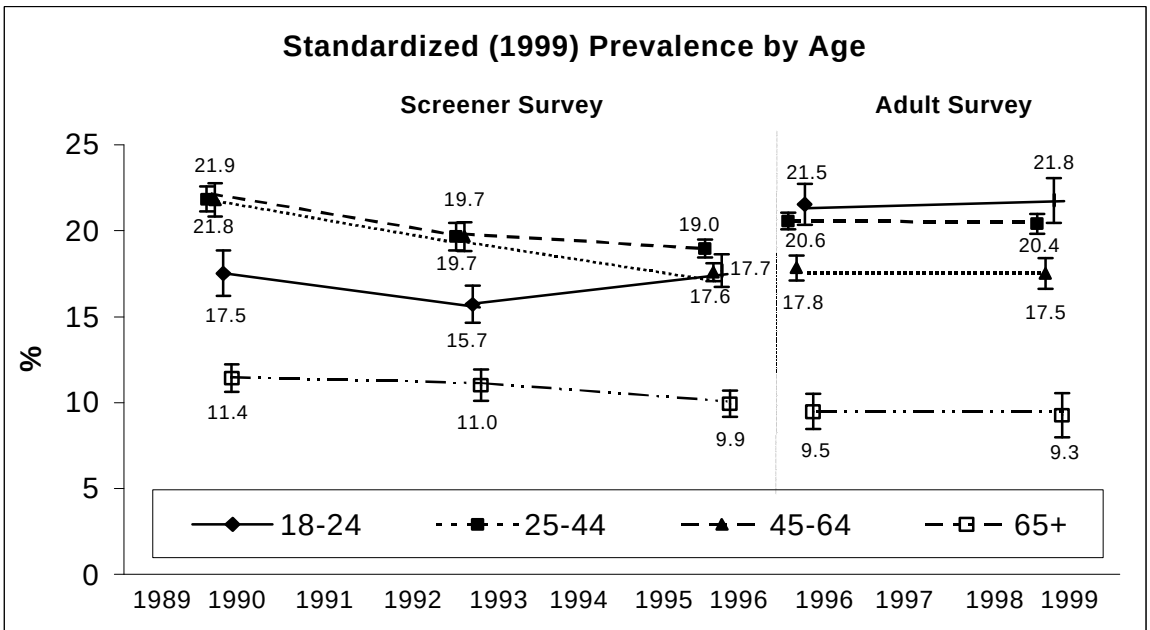



Source: CTS 1990, 1993, 1996, 1999

Figure 2.2

Age

In contrast to gender, the trends in prevalence for age groups, standardized for race/ethnicity and educational level, are not nearly as uniform (Figure 2.3). The older age group (65+ years), with the lowest smoking prevalence throughout the period, may be slowly but steadily smoking less. In contrast to earlier in the decade, by 1999 the 18-24 year age group showed the highest prevalence of all age groups, statistically higher




Source: CTS 1990, 1993, 1996, 1999

Figure 2.3

than the groups age 45 years and older. Since daily smoking has remained relatively constant in this age group (Table 2.2), the increase in smoking prevalence among young adults is because of increased occasional smoking.

To examine these trends in more detail, Table 2.3 shows the prevalence rates for age groups within gender, standardized for race and educational level. The results suggest that smoking prevalence has increased since 1993 among young men 18-24 years of age. Between 1996 and 1999, no age group of females showed any increase, but only the 25-44 year old males showed even a small decrease (not statistically significant).

**Table 2.3**
**Standardized Adult Smoking Prevalence, Age Within Gender,**
**WITH the 100-Cigarette Criterion**

| | Screener Survey | | | | Adult Survey | | |
|---|---|---|---|---|---|---|---|
| | **1990 %** | **1993 %** | **1996 %** | **Factor Change 1990-1996 %** | **1996 %** | **1999 %** | **Factor Change 1996-1999 %** |
| Overall | 19.6 (±0.4) | 17.7 (±0.5) | 17.0 (±0.3) | -9.7 | 18.7 (±0.5) | 18.6 (±0.7) | -0.5 |
| Male | | | | | | | |
| 18-24 | 20.8 (±1.9) | 18.2 (±1.5) | 21.0 (±1.3) | 1.2 | 25.4 (±2.3) | 27.2 (±2.7) | 7.0 |
| 25-44 | 26.1 (±1.0) | 24.0 (±1.3) | 22.1 (±0.7) | -15.3 | 24.3 (±0.9) | 23.8 (±1.0) | -1.7 |
| 45-64 | 24.7 (±1.4) | 22.3 (±1.3) | 20.2 (±0.8) | -18.2 | 20.3 (±1.3) | 21.6 (±2.0) | 6.8 |
| 65+ | 12.6 (±1.2) | 11.9 (±1.2) | 11.2 (±1.1) | -11.6 | 9.6 (±1.5) | 10.1 (±2.5) | 4.5 |
| Female | | | | | | | |
| 18-24 | 14.2 (±1.4) | 13.0 (±1.3) | 14.2 (±1.3) | 0.0 | 17.6 (±1.6) | 15.7 (±1.9) | -10.7 |
| 25-44 | 17.8 (±0.8) | 15.4 (±0.7) | 15.9 (±0.6) | -10.8 | 17.1 (±0.9) | 16.9 (±1.1) | -1.2 |
| 45-64 | 19.1 (±1.2) | 17.3 (±1.0) | 15.1 (±0.7) | -20.9 | 15.6 (±1.1) | 14.7 (±1.2) | -5.8 |
| 65+ | 10.3 (±1.2) | 10.2 (±1.2) | 8.9 (±0.8) | -13.8 | 10.2 (±2.6) | 9.0 (±1.8) | -12.3 |

Table entries are standardized (1999) percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

In the 1990s, adolescent boys were the most responsive to the Joe Camel advertising campaign (Pierce et al.,1991), and perhaps it is this cohort, coming to young adulthood later in the decade, that is at least partly responsible for the turnaround in smoking prevalence in young adults. It also could be the case that the tobacco industry emphasis in the last few years on promoting their products to young adults (Kamel Clubs, etc.) of legal age to buy cigarettes may have proved successful.

The 1999 CTS asked all adult ever smokers:

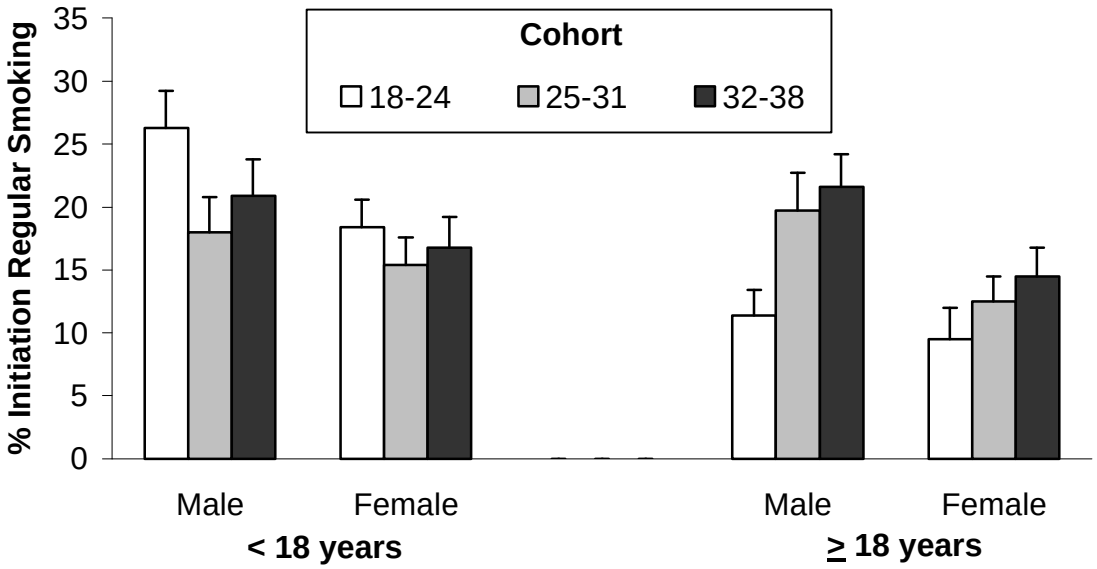
*How old were you when you began to smoke cigarettes on a regular basis?*

If the Camel campaign was effective, initiation of regular smoking before age 18 years should be higher in the present 18-24 year old age cohort than in older cohorts who were in late adolescence or older by the time the campaign was in full swing. Alternatively, if the recent campaign to attract young adults has been successful, there should be a

tendency for the present 18-24 year old cohort to show relatively high rates of initiation of regular smoking at 18 years or older, even though some in this cohort may still not have progressed to regular smoking.

Figure 2.4 shows the percentage of the population smoking regularly before age 18 and at 18 years of age and older by gender and age cohort. The cohort 32-38 years of age is shown in the figure to discern any differences between it and the next younger cohort.

**Age of Initiation of Regular Smoking by Age, Sex, and Birth Cohort**




| | <18 years | | ≥18 years | |
|---|---|---|---|---|
| Cohort | Male | Female | Male | Female |
| 18-24 | 26.3 | 18.4 | 11.4 | 9.5 |
| 25-31 | 18.0 | 15.4 | 19.7 | 12.5 |
| 32-38 | 20.9 | 16.8 | 21.6 | 14.5 |

Source: CTS 1999

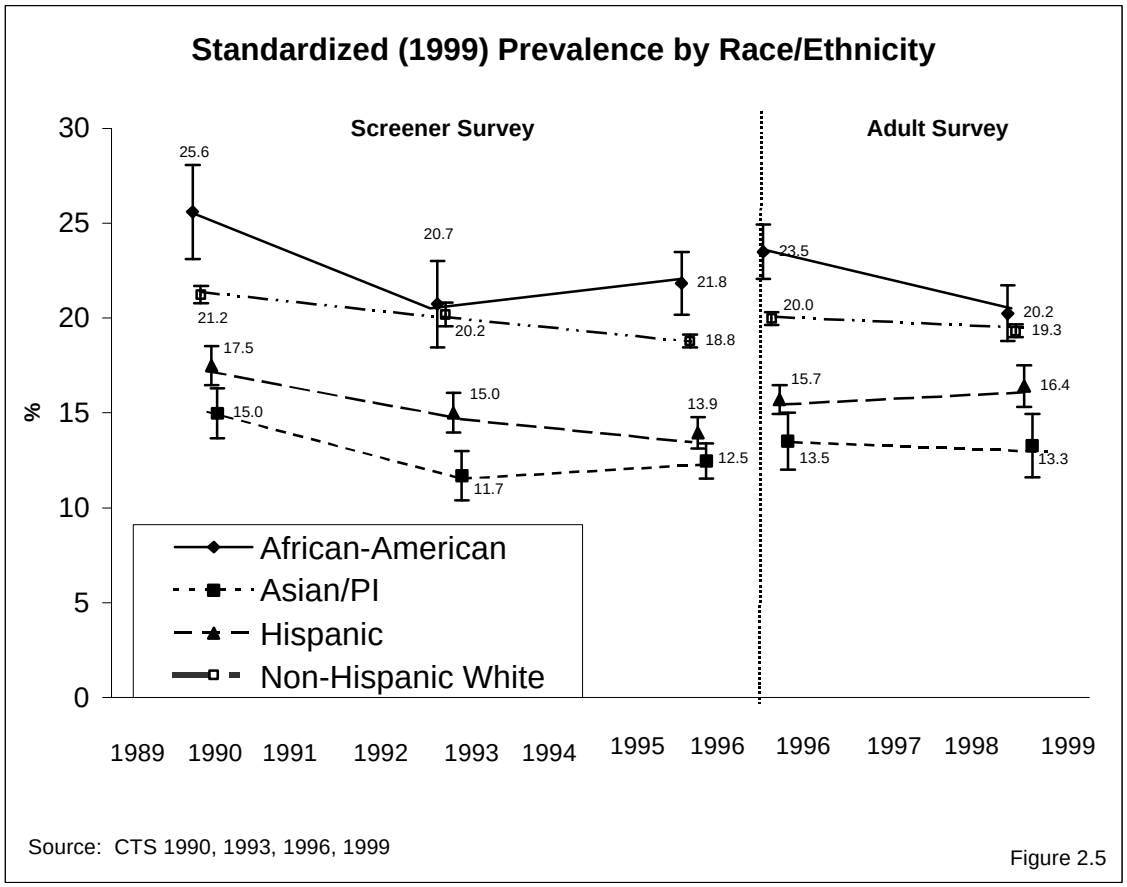
Figure 2.4

**The cohort of 18-24 year olds took up regular smoking at higher than expected rates during adolescence rather than as young adults.**

The figure shows that in the older cohorts, the rate of regular smoking before age 18 years or at 18 years or older was about the same within gender. Compared to the older cohorts, for the 18-24 year olds, initiation of regular smoking occurred much more frequently under the age of 18 years, particularly in males. Further, compared to the 32-38 year old cohort, there was no upsurge in transition to regular smoking in either the 18-24 year old cohort or the 25-31 year old cohort, who might be most prone to exposure (frequent bars/clubs) to the more recent tobacco industry campaigns aimed at young adults. The younger cohort, particularly males, clearly showed increased initiation at younger ages, rather than as young adults.

Race/ethnicity

Figure 2.5 shows the smoking prevalence for different racial/ethnic groups standardized for educational level. In all surveys, Asians show the lowest rates of smoking prevalence, and African American the highest rates, although in some years these groups are not statistically different from the others. Because of small sample sizes it is difficult to comment on the trends for these groups, but it appears that while Hispanics and Non-Hispanic whites showed significant declines from 1990 to 1996, Asians and African Americans did not. Because of the large 95% confidence intervals for the prevalence estimates for African Americans from the 1996 and 1999 adult surveys, the apparent decline from 1996 to 1999 must be discounted. Conclusions must await evidence from future surveys that show the decline continues.




Source: CTS 1990, 1993, 1996, 1999

Figure 2.5

Table 2.4 looks at trends within gender for the different racial/ethnic groups, standardized for educational level. Females in all racial/ethnic groups have lower smoking prevalence rates than males, but the difference is much more marked among Asians and Hispanics than among African Americans or Non-Hispanic Whites.

**Table 2.4**
**Standardized California Adult Smoking Prevalence, Race/Ethnicity within Gender, WITH the 100-Cigarette Criterion**

| | Screener Survey | | | | Adult Survey | | |
|---|---|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | Factor Decrease 1990-1996 % | 1996 % | 1999 % | Factor Change 1996-1999 % |
| Overall | 19.6 (±0.4) | 17.7 (±0.5) | 17.0 (±0.3) | -9.7 | 18.7 (±0.5) | 18.6 (±0.7) | -0.5 |
| Male | | | | | | | |
| African American | 27.6 (±3.0) | 23.8 (±2.9) | 23.8 (±2.2) | -13.7 | 25.3 (±3.8) | 25.0 (±3.5) | -1.4 |
| Asian | 22.2 (±1.6) | 17.9 (±1.9) | 17.8 (±1.4) | -19.7 | 18.4 (±2.3) | 21.6 (±3.3) | 17.3 |
| Hispanic | 23.3 (±1.4) | 21.0 (±1.7) | 19.2 (±1.2) | -17.5 | 22.1 (±1.6) | 22.9 (±1.8) | 3.5 |
| Non-Hispanic White | 22.8 (±0.6) | 21.4 (±0.9) | 20.3 (±0.4) | -11.0 | 21.5 (±0.7) | 20.6 (±0.8) | -4.0 |
| Female | | | | | | | |
| African American | 23.9 (±3.1) | 18.2 (±2.7) | 20.1 (±2.1) | -15.6 | 21.8 (±2.6) | 16.5 (±2.3) | -24.3 |
| Asian | 8.2 (±1.4) | 5.8 (±1.4) | 7.5 (±1.2) | -8.6 | 8.7 (±2.2) | 6.9 (±1.7) | -20.7 |
| Hispanic | 11.6 (±1.2) | 8.9 (±1.0) | 8.8 (±0.8) | -24.0 | 9.7 (±0.9) | 9.5 (±1.3) | -2.0 |
| Non-Hispanic White | 19.8 (±0.7) | 19.0 (±0.7) | 17.4 (±0.5) | -12.2 | 18.6 (±0.5) | 18.2 (±0.8) | -2.3 |

Table entries are standardized (1999) percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

It appears from the table above that African American and Asian males are responsible for the lack of a continued decline in smoking prevalence in these racial groups between 1993 and 1996 observed in Figure 2.5. In contrast, it appears that African American females are responsible for the overall decline in African American smoking prevalence seen from 1996 to 1999. Hispanics and Non-Hispanic whites of both genders show nearly the same trends. Asian men and women showed opposite changes between 1996 and 1999, but since more Asian men smoke, the slight increase in overall prevalence among Asians is from the increase in men. Again, because of small sample sizes, these observations must be interpreted with caution. It is possible that the changes in smoking prevalence for African Americans and Asians are due to sampling variability and do not reflect real trends.

Education

Figure 2.6 shows the standardized (for race/ethnicity) prevalence rates by level of educational attainment. College graduates have the lowest smoking prevalence in all surveys, and like the older age group, tend to show a steady decline over time. While those with a high school education have the highest smoking prevalence rates, they, too, appear to be showing fairly steady declines over time. All groups showed an

encouraging initial decline between 1990 and 1993, but, except for those with 12 years of education, none showed a significant decline between 1996 and 1999.

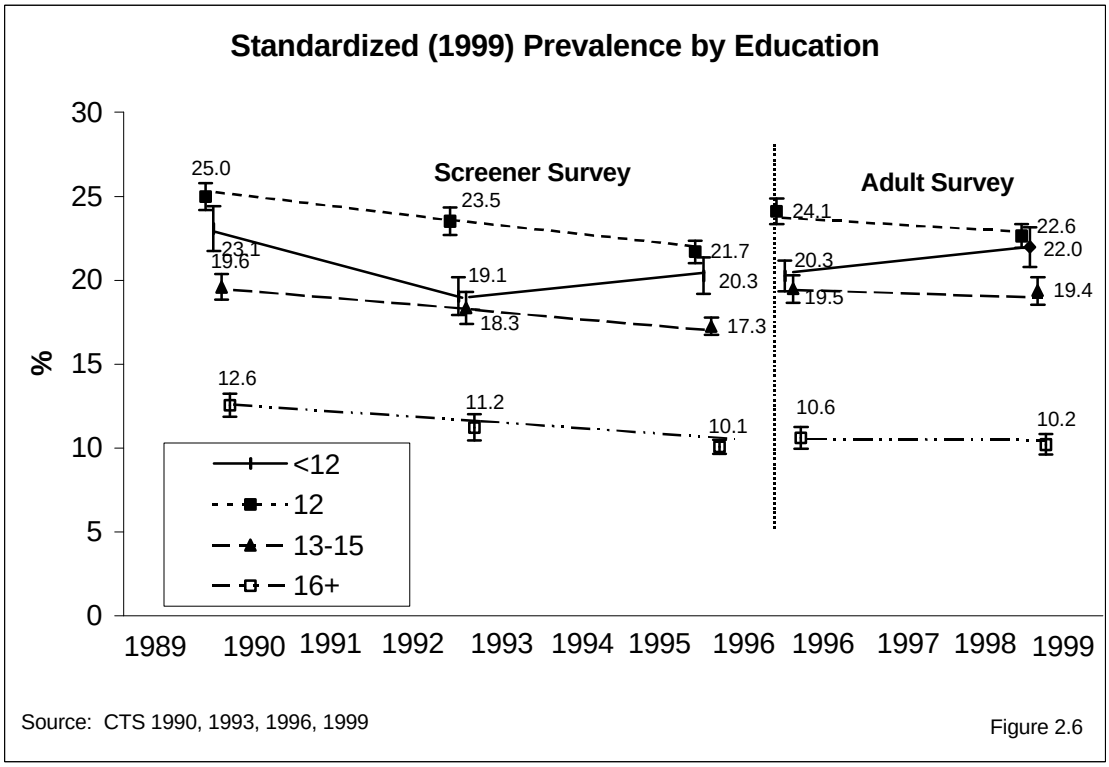



Figure 2.6

Educational attainment within gender (standardized for race/ethnicity) is presented in Table 2.5. Males with less than a high school education showed a decline in the early

**Table 2.5**
**Standardized California Adult Smoking Prevalence, Education Within Gender, WITH the 100-Cigarette Criterion**

| | Screener Survey | | | | Adult Survey | | |
|---|---|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | Factor Decrease 1990-1996 % | 1996 % | 1999 % | Factor Change 1996-1999 % |
| Overall | 19.6 (±0.4) | 17.7 (±0.5) | 17.0 (±0.3) | -9.7 | 18.7 (±0.5) | 18.6 (±0.7) | -0.5 |
| Male | | | | | | | |
| <12 | 29.8 (±1.7) | 25.0 (±2.0) | 25.9 (±1.6) | -13.1 | 27.0 (±2.2) | 31.2 (±3.1) | 15.5 |
| 12 | 28.6 (±1.1) | 27.3 (±1.1) | 25.4 (±0.9) | -11.1 | 28.4 (±1.4) | 26.0 (±1.4) | -8.7 |
| 13-15 | 22.2 (±1.0) | 20.9 (±1.3) | 19.9 (±0.8) | -10.2 | 21.8 (±1.5) | 23.0 (±1.7) | 5.5 |
| 16+ | 14.3 (±1.1) | 13.2 (±1.2) | 11.1 (±0.6) | -22.5 | 11.5 (±1.0) | 11.6 (±1.0) | 0.7 |
| Female | | | | | | | |
| <12 | 16.7 (±1.4) | 13.4 (±1.1) | 14.9 (±1.1) | -10.6 | 14.2 (±1.5) | 13.9 (±1.5) | -2.0 |
| 12 | 22.0 (±0.9) | 20.3 (±0.9) | 18.5 (±0.8) | -16.0 | 20.3 (±1.2) | 19.8 (±1.1) | -2.5 |
| 13-15 | 16.7 (±1.0) | 15.9 (±1.1) | 14.7 (±0.7) | -12.7 | 17.3 (±1.2) | 16.4 (±1.1) | -7.4 |
| 16+ | 10.5 (±0.9) | 8.9 (±0.9) | 8.9 (±0.7) | -14.9 | 9.5 (±1.0) | 8.6 (±0.8) | -9.5 |

Table entries are standardized (1999) percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

years, but an increase in recent years. While college educated males showed a large decrease in prevalence between 1990 and 1993, they showed no change between 1996 and 1999. College educated women showed less of a decline early on, but showed no evidence of an increase in recent years. As for the other tables shown by gender, caution should be used in interpreting these results.

The demographic trends presented in this section of the chapter indicate that there are several groups that have shown recent increases in smoking prevalence (a factor of 10% or more). While some of these increases were not significant, they imply that these groups are not on the path to lower smoking prevalence. They include subgroups of adult males, those without at least a high school education, Asians, and those between 18-24 years of age. Importantly, there is no indication that young males 18-24 years of age have shown any real decrease at all over the decade. Since 1999, the Tobacco Control Program has aggressively targeted youth 18-24 years of age.

### 4. Adult Smoking Prevalence by Region

Figure 2.7 shows the grouping of the various counties into regions. The numbers in the legend to the figure correspond to the list of the regions in Tables 2.6 and 2.8. The 10 largest counties in the population are each a separate region. Except for region 18 (Imperial, Inyo, Kern, Kings, Mono, and Tulare counties), the regions are all comprised of contiguous counties.

Because the sample within some regions is small and some demographic subgroups are not represented at all in some regions, the usual standardization procedure cannot be carried out. Instead, another more complex method (Gilpin et al., 2001) is used to create "adjusted" prevalence estimates that force each region to conform to a standard distribution of demographics that reflect the state as a whole. These estimates are not the true prevalence in a region at a given time, but rather are adjusted so that changes in the demographic composition in a region over time, or the differences in the demographic composition between regions at a particular point in time are factored out. The adjusted estimates can thus be used to discern trends within regions over time, compare changes among regions or to compare relative prevalence for different regions at a given point in time.

Table 2.6 shows the adjusted smoking prevalence rates from the screener survey for 1990, 1993 and 1996 and from the adult survey in 1996 and 1999 because of the change in the survey smoking status question.

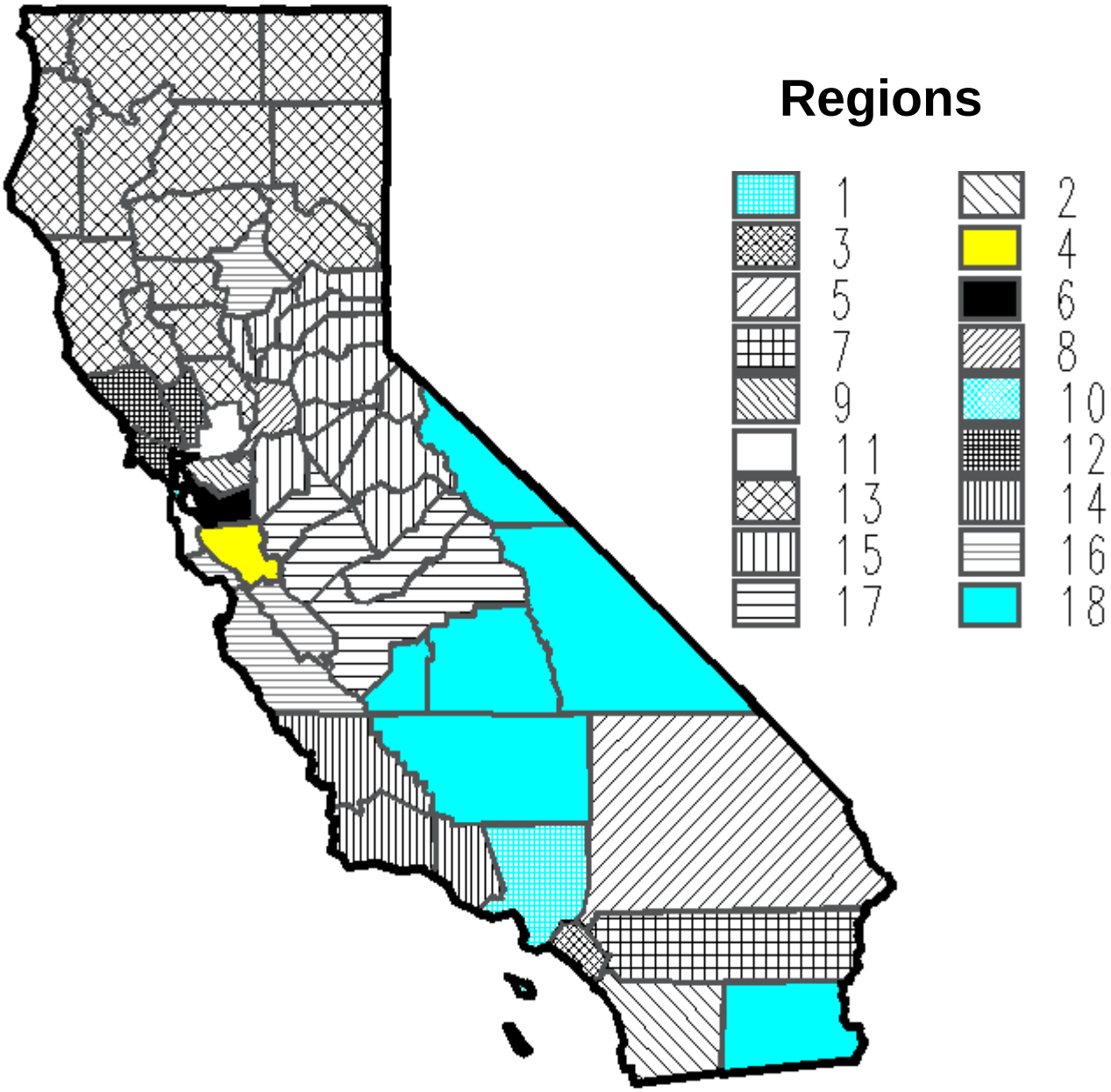



Figure 2.7

**Table 2.6**
**Adjusted Adult Smoking Prevalence by Region Within California, WITH the 100-Cigarette Criterion**

| Region | Screener Survey | | | | Adult Survey | | |
|---|---|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | Factor Change 1990-1996 % | 1996 % | 1999 % | Factor Change 1996-1999 % |
| **1**-Los Angeles | 19.5 (±1.2) | 17.0 (±1.2) | 16.6 (±0.8) | -14.9 | 18.2 (±1.2) | 18.8 (±1.4) | 3.3 |
| **2**-San Diego | 20.1 (±2.0) | 16.4 (±1.8) | 16.2 (±1.2) | -19.4 | 17.7 (±2.0) | 19.2 (±2.5) | 8.4 |
| **3**-Orange | 16.9 (±2.0) | 16.1 (±1.8) | 14.6 (±1.2) | -13.6 | 16.0 (±2.2) | 14.9 (±1.8) | -6.9 |
| **4**-Santa Clara | 17.0 (±2.0) | 15.7 (±1.6) | 13.0 (±1.2) | -23.5 | 12.0 (±1.8) | 14.8 (±2.9) | 23.3 |
| **5**-San Bernardino | 23.0 (±1.6) | 20.1 (±1.8) | 19.5 (±2.0) | -15.2 | 21.2 (±3.1) | 22.5 (±3.5) | 6.1 |
| **6**-Alameda | 19.3 (±2.0) | 18.0 (±1.8) | 17.8 (±1.6) | -7.8 | 19.1 (±2.5) | 15.2 (±2.9) | -20.4 |
| **7**-Riverside | 21.5 (±1.6) | 17.6 (±1.6) | 18.2 (±1.8) | -15.3 | 21.4 (±3.1) | 24.0 (±6.7) | 12.1 |
| **8**-Sacramento | 22.5 (±1.8) | 21.8 (±2.0) | 20.3 (±1.4) | -9.8 | 19.0 (±2.4) | 17.5 (±3.1) | -7.9 |
| **9**-Contra Costa | 19.1 (±1.4) | 18.5 (±1.6) | 17.0 (±1.6) | -11.0 | 17.8 (±2.7) | 18.5 (±3.3) | -3.9 |
| **10**-San Francisco | 19.0 (±2.0) | 18.2 (±1.6) | 19.0 (±1.8) | 0.0 | 22.7 (±3.5) | 19.8 (±3.7) | -12.8 |
| **11**-San Mateo, Solana | 18.0 (±1.4) | 17.3 (±1.6) | 16.4 (±1.6) | -8.9 | 21.5 (±3.3) | 17.9 (±3.9) | -16.7 |
| **12**-Marin, Napa, Sonoma | 18.9 (±1.8) | 16.1 (±1.8) | 16.1 (±1.6) | -14.8 | 17.2 (±2.7) | 17.1 (±2.9) | -0.6 |
| **13**-Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity, Yolo. | 21.9(±1.9) | 20.9 (±1.8) | 20.5 (±1.6) | -6.4 | 23.2 (±2.7) | 23.9 (±4.1) | 3.0 |
| **14**-San Luis Obispo, Santa Barbara, Ventura | 17.3 (±1.6) | 17.9 (±1.6) | 16.8 (±1.6) | -2.9 | 18.9 (±3.1) | 14.5 (±2.7) | -23.3 |
| **15**-Alpine, Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, San Joaquin, Sierra, Sutter, Tuolumne, Yuba | 22.1 (±2.4) | 21.6±1.8 | 20.4 (±1.6) | -7.7 | 20.2 (±2.9) | 19.1 (±3.7) | -5.4 |
| **16**-Monterey, San Benito, Santa Cruz | 17.0 (±1.6) | 17.4(±1.8) | 15.7 (±1.8) | -7.6 | 18.0 (±2.7) | 17.9 (±2.4) | -0.6 |
| **17**-Fresno, Madera, Merced, Stanislaus | 22.1 (±1.8) | 18.9 (±1.8) | 18.7 (±1.8) | -15.4 | 19.6 (±2.9) | 20.4 (±5.5) | 4.1 |
| **18**-Imperial, Inyo, Kern, Kings, Mono, Tulare | 20.8 (±1.8) | 19.3 (±2.0) | 19.9 (±1.8) | -4.3 | 22.3 (±3.5) | 19.5 (±2.9) | -12.6 |

Table entries are adjusted (1999) percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

The table above allows several regions to be identified with a relatively low adjusted smoking prevalence over the entire decade. In **1999**, Orange County, Santa Clara County, Alameda County, and the region encompassing San Luis Obispo, Santa Barbara, and Ventura Counties all had an adjusted current smoking prevalence of around 15% or below. In **1990**, four regions, including three of the ones just listed, had adjusted smoking prevalence estimates around 17% or below: Orange, Santa Clara, the region including San Luis Obispo, Santa Barbara and Ventura Counties and the region including Monterey, San Benito and Santa Cruz. The change in survey question will tend to diminish the actual change in smoking prevalence between 1990 and 1999. The adjusted prevalence for the region including Monterey, San Benito and Santa Cruz was about the

same at the end of the decade as in the beginning, around 17%. Thus, while the other regions with relatively low prevalence in 1990 managed to further reduce smoking prevalence over the decade, this one did not.

In **1990**, there were 4 regions with an adjusted smoking prevalence of 22% or higher. These were San Bernardino, Sacramento, the region including 12 counties in the North most part of the state ( Alpine, Amador, etc.), and the 4-county region of Fresno, Madera, Merced and Stanislaus. Only two of these regions showed an adjusted prevalence under 20% by **1999** (Sacramento and the 12-county northern region).

Of the 8 regions with an adjusted smoking prevalence lower by a factor of around 15% between 1990 and 1996, only Orange County showed a further decline (not significant) between 1996 and 1999. Conversely, a few of the regions with only modest declines (between a factor of 5-15%) between 1990 and 1996, continued to show some decline (over a factor of 5%, but not significant) between 1996 and 1999. These included Alameda County, Sacramento County, the region including San Mateo and Solana counties, and the 12-county region in northern California (Alpine, Amador, etc.).

**Adjusted prevalence estimates indicate that in 1999, 3 regions have a smoking prevalence under 15%, but 2 regions have a prevalence over 23%, higher by about a factor of 40%.**

Examining the adjusted smoking prevalence rates among regions in **1999** revealed a wide variation from 14.5±2.7% in the 3-county region of San Luis Obispo, Santa Barbara, and Ventura, to a high of 24.0±6.7% in Riverside County so that the highest prevalence was greater than the lowest by a factor of about 40%. In **1990**, the range from highest to lowest varied by a factor of 26%, suggesting that the California Tobacco Control Program has been more effective in some regions of the state than others.

### 5. Prevalence, Quitting and Changes in Population

The lack of a significant decline in overall adult smoking prevalence since 1994 masks important changes that are occurring within subgroups of the smoking population. Chapter 6 shows that over the past decade ever more of California's smokers are trying to quit, and that they appear to be succeeding at rates comparable to quitters earlier in the decade. If this was the only change going on in the population, adult smoking prevalence should show a decline. A constant prevalence in the face of increased quitting suggests that decreases in the numbers of smokers through cessation in some demographic groups have been balanced by increases in the numbers of smokers in other. As examples:

- In the youngest age group, an adolescent cohort with high smoking prevalence may have entered adulthood, or

- In older age groups, immigrants into California may have a higher smoking prevalence than long-time California residents.

Table 2.7 shows the change in California's population between 1996 and 1999 for each age group.[1] The population of persons 18 years of age and older has grown by over 900,000 between 1996 and 1999 (Columns 1 and 2); the changes in population for each age group are shown in Column 3. Applying the prevalence rates for each year (Columns 4 and 5, taken from Table A2.1) to the population in each year, and taking the difference in the resultant numbers of smokers (Columns 6 and 7), yields the number of additional smokers in California between 1996 and 1999 (Column 8). Dividing the change in the number of smokers by the change in the number of people in each age group yields a *net* prevalence rate for the new arrivals or departees (Column 9).

**Table 2.7**
**Recent Demographic Changes in California and Resultant Numbers of Smokers**

| | Population | | Change in Population | Prevalence | | Number of Smokers | | Additional Smokers | Prevalence Among Emigrants/ Immigrants |
|---|---|---|---|---|---|---|---|---|---|
| Age | 1996 | 1999 | | 1996 | 1999 | 1996 | 1999 | 1999-1996 | |
| 18-24 | 3,029,936 | 3,305,372 | 275, 436 | .211 | .219 | 639,317 | 723,876 | 84,559 | .307 |
| 25-44 | 10,688,511 | 10,497,008 | -191, 503 | .208 | .204 | 2,223,210 | 2,141,390 | -81,820 | .427 |
| 45-64 | 6,039,397 | 6,672,020 | 632, 623 | .186 | .177 | 1,123,328 | 1,180,948 | 57,620 | .091 |
| 65+ | 3,121,057 | 3,313,805 | 192, 748 | .096 | .092 | 302,943 | 304,870 | 2,127 | .011 |
| **Total** | 22,878,901 | 23,788,205 | 909,304 | .187 | .183 | 4,288,598 | 4,351,084 | +62,486 | |

Examining the numbers in the above table for each age group leads to the following possible interpretations:

- There were 84,559 new smokers in the 18-24 year-old age group, which would represent a *net* prevalence of 30.7% for the people new to this age group. Since this is much higher than for the group as a whole, it suggests an influx into this age group of a cohort with a higher smoking prevalence possibly coupled with new arrivals from out of state, also with a high smoking prevalence. (e.g., As documented in Section 3 of this chapter, the Joe Camel cohort of adolescents has come of age.)

- Among those aged 25-44 years, there was a decline in the population between 1996 and 1999. Accordingly, there was also a decline in the number of smokers, but these emigrants had an apparent *net* prevalence of 42.7% compared to 20.4% for the age group as a whole in 1999. The larger decline in the number of smokers relative to the number of persons leaving the state in this age group suggests that substantial quitting

[1] These numbers are from the sum of the CTS survey weights in each year for each age group. The poststratification procedure adjusts the survey weights to make the sample representative of the state population (Gilpin et al., 2000), and these totals are, therefore, close to the actual census totals).

took place among the smokers in this age group as a whole, or that smokers were more likely to leave the state than nonsmokers. (e.g., People leaving the state may have done so for economic reasons. The cost of living, particularly for housing, is high in California, and prevalence tends to be higher in lower socioeconomic groups least able to afford it.)

- In the older two age groups, the population increased between 1996 and 1999, which naturally would produce additional smokers in these groups. However, the *net* prevalence rates among these age groups of immigrants (9.1% and 1.1%) are much lower than the prevalence rates for the groups overall. This again suggests that significant quitting occurred in these age groups as a whole, and that perhaps the immigrants to these age groups had relatively low levels of smoking prevalence. (e.g., Higher educated people with higher incomes, able to afford the cost of living and with lower smoking prevalence, may be the ones moving to California.)

## 6. Adolescent Smoking Prevalence

Most surveys, including the CTS, determine adolescent smoking prevalence from the answers to the following questions:

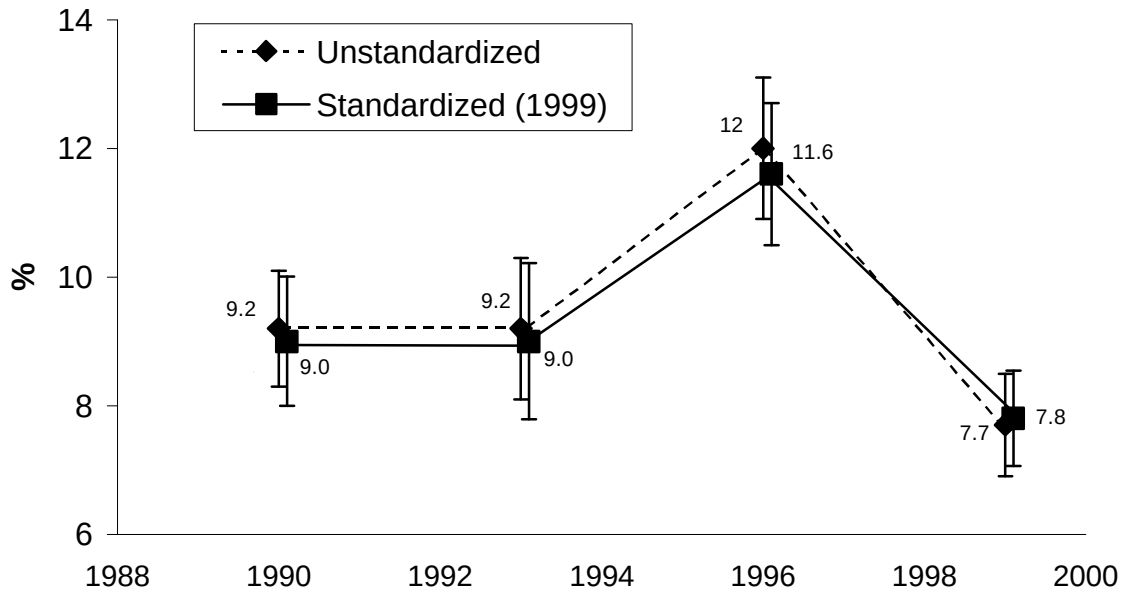
- *Have you ever smoked a cigarette?*
- *Think about the last 30 days. On how many of these days did you smoke?*

Adolescents answering yes to the first question are asked the second one and anyone who indicates that the answer is other than zero is considered a current adolescent smoker. All others are counted as nonsmokers in the prevalence computation.

**While standardized adolescent smoking prevalence increased markedly between 1993 and 1996, it fell below 1990 levels by 1999.**

Figure 2.8 shows the prevalence of current adolescent (12-17 years) smoking in California computed from the 1990, 1993, 1996 and 1999 CTS adolescent surveys. The dashed line in the figure connects the snap shot estimates, and the other line connects the standardized estimates of adolescent smoking prevalence. Both sets of estimates are quite close and indicate that adolescent smoking prevalence increased significantly from 1990/1993 levels by 1996, but that by 1999, prevalence had declined to a level even below the 1990 level; this decline was just statistically significant.

**The Effect of Removing Population Distribution Changes from Adolescent (12-17 years) Smoking Prevalence in the Last 30 Days**




Source: CTS 1990, 1993, 1996, 1999

Figure 2.8

Table 2.8 shows the standardized estimates for the different demographic subgroups (Gilpin et al., 2001); the unstandardized estimates of adolescent smoking prevalence from the CTS are shown in the Appendix to this chapter. The pattern observed in Figure 2.8 is evident in most of the different demographic groups of adolescents.

Both boys and girls showed the increase in prevalence between 1993 and 1996 and the decrease between 1996 and 1999 to about the same extent. While adolescents age 15 years and younger showed the least increase between 1993 and 1996, they showed a decline by a factor of about 47% between 1996 and 1999, which brought them to a significantly lower level of smoking prevalence than these age groups in 1990.

African American adolescents showed a lower level of increase (by a factor of 20.2%) between 1993 and 1996 than other minority groups, but prevalence in 1999 was

**Table 2.8**
**Standardized Adolescent (12-17 Years) Smoking Prevalence (in Last 30 Days) in California**

| | 1990 % | 1993 % | 1996 % | 1999 % | Factor Increase 1993-1996 % | Factor Change 1996-1999 % |
|---|---|---|---|---|---|---|
| Overall | 9.0 (±1.0) | 9.0 (±1.2) | 11.6 (±1.1) | 7.8 (±0.7) | 29.5 | -33.1 |
| Gender | | | | | | |
| Boys | 9.5 (±1.6) | 9.6 (±1.8) | 12.3 (±1.5) | 8.0 (±1.0) | 28.3 | -35.4 |
| Girls | 8.5 (±1.5) | 8.2 (±1.7) | 10.8 (±1.4) | 7.5 (±1.0) | 30.9 | -30.2 |
| Age | | | | | | |
| 12-13 | 3.6 (±1.6) | 3.0 (±1.0) | 3.3 (±0.9) | 1.7 (±0.8) | 11.3 | -47.2 |
| 14-15 | 7.7 (±1.4) | 9.2 (±2.0) | 10.6 (±1.5) | 5.6 (±1.0) | 14.7 | -46.9 |
| 16-17 | 16.1 (±2.3) | 15.0 (±3.0) | 21.4 (±2.4) | 16.3 (±2.1) | 42.3 | -24.0 |
| Race/Ethnicity | | | | | | |
| African-American | 6.0 (±3.6) | 4.7 (±3.6) | 5.6 (±2.4) | 5.7± (2.3) | 20.2 | 1.2 |
| Asian/PI | 5.2 (±2.8) | 6.3 (±4.7) | 8.4 (±2.5) | 4.9± (2.0) | 33.7 | -42.2 |
| Hispanic | 9.1 (±2.0) | 7.3 (±1.8) | 11.0 (±1.9) | 8.0± (1.4) | 51.6 | -27.9 |
| Non Hispanic White | 10.8 (±1.3) | 11.7 (±1.3) | 14.0 (±1.2) | 8.7 (±1.1) | 19.3 | -37.8 |
| School Performance | | | | | | |
| Better/Much Better Than Average | 5.3 (±1.0) | 5.1± (1.2) | 8.3 (±1.1) | 5.6 (±1.1) | 63.0 | -32.3 |
| Average or Below | 13.2 (±2.0) | 12.8 (±1.8) | 16.3 (±1.8) | 10.2 (±1.0) | 27.4 | -37.2 |

Table entries are standardized (1999) percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

nearly identical to that in 1996. However, because of the small number of African Americans in the sample, the changes observed in this group over the decade may be due to sampling variability. The same applies to Asian adolescents, but this group at least showed the same general trend as the adolescent population as a whole. In 1999, smoking prevalence for Asian adolescents was significantly lower than that of Hispanics and Non-Hispanic Whites. Non-Hispanic White adolescents showed enough of a decrease between 1996 and 1999 (by a factor of 37.8%) that their smoking prevalence level is significantly lower than it was in 1990.

**Younger adolescents, Non-Hispanic Whites and Asians showed the greatest decreases in smoking prevalence between 1996 and 1999.**

Adolescents with better than average school performance have lower rates of current smoking prevalence than those with average or below school performance in all years. This group showed a relatively greater increase between 1993 and 1996, and prevalence in 1999 appears to be higher than it

was in 1990, although the difference is not statistically significant. In 1999, it was the students with average or below average school performance that showed a significantly lower rate of current smoking prevalence than such adolescents did in 1990.

Chapter 4 of this report presents a more complete description of California adolescent smoking, focusing on the level of smoking experience, rather than smoking in the last 30 days, and how this has changed in recent years.

### 7. Adolescent Smoking Prevalence by Region

Just as adult smoking prevalence needed to be adjusted in order to compare regions at a given point in time or to examine trends over time within region, the adolescent data for current smoking prevalence required similar adjustment (Gilpin et al., 2001). Table 2.9 presents the adjusted data together with their 95% confidence intervals, which are fairly wide because of the relatively small sample sizes within region.

**Table 2.9**
**Adjusted Current Adolescent Smoking Prevalence by Region (in Last 30 Days) in California**

| Region | 1990 % | 1993 % | 1996 % | 1999 % | Factor Change 1990-1999 | Factor Change 1996-1999 |
|---|---|---|---|---|---|---|
| **1**-Los Angeles | 7.0 (±2.5) | 7.4 (±2.7) | 10.0 (±1.9) | 6.4 (±1.6) | -8.7 | -36.2 |
| **2**-San Diego | 7.3 (±3.2) | 9.2 (±6.8) | 8.5 (±3.3) | 9.2 (±3.1) | 26.4 | 8.6 |
| **3**-Orange | 10.1(±4.1) | 8.9 (±3.8) | 14.8 (±4.2) | 8.9 (±4.0) | -11.6 | -39.8 |
| **4**-Santa Clara | 8.4 (±2.8) | 8.8 (±7.3) | 11.6 (±4.7) | 6.4 (±2.8) | -24.2 | -45.0 |
| **5**-San Bernardino | 12.7 (±4.9) | 10.3 (±5.0) | 11.0 (±3.8) | 5.7 (±2.0) | -54.8 | -48.1 |
| **6**-Alameda | 12.9 (±5.0) | 7.1 (±8.6) | 11.8 (±4.6) | 8.4 (±3.8) | -34.9 | -28.5 |
| **7**-Riverside | 10.2 (±3.2) | 7.3 (±3.9) | 12.6 (±4.2) | 4.9 (±2.3) | -52.3 | -61.3 |
| **8**-Sacramento | 6.3 (±3.3) | 8.4 (±4.7) | 14.6 (±4.4) | 9.0 (±4.2) | 43.3 | -38.1 |
| **9**-Contra Costa | 8.7 (±4.0) | 8.8 (±3.9) | 10.7 (±4.0) | 8.2 (±3.7) | -6.5 | -23.8 |
| **10**-San Francisco | 8.5 (±5.8) | 7.8 (±6.7) | 10.7 (±7.2) | 15.3 (±7.6) | 80.3 | 42.8 |
| **11**-San Mateo, Solano | 11.6(±5.5) | 13.1 (±13.3) | 12.5 (±4.7) | 11.1 (±5.8) | -4.6 | -11.3 |
| **12**-Marin, Napa, Sonoma | 14.5 (±9.7) | 18.7 (±11.0) | 20.5 (±6.6) | 6.0 (±2.9) | -58.9 | -70.9 |
| **13**-Butte, Colusa, Del Norte, Glenn, etc. | 15.0 (±4.5) | 12.2 (±6.9) | 17.3 (±4.6) | 11.8 (±5.6) | -21.2 | -31.4 |
| **14**-San Luis Obispo, Santa Barbara, Ventura | 11.7 (±4.0) | 13.0 (±6.2) | 10.2 (±3.4) | 5.0 (±2.8) | -57.5 | -51.3 |
| **15**-Amador, Alpine, Calaveras El Dorado, etc. | 11.6 (±5.1) | 8.9 (±6.5) | 13.9 (±4.1) | 10.4 (±4.9) | -10.2 | -25.1 |
| **16**-Monterey, San Benito, Santa Cruz | 11.2 (±5.5) | 10.9 (±17.1) | 6.9 (±2.7) | 7.6 (±3.8) | -32.0 | 10.2 |
| **17**-Fresno, Madera, Merced, Stanislaus | 7.6 (±3.2) | 10.5 (±6.4) | 15.5 (±4.1) | 9.3 (±2.5) | 22.5 | -40.2 |
| **18**-Imperial, Inyo, Kern, Kings, Mono, Tulare | 7.7 (±3.8) | 9.9 (±9.8) | 9.2 (±3.5) | 7.4 (±2.5) | -4.7 | -19.5 |

Table entries are adjusted (1999) percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

Except for the major decrease in adolescent smoking prevalence between 1996 and 1999 seen in the state as a whole, and present to at least a factor of 25% in 12 of the 18 regions (significant for 6 regions), it is difficult to discern clear trends over the decade for most regions. Both the apparent large increase since 1990 in San Francisco, and the large decrease in the 3-county region including Marin, Napa, and Sonoma may be artifacts of statistical fluctuation. However, the declines from relatively high levels in San Bernadino, Riverside, and the 3-county region—including San Luis Obispo, Santa Barbara, and Ventura in 1990—to relatively low levels in 1999, are significant and most likely real.

Five regions showed an adolescent prevalence of current smoking below 8% in 1990 (Los Angeles, San Diego, Sacramento, the 4-county region including Fresno, Madera, Merced, and Stanislaus and the 6-county region including Imperial, Inyo, Kern, Kings, Mono, and Tulare). While the number of counties with low prevalence increased to 8 in 1999, only 2 of the original 5 were among them (Los Angeles and the 6-county region including Imperial, Inyo, Kern, Kings, Mono, and Tulare). While 10 regions had a prevalence rate exceeding 10% in 1990, only 4 did in 1999, and all but one of these (San Francisco) also had a high prevalence in 1990.

## 8. Summary

The lack of a significant decline in adult smoking prevalence in recent years fails to capture important positive developments regarding changing patterns of cigarette use in the smoking population. The prevalence of daily smoking has continued to decrease throughout the decade. Further, rather than quit, it appears that many smokers are choosing to cut down on the amount they smoke. The fraction of smokers who are heavy daily smokers has declined markedly, and many daily smokers appear to be converting to occasional smoking. Since the likelihood of a smoking-related disease is related to how much a smoker smokes, these cuts in consumption may have future public health benefits.

Despite the early decrease in California adult smoking prevalence, there are some demographic groups of adults that have not changed or have even shown signs of an increase in the last few years. These groups are male, either young (18-24 years), Asians, or with less than a high school education.

In 1999, comparing adjusted adult smoking prevalence among regions revealed a wide range. Three regions had an adjusted smoking prevalence under 15% (Orange County, Santa Clara County, and the 3-county region including San Luis Obispo, Santa Barbara, and Ventura), but two regions still had a prevalence that exceeded 23%, Riverside County, and a 12-county region in the northern part of the state. Another two regions, Alameda County, and the 4-county region of Fresno, Madera, Merced and Stanislaus, still had an adjusted smoking prevalence exceeding 20%.

Adolescent smoking prevalence, any smoking in the past 30 days, was constant between 1990 and 1993, jumped higher by a factor of 29.5% between 1993 and 1996, and then fell

by a factor of 33.1% between 1996 and 1999. Overall, the standardized adolescent smoking prevalence was significantly lower in 1999 than at the beginning of the decade. The youngest adolescents (12-15 years) showed the greatest recent declines. As this cohort reaches adulthood, assuming they don't take up smoking later and that younger children follow suit, the long-term result would be reduced adult smoking prevalence.

## CHAPTER 2: KEY FINDINGS

1. Smoking patterns are changing among current California adult smokers. An ever-smaller fraction of current adult smokers are heavy daily smokers (smoke 15+ cigarettes/day), less than 30% of current smokers in 1999. Further, in 1999 over 20% of current smokers did not smoke every day.

2. Over the decade from 1990 to 1999, the prevalence of daily smoking (standardized) declined by a factor of 18.6%. In 1999, the snap shot estimate of adult prevalence of daily smoking was 13.0±0.3%. Among college graduates, the prevalence of daily smoking was only 6.4±0.4% in 1999.

3. In contrast to adult California females, there are demographic groups of males that show no indication of further reduced smoking prevalence. These include Asians and those with less than a high school education. Young males 18-24 years of age showed an increased smoking prevalence beginning in 1993.

4. There was considerable variability in adjusted smoking prevalence rates for both adults and adolescents among regions. Some regions changed little, and others showed important declines for both adults and adolescents.

5. Adolescent smoking prevalence, any smoking in the past 30 days, was constant between 1990 and 1993, jumped higher by a factor of 29.5% between 1993 and 1996, and then fell by a factor of 33.1% between 1996 and 1999. Overall, the standardized adolescent smoking prevalence was significantly lower in 1999 than at the beginning of the decade. The snap shot estimate of adolescent smoking prevalence in 1999 was 7.7±0.8%.

## CHAPTER 2: APPENDIX

Change in Definition of a Current Smoker

In the previous reports describing the results from the CTS (Pierce et al., 1998), which is available on the web (http://ssdc.ucsd.edu/tobacco/), a current smoker was defined as someone who answered yes to the following question:

| *Do you {or does person} smoke cigarettes now?* |
|---|

On the screener survey, the adult enumerating the household answers the question for all household adults. On the adult extended survey, the respondent answers the question for him/herself. Despite the proxy reports on the screener survey, the prevalence estimates from this survey instrument have been shown to give good estimates of population smoking prevalence (Gilpin et al., 1994).

Other national and state surveys typically skip the above question if respondents first answer no to the following question:

| *{As far as you know} {have you/has person} smoked at least 100 cigarettes during {your/his or her} lifetime?* |
|---|

The CTS ask both questions. In past reports describing the results from the CTS, only the first question was considered when defining a current smoker. However, to be consistent with other national and state surveys, prevalence estimates presented in Tables A2.1and A2.3 below are for current smokers defined as someone who answers yes to both questions.

As a point of reference, the prevalence estimates are also reported in Tables A2.2 and A2.4 according to the previous definition that omits the 100-cigarette criterion. The prevalence estimates in the tables without the 100-cigarette criterion correspond to the results presented in previous reports describing the CTS results (Pierce et al, 1998). Without the 100-cigarette criterion, the prevalence estimates will be slightly higher, especially for young adults who may still be in the smoking uptake process.

Change in Question Used to Determine Smoking Status

In 1996, the question on the adult extended survey about current smoking was changed to:

| *Do you smoke cigarettes everyday, some days or not at all?* |
|---|

The old smoke-now question was retained on the screener survey for 1996. Then in 1999, both the screener and the adult extended interview used the new question. For this reason all the tables presented below show two sets of columns, the left most set for

estimates from the screener surveys from 1990 to 1996, and the right most set for estimates from the adult extended interviews for 1996 and 1999. The new survey question captures more smokers for the estimate of smoking prevalence: Some people who are willing to admit to smoking "some days" do not report themselves as "smoking now."

Occasional Smoking

In the main body of this chapter, Table 2.1 showed current smokers according to whether they smoked daily or occasionally. To determine whether a smoker was a daily or occasional smoker, the 1990 and 1992 CTS asked all persons who answered yes to the smoke-now question:

| *Do you now smoke cigarettes everyday or some days?* |
|---|

Current smokers who responded "some days" are considered occasional smokers.

For the 1996 and 1999 CTS, the determination of whether someone was a daily or occasional smoker was made directly from the new smoking status question which asked if the respondent smoked now everyday or some days. Figure A2.1 illustrates how smoking status was defined for both time frames.

Snap shot Smoking Prevalence Estimates

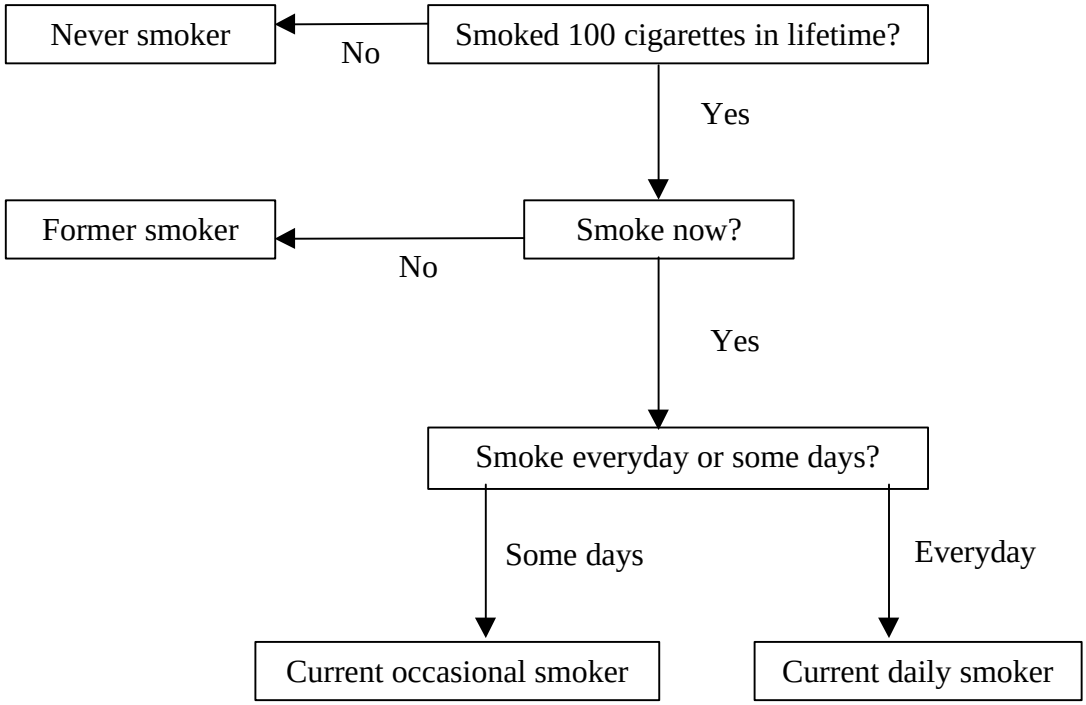
The prevalence estimates presented below are the most appropriate estimates to consider if the question is simply what is the smoking prevalence in a given year, without any concern about whether the prevalence is different from another year. For this reason, these estimates are referred to as "snap shot" estimates.

For completeness and consistency with previous reports (Pierce et al., 1998), the prevalence estimates are presented WITH and WITHOUT the 100-cigarette criterion (see first section of this Appendix). Because of the change in the question used to query smoking status, the tables below show data for the screener survey from 1990 to 1996 with the "smoke now" question and large sample size, and from 1996 to 1999 using the new "now everyday or some days" question from the smaller adult survey.

Table A2.1 shows snap shot adult smoking prevalence estimates from each of the CTS except 1992. The 1992 survey was relatively small and the much larger 1993 survey was only one year later. Comparison of Table A2.1 (WITH the 100-cigarette criterion) and A2.2 (WITHOUT the 100-cigarette criterion) indicates that the smoking prevalence estimates are indeed slightly higher without the 100-cigarette criterion. As expected, the difference is most pronounced among those in the 18 to 24 year age group.

**Figure A2.1**
**Determination of Daily and Occasional Smoking from Adult Surveys**

1990, 1992 Adult Surveys




1996, 1999 Adult Surveys

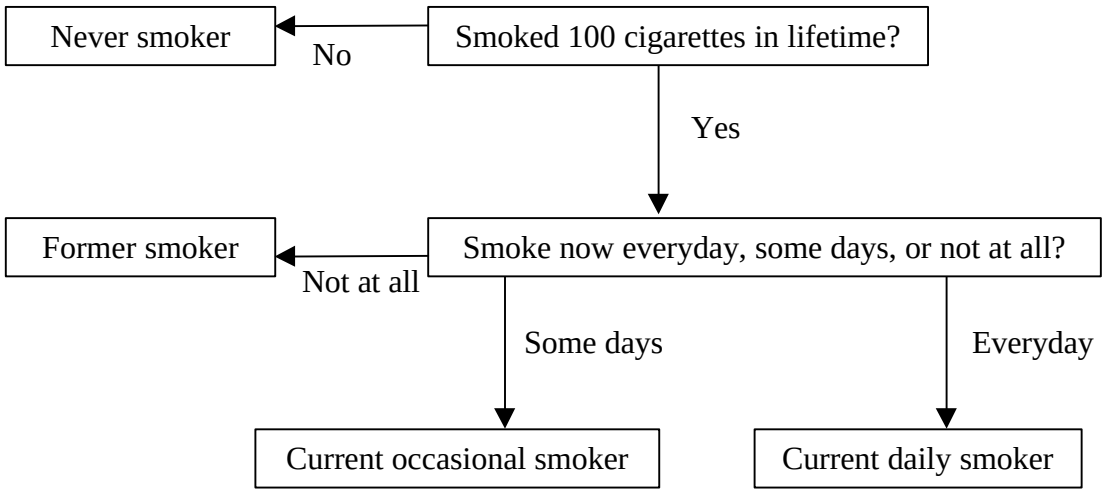


**Table A2.1**
**Unstandardized California Adult Smoking Prevalence**
**WITH the 100-Cigarette Criterion.**

| | Screener Survey | | | Adult Survey | |
|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | 1996 % | 1999 % |
| Overall | 21.5 (±0.5) | 19.6 (±0.5) | 17.3 (±0.3) | 18.7 (±0.3) | 18.3 (±0.3) |
| Gender | | | | | |
| Male | 24.5 (±0.7) | 22.5 (±0.7) | 20.1 (±0.5) | 21.6 (±0.5) | 21.8 (±0.6) |
| Female | 18.6 (±0.7) | 16.9 (±0.5) | 14.6 (±0.4) | 15.9 (±0.4) | 15.0 (±0.5) |
| Age | | | | | |
| 18-24 | 20.0 (±1.4) | 17.6 (±1.1) | 17.0 (±1.0) | 21.1 (±1.3) | 21.9 (±1.4) |
| 25-44 | 23.8 (±0.8) | 21.6 (±0.8) | 19.2 (±0.5) | 20.8 (±0.5) | 20.4 (±0.6) |
| 45-64 | 23.4 (±1.0) | 21.8 (±0.9) | 18.0 (±0.6) | 18.6 (±0.8) | 17.7 (±0.8) |
| 65+ | 12.0 (±0.8) | 11.5 (±0.9) | 10.0 (±0.8) | 9.6 (±1.0) | 9.2 (±1.0) |
| Race/Ethnicity | | | | | |
| African-American | 26.9 (±2.8) | 21.7 (±2.5) | 22.0 (±1.7) | 24.0 (±1.5) | 20.3 (±1.5) |
| Asian | 15.6 (±1.6) | 11.8 (±1.3) | 12.5 (±0.9) | 13.5 (±1.5) | 12.9 (±1.5) |
| Hispanic | 17.9 (±1.1) | 15.3 (±1.1) | 14.0 (±0.8) | 15.7 (±0.8) | 16.5 (±1.1) |
| Non Hispanic White | 22.8 (±0.5) | 21.7 (±0.6) | 18.8 (±0.4) | 20.0 (±0.3) | 19.4 (±0.3) |
| Education | | | | | |
| <12 | 24.7 (±1.2) | 21.0 (±1.1) | 20.8 (±1.1) | 21.4 (±0.8) | 22.0 (±1.2) |
| 12 | 26.0 (±0.8) | 24.6 (±0.8) | 21.9 (±0.7) | 24.3 (±0.8) | 22.7 (±0.7) |
| 13-15 | 20.0 (±0.8) | 18.8 (±1.0) | 17.4 (±0.5) | 19.6 (±0.8) | 19.4 (±0.8) |
| 16+ | 12.7 (±0.7) | 11.3 (±0.8) | 10.2 (±0.4) | 10.8 (±0.7) | 10.2 (±0.6) |
| Income | | | | | |
| ≤$10,000 | 25.8 (±2.1) | | 21.8 (±1.6) | 22.3 (±1.8) | 23.7 (±2.8) |
| $10,001-$20,000 | 23.6 (±1.8) | | 21.2 (±1.2) | 22.4 (±1.8) | 22.9 (±2.1) |
| $20,001-$30,000 | 25.0 (±1.7) | | 20.7 (±0.8) | 22.2 (±1.8) | 19.9 (±2.1) |
| $30,001-$50,000 | 22.1 (±1.3) | | 18.6 (±0.8) | 20.2 (±1.6) | 20.1 (±1.5) |
| $50,001-$75,000 | 20.0 (±1.1) | | 15.9 (±0.7) | 16.7 (±1.3) | 17.2 (±1.2) |
| >$75,000 | 17.0 (±1.2) | | 12.1 (±0.7) | 13.0 (±1.0) | 14.1 (±1.0) |
| Unknown | 18.2 (±1.5) | | 13.8 (±0.9) | 15.7 (±1.7) | 14.4 (±1.9) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

**Table A2.2**
**Unstandardized California Adult Smoking Prevalence**
**WITHOUT the 100-Cigarette Criterion.**

| | Screener Survey | | | Adult Survey | |
|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | 1996 % | 1999 % |
| Overall | 22.2 (±0.5) | 20.2 (±0.5) | 18.6 (±0.4) | 20.4 (±0.5) | 19.6 (±0.4) |
| Gender | | | | | |
| Male | 25.5 (±0.5) | 23.4 (±0.7) | 21.0 (±0.5) | 23.4 (±0.7) | 23.4 (±0.7) |
| Female | 19.1 (±0.7) | 17.2 (±0.5) | 15.3 (±0.5) | 17.5 (±0.7) | 15.9 (±0.5) |
| Age | | | | | |
| 18-24 | 21.4 (±1.4) | 18.9 (±1.2) | 19.2 (±1.1) | 26.9 (±2.0) | 27.0 (±1.8) |
| 25-44 | 24.6 (±0.8) | 22.3 (±0.8) | 20.0 (±0.6) | 22.3 (±0.7) | 21.5 (±0.7) |
| 45-64 | 23.8 (±1.0) | 22.1 (±0.8) | 18.3 (±0.6) | 19.0 (±0.8) | 17.9 (±0.8) |
| 65+ | 12.2 (±0.8) | 11.8 (±1.0) | 10.3 (±0.8) | 10.4 (±1.7) | 9.3 (±1.0) |
| Race/Ethnicity | | | | | |
| African-American | 27.7 (±2.7) | 22.7 (±2.3) | 23.1 (±1.7) | 25.4 (±2.1) | 22.1 (±1.7) |
| Asian | 16.8 (±1.6) | 12.7 (±1.3) | 13.7 (±1.0) | 14.6 (±1.6) | 14.0 (±1.7) |
| Hispanic | 19.4 (±1.1) | 16.7 (±1.2) | 15.4 (±0.9) | 19.4 (±1.3) | 18.9 (±1.3) |
| Non Hispanic White | 23.1 (±0.5) | 22.1 (±0.7) | 19.1 (±0.3) | 20.9 (±0.4) | 20.2 (±0.4) |
| Education | | | | | |
| <12 | 26.0 (±1.3) | 22.2 (±1.0) | 22.1 (±1.1) | 24.0±1.6) | 24.7 (±1.6) |
| 12 | 26.5 (±0.8) | 25.2 (±0.8) | 22.8 (±0.6) | 25.7 (±1.0) | 23.8 (±0.6) |
| 13-15 | 20.7 (±0.7) | 19.3 (±1.0) | 18.0 (±0.5) | 21.3 (±1.0) | 20.6 (±0.9) |
| 16+ | 12.9 (±0.7) | 11.6 (±0.7) | 10.5 (±0.4) | 11.9 (±0.9) | 10.8 (±0.8) |
| Income | | | | | |
| ≤$10,000 | 27.5 (±2.2) | | 23.5 (±1.7) | 26.3 (±3.1) | 27.1 (±3.4) |
| $10,001-$20,000 | 24.3 (±1.8) | | 22.3 (±1.2) | 24.4 (±1.9) | 24.8 (±2.4) |
| $20,001-$30,000 | 25.6 (±1.7) | | 21.4 (±0.9) | 23.6 (±2.0) | 20.4 (±2.1) |
| $30,001-$50,000 | 22.4 (±1.3) | | 19.1 (±0.8) | 21.5 (±1.8) | 21.3 (±1.7) |
| $50,001-$75,000 | 20.2 (±1.1) | | 16.4 (±0.7) | 18.0 (±1.4) | 18.2 (±1.4) |
| >$75,000 | 17.1 (±1.2) | | 12.5 (±0.7) | 14.0 (±1.2) | 15.0 (±1.1) |
| Unknown | 19.3 (±1.6) | | 14.7 (±0.9) | 17.5 (±2.0) | 15.7 (±2.0) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

Table A2.1 and A2.2 indicate that within each survey year significantly fewer women were smokers compared to men, and that the oldest age group has the lowest prevalence, because people in this age group either have successfully quit or the survivors in this age group are nonsmokers. Further, it shows that African Americans tended to have the highest smoking prevalence and Asians the lowest smoking prevalence in each year. Finally, college graduates and those with a very high household income had lower smoking prevalence compared to the less well educated and persons in lower income households. To examine the trends suggested by these data in demographic groups and to verify that the differences in the groups pointed out above are not because of other demographic imbalances requires that the data be standardized. These results were presented in the main part of this chapter.

The smoking prevalence data from the 1990, 1993 and 1996 screener surveys presented in Table A2.3 correspond to regional data presented previously WITH the 100-cigarette criterion (Pierce et al., 1998). In Table A2.4, the prevalence is computed WITHOUT the

**Table A2.3**
**Unstandardized Adult Smoking Prevalence by Region Within California**
**WITH the 100-Cigarette Criterion**

| Region | Screener Survey | | | Adult Survey | |
|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | 1996 % | 1999 % |
| **1**-Los Angeles | 20.9 (±1.4) | 18.8 (±1.2) | 16.9 (±0.8) | 18.2 (±1.2) | 18.6 (±1.5) |
| **2**-San Diego | 22.2 (±2.1) | 18.0 (±1.6) | 16.4 (±1.3) | 17.4 (±2.1) | 19.0 (±2.5) |
| **3**-Orange | 18.5 (±2.1) | 17.4 (±1.8) | 14.7 (±1.2) | 16.5 (±2.2) | 14.9 (±1.7) |
| **4**-Santa Clara | 19.1 (±2.3) | 18.9 (±1.9) | 13.3 (±1.2) | 12.4 (±1.9) | 13.8 (±2.9) |
| **5**-San Bernardino | 26.1 (±1.6) | 22.9 (±2.0) | 19.6 (±2.1) | 20.9 (±3.1) | 22.8 (±3.4) |
| **6**-Alameda | 22.3 (±2.3) | 19.4 (±1.9) | 18.2 (±1.6) | 19.2 (±2.5) | 13.8(±2.1) |
| **7**-Riverside | 23.5 (±1.8) | 19.4 (±1.9) | 18.3 (±1.9) | 21.2 (±3.2) | 22.8 (±2.9) |
| **8**-Sacramento | 24.6 (±1.9) | 23.8 (±2.1) | 20.2 (±1.6) | 19.6 (±2.4) | 17.7 (±3.1) |
| **9**-Contra Costa | 21.4 (±1.6) | 20.5 (±2.0) | 17.6 (±1.8) | 17.9 (±2.7) | 18.4 (±3.0) |
| **10**-San Francisco | 21.0 (±2.5) | 20.1 (±1.8) | 19.6 (±1.8) | 23.3 (±3.5) | 18.7 (±3.0) |
| **11**-San Mateo, Solana | 20.2 (±1.4) | 19.3 (±2.0) | 16.5 (±1.7) | 21.5 (±3.6) | 18.2 (±4.0) |
| **12**-Marin, Napa, Sonoma | 21.4 (±2.0) | 18.0 (±1.9) | 16.4 (±1.3) | 16.9 (±2.9) | 17.1 (±2.4) |
| **13**-Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity, Yolo. | 23.3 (±1.6) | 22.0 (±1.9) | 20.6 (±1.7) | 22.2 (±2.7) | 24.7 (±4.3) |
| **14**-San Luis Obispo, Santa Barbara, Ventura | 18.5 (±1.8) | 19.3 (±1.8) | 16.4 (±1.5) | 19.2 (±3.0) | 14.5 (±2.5) |
| **15**-Alpine, Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, San Joaquin, Sierra, Sutter, Tuolumne, Yuba | 23.9 (±2.4) | 23.5 (±2.0) | 20.1 (±1.6) | 20.3 (±2.8) | 19.4 (±3.3) |
| **16**-Monterey, San Benito, Santa Cruz | 18.5 (±1.9) | 19.0 (±1.9) | 15.7 (±1.8) | 18.5 (±2.9) | 17.8 (±2.4) |
| **17**-Fresno, Madera, Merced, Stanislaus | 24.2 (±2.4) | 20.9 (±2.0) | 18.6 (±1.9) | 19.8 (±3.1) | 19.2 (±3.7) |
| **18**-Imperial, Inyo, Kern, Kings, Mono, Tulare | 23.1 (±1.9) | 21.4 (±1.9) | 20.2 (±1.7) | 22.8 (±3.3) | 19.6 (±3.0) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

100-cigarette criterion. These prevalence figures show the snap shot of prevalence in each region each year. Again, for comparing regions or for comparing trends within region, see the main body of this chapter.

**Table A2.4**
**Unstandardized Adult Smoking Prevalence by Region Within California**
**WITHOUT the 100-Cigarette Criterion**

| Region | Screener Survey | | | Adult Survey | |
|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | 1996 % | 1999 % |
| **1**-Los Angeles | 21.8 (±1.5) | 19.7 (±1.3) | 18.0 (±0.8) | 21.3 (±1.6) | 20.4 (±1.6) |
| **2**-San Diego | 23.1 (±2.2) | 18.7 (±1.7) | 17.0 (±1.4) | 18.8 (±2.4) | 20.0 (±2.6) |
| **3**-Orange | 19.3 (±2.1) | 18.1 (±1.8) | 15.3 (±1.2) | 17.8 (±2.4) | 15.6 (±1.9) |
| **4**-Santa Clara | 19.7 (±2.3) | 19.5 (±2.0) | 13.9 (±1.3) | 13.4 (±2.1) | 14.5 (±3.1) |
| **5**-San Bernardino | 26.6 (± 1.7) | 23.4 (±2.0) | 20.0 (±2.1) | 21.7 (±3.2) | 24.8 (±3.4) |
| **6**-Alameda | 22.8 (±2.3) | 19.9 (±1.8) | 18.9 (±1.9) | 19.6 (±2.6) | 14.8 (±2.3) |
| **7**-Riverside | 23.9 (± 1.8) | 20.0 (±1.9) | 18.9 (±1.9) | 23.2 (±3.6) | 23.1 (±2.9) |
| **8**-Sacramento | 25.2 (±2.0) | 24.1 (±2.1) | 20.9 (±1.6) | 20.3 (±2.6) | 18.0 (±3.2) |
| **9**-Contra Costa | 21.9 (±1.6) | 21.3 (±2.0) | 18.1 (±1.8) | 18.9 (±2.8) | 19.7 (±3.5) |
| **10**-San Francisco | 21.9 (±2.4) | 20.7 (±1.8) | 20.8 (±1.8) | 24.9 (±3.8) | 19.8 (±3.2) |
| **11**-San Mateo, Solana | 20.8 (±1.4) | 19.6 ±2.0) | 17.1 (±1.7) | 21.8 (±3.9) | 19.6 (±4.0) |
| **12**-Marin, Napa, Sonoma | 21.7 (±2.0) | 18.5 (±1.9) | 17.0 (±1.3) | 17.7 (±2.9) | 18.3 (±2.8) |
| **13**-Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity, Yolo. | 23.7 (±1.6) | 22.3 (±1.9) | 21.1 (±1.7) | 23.7 (±2.6) | 25.9 (±4.3) |
| **14**-San Luis Obispo, Santa Barbara, Ventura | 18.8 (±1.7) | 19.8 (±1.8) | 17.0 (±1.5) | 19.9 (±3.1) | 15.5 (±2.7) |
| **15**-Alpine, Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, San Joaquin, Sierra, Sutter, Tuolumne, Yuba | 24.1 (±2.4) | 23.7 (±2.1) | 20.5 (±1.6) | 22.5 (±3.3) | 20.2 (±3.3) |
| **16**-Monterey, San Benito, Santa Cruz | 20.0 (±1.9) | 19.6 (±2.0) | 16.5 (±1.8) | 19.0 (±2.9) | 19.6 (±2.6) |
| **17**-Fresno, Madera, Merced, Stanislaus | 25.1 (± 2.4) | 21.5 (±1.9) | 19.4 (±1.8) | 21.1 (±3.4) | 21.0 (±4.0) |
| **18**-Imperial, Inyo, Kern, Kings, Mono, Tulare | 23.9 (± 2.0) | 22.0 (±1.8) | 21.5 (±1.7) | 23.2 (±3.3) | 21.8 (±3.3) |

Table entries are weighted percentages and 95% confidence limits
Source: CTS 1990, 1993, 1996, 1999

Adult Daily Smoking

The unstandardized prevalence for adult daily smoking is presented in Table A2.5. Women consistently have lower rates of daily smoking than men, and daily smoking is highest among the middle aged. African Americans and Non-Hispanic Whites have higher rates of daily smoking than other race/ethnicity groups. People with higher levels of education are less likely to be daily smokers, and this trend holds for increasing household income as well.

**Table A2.5**
**Unstandardized California Adult Daily Smoking Prevalence**
**WITH the 100-Cigarette Criterion**

| | 1990 % | 1992 % | 1996 % | 1999 % |
|---|---|---|---|---|
| Overall | 17.5(±0.5) | 16.4(±0.9) | 14.1(±0.3) | 13.0(±0.3) |
| Gender | | | | |
| Male | 19.5 (±0.9) | 18.5 (±1.4) | 16.0 (±0.4) | 15.1 (±0.4) |
| Female | 15.5 (±0.7) | 14.3 (±0.9) | 12.2 (±0.3) | 10.9 (±0.4) |
| Age | | | | |
| 18-24 | 15.8 (±1.5) | 15.7 (±2.5) | 13.3 (±0.9) | 12.9 (±0.8) |
| 25-44 | 19.2 (±0.7) | 18.1 (±1.9) | 15.2 (±0.4) | 14.0 (±0.5) |
| 45-64 | 18.8 (±1.2) | 17.5 (±1.9) | 15.6 (±0.7) | 14.0 (±0.6) |
| 65+ | 10.9 (± 1.5) | 9.4 (±1.8) | 8.2 (±0.9) | 7.5 (±0.9) |
| Race/Ethnicity | | | | |
| African-American | 21.3 (±3.3) | 18.7 (±4.2) | 17.7 (±1.5) | 13.6 (±1.5) |
| Asian | 12.2 (±2.8) | 10.0 (±2.7) | 9.8 (±1.0) | 8.8 (±1.2) |
| Hispanic | 11.1 (±1.5) | 10.2 (±3.5) | 9.0 (±0.7) | 8.7 (±0.7) |
| Non Hispanic White | 19.7 (±0.8) | 18.9 (±2.2) | 16.3 (±0.3) | 15.3 (±0.4) |
| Education | | | | |
| <12 | 20.7 (±1.8) | 19.0 (±3.9) | 15.8 (±0.7) | 14.8 (±0.9) |
| 12 | 20.4 (±0.9) | 20.3 (±1.2) | 19.1 (±0.5) | 17.5 (±0.7) |
| 13-15 | 17.2 (±1.1) | 15.4 (±1.1) | 14.8 (±0.7) | 13.8 (±0.6) |
| 16+ | 9.8 (±0.9) | 8.5 (±0.8) | 7.5 (±0.5) | 6.4 (±0.4) |
| Household Income | | | | |
| ≤$10,000 | 20.1 (±2.6) | | 17.4 (±1.8) | 17.2 (±2.1) |
| $10,001 to $20,000 | 19.7 (±1.8) | | 16.4 (±1.3) | 15.8 (±1.6) |
| $20,001 to $30,000 | 19.9 (±2.0) | | 16.6 (±1.3) | 14.1 (±1.6) |
| $30,001 to $50,000 | 17.9 (±1.7) | | 15.3 (±1.3) | 14.6 (±1.3) |
| $50,001 to $75,000 | 16.7 (±1.8) | | 12.9 (±1.2) | 13.0 (±1.1) |
| >$75,000 | 12.5 (±1.5) | | 9.3 (±0.9) | 9.2 (±0.8) |
| Unknown | 15.5 (±1.7) | | 11.9 (±1.3) | 9.9 (±1.5) |

Table entries are weighted percentages and 95% confidence limits
Source: CTS 1990, 1992, 1996, 1999

Adolescent Smoking Prevalence

Table A2.6 shows the unstandardized results for adolescent smoking prevalence (any smoking in the last 30 days) from the 1990, 1993, 1996 and 1999 CTS. To compare trends over time either overall or within demographic groups, refer to the adolescent smoking section in the main body of this chapter.

While girls had slightly lower levels of current smoking prevalence than boys through 1996, the gender difference had disappeared by 1999. In each year, smoking prevalence increased with age. Also, Non-Hispanic White adolescents had a higher smoking prevalence in each year compared to minorities. Finally, in each year, adolescents with average or below self-reported school performance had the highest smoking prevalence. While there was a difference in prevalence between those with better than average and much better than average school performance, it was much less and not significant in every year.

**Table A2.6**
**Unstandardized Adolescent (12-17 years) Smoking Prevalence (in Last 30 days) in California**

| | 1990 % | 1993 % | 1996 % | 1999 % |
|---|---|---|---|---|
| Overall | 9.2 (±0.9) | 9.2 (±1.1) | 12.0 (±1.1) | 7.7 (±0.8) |
| Gender | | | | |
| Boys | 9.8 (±1.6) | 10.1 (±1.8) | 12.6 (±1.4) | 7.9 (±1.0) |
| Girls | 8.7 (±1.5) | 8.3 (±1.5) | 11.3 (±1.4) | 7.5 (±1.1) |
| Age | | | | |
| 12-13 | 3.6 (±1.6) | 3.1 (±1.0) | 3.3 (±0.9) | 1.8 (±0.8) |
| 14-15 | 8.0 (±1.5) | 9.6 (±1.9) | 10.9 (±1.4) | 5.6 (±1.0) |
| 16-17 | 16.6 (±2.2) | 15.9 (±2.6) | 22.2 (±2.3) | 16.3 (±2.2) |
| Race/Ethnicity | | | | |
| African American | 5.6 (±3.2) | 4.8 (±3.5) | 6.3 (±2.8) | 5.5 (±2.3) |
| Asian | 4.8 (±2.6) | 5.4 (±3.8) | 8.8 (±2.5) | 4.8 (±2.0) |
| Hispanic | 8.9 (±1.9) | 7.1 (±1.7) | 10.8 (±1.9) | 7.8 (±1.4) |
| Non-Hispanic White | 11.0 (±1.3) | 11.8 (±1.3) | 14.3 (±1.2) | 8.7 (±1.2) |
| School Performance | | | | |
| Much Better Than Ave | 4.5 (±1.7) | 3.9 (±1.4) | 5.8 (±1.5) | 4.9 (±2.0) |
| Better Than Average | 6.5 (±1.4) | 6.9 (±1.6) | 10.8 (±1.5) | 6.7 (±1.1) |
| Average or Below | 13.4 (±2.0) | 13.2 (±1.9) | 16.7 (±1.7) | 10.0 (±1.2) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

Adolescent Smoking Prevalence by Region

The unstandardized estimates of adolescent smoking prevalence by region are shown in Table A2.7. Again, to compare trends over time within region or to compare rates between regions, refer to the main body of the chapter. The snap shot estimates in Table A2.7 are the best estimates for each region at each point in time, given the composition of the adolescent population in the region.

**Table A2.7**
**Unstandardized Adolescent Smoking Prevalence (in Last 30 Days)**
**by RegionWithin California**

| Region | Screener Survey | | | |
|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | 1999 % |
| **1**-Los Angeles | 7.3 (±2.4) | 7.3 (±2.4) | 10.3 (±2.0) | 6.6 (±1.8) |
| **2**-San Diego | 7.7 (±3.6) | 9.8 (±4.6) | 8.6 (±3.4) | 9.3 (±3.3) |
| **3**-Orange | 10.8 (±4.1) | 8.9 (±3.7) | 16.2 (±4.3) | 8.0 (±2.8) |
| **4**-Santa Clara | 8.7 (±2.8) | 9.7 (±3.7) | 11.3 (±4.6) | 5.8 (±2.5) |
| **5**-San Bernardino | 12.8 (±4.1) | 10.4 (4.3) | 12.8 (±4.6) | 5.7 (±2.1) |
| **6**-Alameda | 12.0 (±5.1) | 8.1 (±4.3) | 11.7 (±4.4) | 8.6 (±3.7) |
| **7**-Riverside | 10.4 (±3.5) | 7.5 (±3.4) | 13.3 (±3.6) | 4.9 (±2.1) |
| **8**-Sacramento | 7.3 (±4.1) | 8.4 (±4.4) | 15.1 (±4.4) | 9.1 (±4.4) |
| **9**-Contra Costa | 8.2 (±3.7) | 8.7 (±3.4) | 12.0 (±4.3) | 7.9 (±3.6) |
| **10**-San Francisco | 5.5 (±3.8) | 7.3 (±5.2) | 9.3 (±6.0) | 14.7 (±8.0) |
| **11**-San Mateo, Solano | 9.5 (±4.2) | 11.8 (±5.3) | 11.7 (±4.4) | 11.9 (±6.0) |
| **12**-Marin, Napa, Sonoma | 10.9 (±4.6) | 17.5 (±5.3) | 17.6 (±5.1) | 5.9 (±2.9) |
| **13**-Butte, Colusa, Del Norte, Glenn, etc. | 14.7 (±4.3) | 11.6 (±4.1) | 16.5 (±4.1) | 11.7 (±6.0) |
| **14**-San Luis Obispo, Santa Barbara, Ventura | 12.0 (±4.2) | 13.5 (±4.3) | 10.9 (±3.6) | 5.0 (±2.6) |
| **15**-Amador, Alpine, Calaveras El Dorado, etc. | 13.0 (±5.8) | 8.2 (±2.9) | 14.6 (±4. 4) | 10.8 (±4.7) |
| **16**-Santa Cruz | 12.5 (±5.4) | 12.8 (±4.7) | 8.9 (±3.8) | 7.6 (±3.9) |
| **17**-Fresno, Madera, Merced, Stanislaus | 8.0 (±3.5) | 11.0 (±3.6) | 16.2 (±4.1) | 9.3 (±2.6)) |
| **18**-Imperial, Inyo, Kern, Kings, Mono, Tulare | 7.7 (±3.5) | 8.9 (±3.9) | 8.7 (±3.2) | 7.4 (±2.5) |
| State | 9.2 (±1.0) | 9.2 (±1.1) | 12.0 (±1.1) | 7.7 (±0.8) |

## CHAPTER 2: GLOSSARY

### Adolescents

*Current smoker* – has smoked a cigarette on at least one day in the past month.

*Never smoker* – has never smoked or even puffed on a cigarette.

*Non-current smoker* – has not smoked a cigarette on any days in the past month.

*Nonsmoker – never smoker* or *non-current smoker.*

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Daily smoker* – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes everyday (new question).

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Heavy smoker* – a *current smoker* who smokes 15 or more cigarettes a day.

*Light smoker* – a *current smoker* who smokes fewer than 15 cigarettes a day.

*Never smoker* – has smoked fewer than 100 cigarettes in his or her lifetime.

*Occasional smoker* – a *current smoker* who smoked on at least 1 day in the past month (old question sequence) or who says he or she now smokes some days (new question).

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# Chapter 3

# PROTECTION OF NONSMOKERS

# CHAPTER 3: PROTECTION OF NONSMOKERS

## Introduction

The well-documented health hazards of secondhand smoke (US EPA, 1992; CalEPA, 1997; NCI, 1999) make protection of nonsmokers from secondhand smoke one of the major goals of the California Tobacco Program (Pierce et al., 1994; TEROC, 2000). Reduction or elimination of exposure to secondhand tobacco smoke in places where people spend a considerable amount of time, particularly in the workplace and at home, is central to this objective. This chapter shows the progress in California toward the elimination of exposure of nonsmokers to secondhand tobacco smoke.

Section 1 of this chapter shows the increase in the percentage of indoor California workers with smokefree workplaces, as well as the decrease in exposure to secondhand smoke in the workplace. It also examines workplace settings where workers say smoking is allowed and the types of workplaces where exposure to secondhand smoke is still relatively high. Section 2 examines home smoking policies, addressing such questions as who is implementing them, why they were implemented and who is benefiting, and Section 3 explores the extent of secondhand smoke exposure across the population in places other than home or work. Section 4 looks at population beliefs about the harmfulness of secondhand smoke. Section 5 describes nonsmoker activism in California. Section 6 summarizes the chapter results, highlighting progress as well as areas where further policy initiatives may be needed.

## 1. Smokefree Workplaces

The initiation of the California Tobacco Control program was associated with an increase in the number of local ordinances restricting smoking in the workplaces (Patten et al., 1995). A great deal of the impetus for the campaign to pass these ordinances came from volunteers with essential support from local lead agencies funded by the California Tobacco Control Program. These local efforts were likely enhanced when the U.S. Environmental Protection Agency released its 1992 report declaring secondhand smoke a known human carcinogen (US EPA, 1992). The proliferation of these local ordinances throughout the early 1990s culminated in the passage of California Assembly Bill 13 (AB-13), which was enacted in January of 1994 and took effect in 1995. AB-13 prohibits smoking in all enclosed places of employment, and supersedes many of the local ordinances enacted earlier. It does not preclude local jurisdictions from enacting stronger ordinances (MacDonald & Glantz, 1997). As enacted initially, AB-13 covered all workplaces except for bars, taverns and gaming clubs, and it was expanded to cover these venues as of January 1, 1998.

Report of Smokefree Workplaces

Before smokefree workplaces were mandated by law, indoor workers who responded to the CTS were asked:

*Does your place of work have an official policy that restricts smoking in any way?*

If there was a policy restricting smoking, respondents to all surveys were then asked:

- *Which of these best describes your place of work's smoking policy for indoor public or common areas, such as lobbies, rest rooms, and lunch rooms?*
- *Which of these best describes your place of work's smoking policy for work areas?*

The response choices for the latter two questions were: not allowed in any, allowed in some, or allowed in all. Workers who answered "not allowed in any" to both questions were considered to have smokefree workplaces.

The 1993 CTS may not have correctly identified whether an indoor worker had a smokefree workplace because of ambiguous response choices, so data from this survey are not included in the analyses for this report. Because nearly all workplaces were mandated to be smokefree in 1995, the questions asked in the 1996 and 1999 CTS were different from prior years. These CTS established that a respondent was an indoor worker with one question, rather than a series of questions:

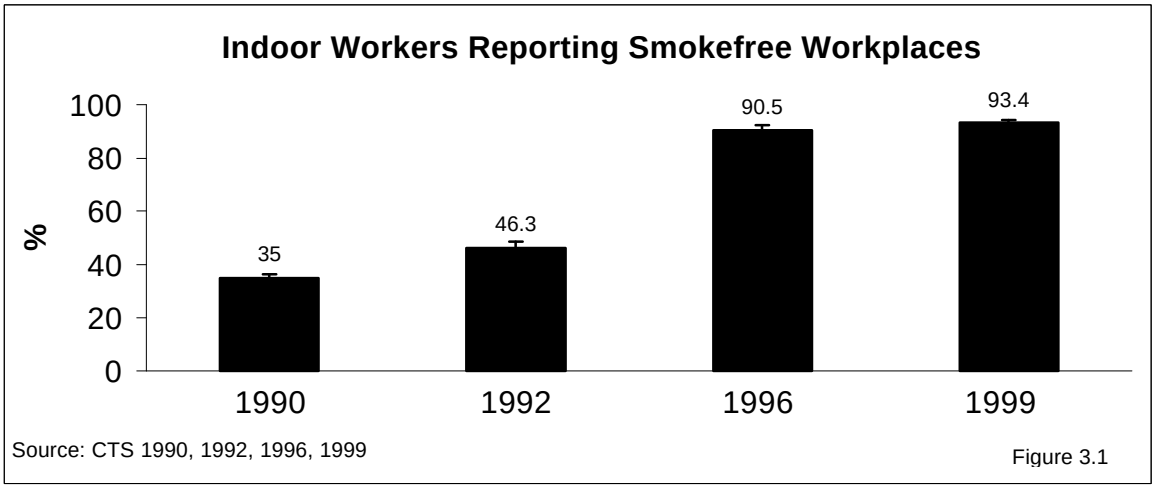
*Do you currently work for money in an indoor setting, such as an office, plant, or store, outside of your home?*

Respondents were no longer asked whether their workplace had a policy, but rather whether it was smokefree:

*Is your place of work completely smokefree indoors?*

**Less than 7% of California indoor workers reported that their workplaces were not smokefree.**

Figure 3.1 shows the percentage of indoor workers who reported that their workplace was smokefree. The results from the 1990, 1992, 1996 and 1999 CTS surveys indicate




Source: CTS 1990, 1992, 1996, 1999

Figure 3.1

that the percentage of workers who enjoy a smokefree workplace has increased significantly from its level in 1990, 35.0±1.3% to 93.4±0.8% in 1999, a factor increase of 167%. Table A3.1 at the end of this chapter shows the detailed breakout of report of smokefree workplaces in 1999 by demographics.

If the workplace was reported to allow smoking indoors (<7% of total), the 1999 CTS sought more detailed information with the following question:

> *For each of the following indoor areas in your building, is smoking allowed in…*
> *a) any indoor work areas* *b) a special smoking room or lounge*
> *c) a break room or cafeteria* *d) a hallway or lobby ?*

Respondents could answer yes, no or not applicable with respect to each of the 4 areas. Only 2.4±0.5% perceived that their employer's smoking policy allowed smoking in indoor work areas, 1.5±0.4% perceived that smoking was allowed in special smoking rooms or lounges, 0.9±0.2% said it was allowed in a break room or cafeteria, and 1.1±0.3% said it was allowed in a hall or lobby**.** Thus, more of these indoor workers thought smoking was allowed in work areas than in other areas. Regardless of whether this represents confusion on the part of the employer or the employee or noncompliance, there is still room for additional efforts to inform both employees and employers about the provisions of AB-13.

Another two questions asked in 1999 assessed all indoor workers' perceptions of workplace smoking policy out of doors:

> *Is smoking allowed outside the building…*
> *a) adjacent to entrances* *b) in a special area on the property?*

Combining the responses to this question with the smokefree-indoor question shows that 69.9±1.7% of indoor workers reported that while smoking was banned indoors, it was allowed adjacent to entrances. Another 12.9±1.7% thought it was banned both indoors and adjacent to entrances, and 10.6±1.0% thought it was not allowed anywhere on the property.

Exposure of Nonsmokers to Secondhand Tobacco Smoke at Work

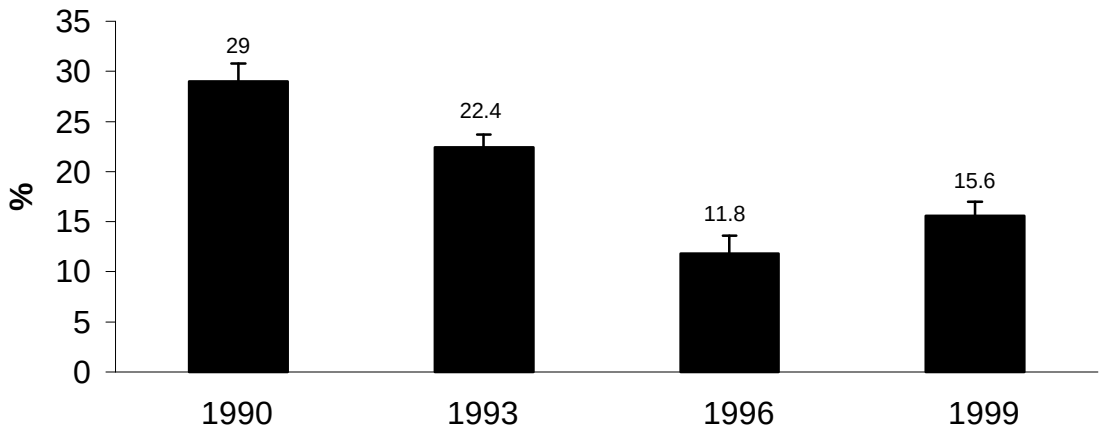
As explained above, in 1999 93.4±0.8% of indoor workers reported smokefree workplaces. In 1999, all indoor workplaces should by law be smokefree. In order to accurately assess workplace protection from secondhand tobacco smoke, each CTS asked all nonsmokers who worked indoors:

> *During the past two weeks, has anyone smoked in the area in which you work?*

**The percentage of nonsmoking indoor workers exposed to secondhand smoke at work is approximately half the rate observed in 1990.**

Figure 3.2 shows that the percentage of nonsmoking indoor workers reporting that they had been exposed to secondhand smoke in the last 2 weeks decreased significantly

between 1990 and 1996. However, despite the now comprehensive provisions of AB-13, between 1996 and 1999, this percentage increased significantly by a factor of 32.2% to 15.6±1.4%. Nonetheless, over the decade, exposure to secondhand smoke in the workplace decreased by a factor of 46.2%.




Source: CTS 1990, 1993, 1996, 1999 Figure 3.2

For comparison, Table 3.1 presents work area exposure to secondhand smoke in the past 2 weeks for demographic groups of indoor workers for 1990, 1993, 1996 and 1999. While workplace exposure to secondhand smoke diminished significantly across all categories of workers between 1990 and 1999, the reduction in exposure did not remove the inequities in rates of exposure that existed in 1990. In general, males, younger nonsmokers, minorities (especially Hispanics and Asians), and the less well-educated have higher rates of work area exposure to secondhand smoke.

Between 1996 and 1999, there were several demographic groups of nonsmoking indoor workers that showed marked and significant increases in exposure to secondhand smoke in the workplace. Women's reported exposure increased by a factor of 87.1%, young adults' by a factor of 68.4%, those with some college by a factor of 65.6%, and college graduates by 102%. The increase for Non-Hispanic Whites was significant, and although the increases were greater percentage wise for minorities (except Hispanics), they were not statistically significant.

It is not clear whether the increase in reported exposure to secondhand smoke in the workplace indicates actual increases in noncompliance with the state smokefree indoor workplace law or simply reflects a heightened awareness of exposure. The possibility of slippage in compliance with the state law deserves serious consideration by the Tobacco Control Program.

**Table 3.1**
**Exposure of Nonsmokers to Secondhand Smoke in the Past Two Weeks in Indoor Work Areas by Demographic Characteristics**

| | 1990 % | 1993 % | 1996 % | 1999 % | Factor Change 1996-1999 % |
|---|---|---|---|---|---|
| Overall | 29.0 (±1.8) | 22.4 (±1.3) | 11.8 (±1.5) | 15.6 (±1.4) | 32.2 |
| Sex | | | | | |
| Male | 35.6 (±2.9) | 27.6 (±1.8) | 16.4 (±2.4) | 18.2 (±1.9) | 11.0 |
| Female | 22.8 (±2.0) | 17.1 (±1.6) | 7.0 (±1.5) | 13.1 (±2.2) | 87.1 |
| Age (years) | | | | | |
| 18-24 | 41.7 (±4.7) | 31.1 (±3.7) | 17.4 (±4.7) | 29.3 (±4.8) | 68.4 |
| 25-44 | 27.9 (±2.4) | 22.7 (±1.6) | 12.3 (±1.9) | 15.5 (±2.1) | 18.4 |
| 45-64 | 23.3 (±2.7) | 16.3 (±2.1) | 8.6 (±2.6) | 10.2 (±3.1) | 18.6 |
| 65+ | 16.7 (±9.4) | 17.9 (±5.8) | 9.8 (±6.7) | 12.3 (±7.1) | 25.5 |
| Race/ethnicity | | | | | |
| African American | 22.9 (±7.5) | 19.5 (±4.4) | 7.9 (±5.2) | 15.3 (±5.8) | 93.7 |
| Asian/PI | 27.8 (±5.6) | 26.4 (±5.3) | 11.6 (±4.0) | 19.7 (±7.4) | 69.8 |
| Hispanic | 39.8 (±4.9) | 32.2 (±3.8) | 19.6 (±3.8) | 20.4 (±3.1) | 4.1 |
| Non-Hispanic White | 25.9 (±1.8) | 19.0 (±1.4) | 9.0 (±1.6) | 12.4 (±1.4) | 37.8 |
| Education | | | | | |
| Less than 12 years | 42.1 (±8.6) | 35.6 (±5.2) | 28.7 (±7.2) | 27.3 (±7.3) | -4.9 |
| High school graduate | 33.7 (±3.5) | 28.0 (±2.3) | 17.1 (±3.4) | 19.5 (±3.0) | 14.0 |
| Some college | 30.0 (±3.2) | 21.6 (±1.9) | 9.3 (±2.1) | 15.4 (±2.4) | 65.6 |
| College graduate | 18.5 (±1.8) | 13.6 (±1.3) | 5.0 (±1.8) | 10.1 (±2.0) | 102.0 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990,1993,1996,1999

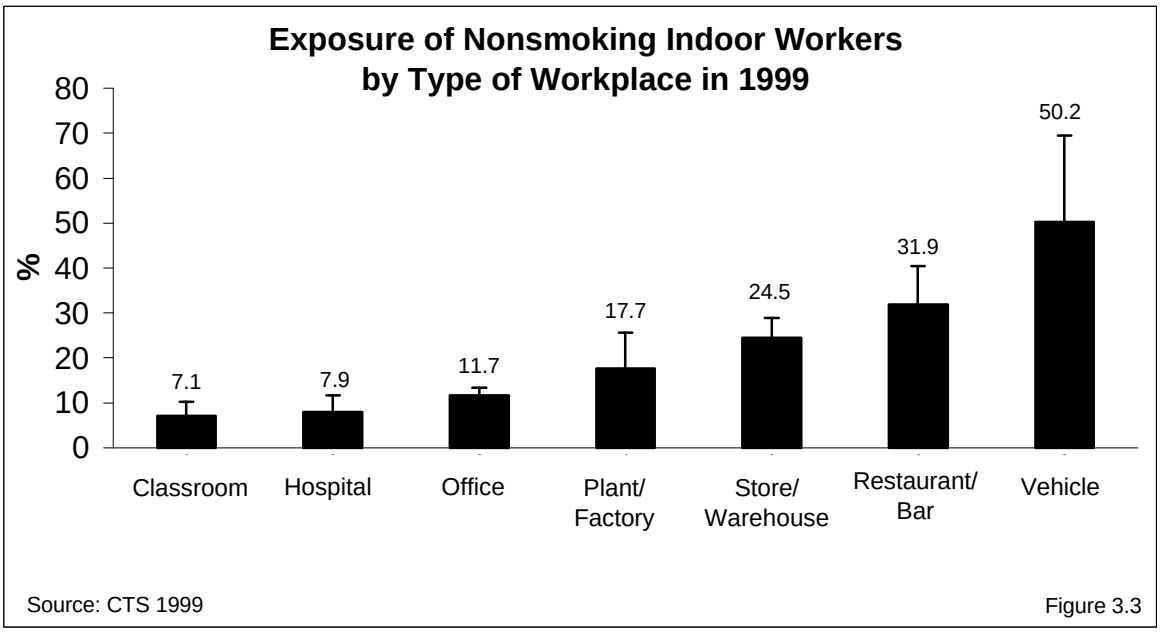
## Compliance With AB-13

To gain some understanding about the work settings in which exposure to secondhand smoke was most likely to occur, in 1999, we asked all indoor workers about their type of work area:

> *What best describes where you work outside the home for money?*

The response categories were as shown in Figure 3.3. Exposure to secondhand smoke was least likely to occur among workers in classrooms and hospitals. Offices (and plants or factories) also had relatively low rates of exposure. Exposure was much higher for workers in stores/warehouses or restaurants/bars. Workers whose workplace was a vehicle had an even higher exposure rate. These findings suggest that enforcement of smokefree workplaces is still inadequate in restaurants/bars.

Whether or not AB-13 is applicable to vehicles such as delivery trucks and taxis, which could be considered indoor work areas, needs further clarification.



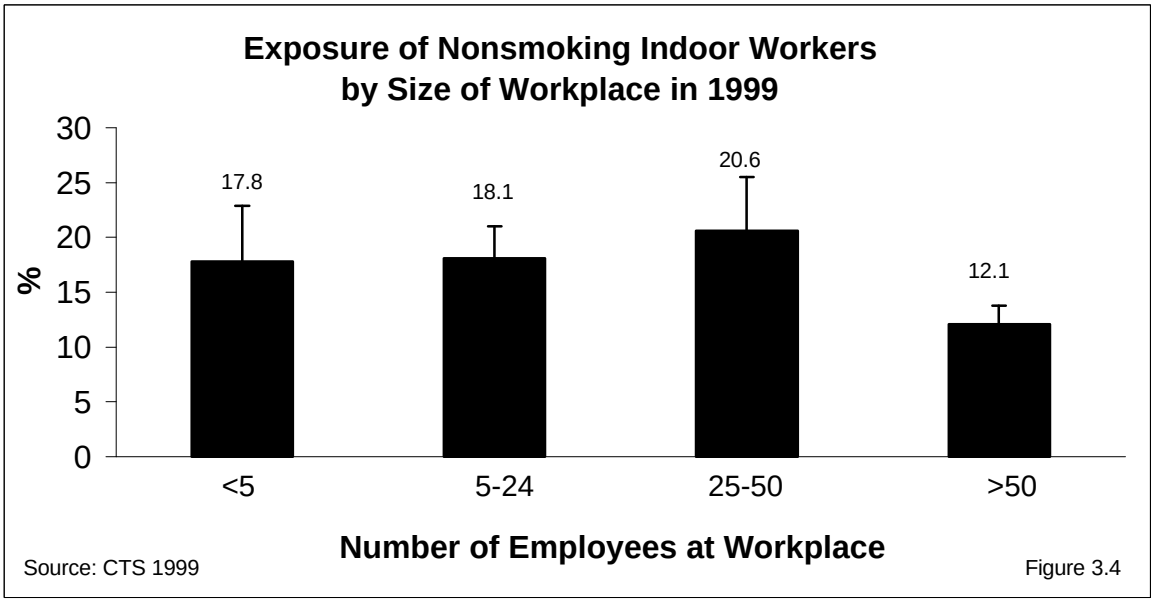

Source: CTS 1999

Figure 3.3

In past CTS, exposure to secondhand smoke was analyzed by size of workplace under or over 50 employees. In 1999, the under 50-employee category was further broken out:

> *What is the total number of employees in the building where you work? Is it…*
> *less than 5, at least 5 but less than 25, between 25 and 50, or over 50?*

Figure 3.4 shows the level of work area exposure for indoor workers in these various sized workplaces. While larger workplaces were clearly more compliant, there was no




Source: CTS 1999

Figure 3.4

tendency for the smallest workplaces (<5 employees) to be less compliant than other workplaces with fewer than 50 employees.

California has made significant progress in protecting nonsmokers from the hazards of secondhand smoke in the workplace. While gains were achieved in the early 1990s through mass media and local community activity, the passage of a statewide law (AB-13) was associated with the largest change. However, compliance appears to have relaxed somewhat in recent years.

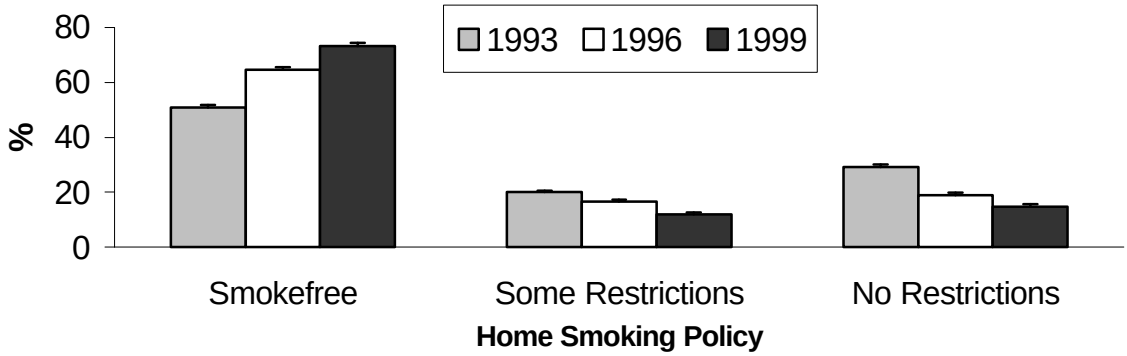
## 2. Exposure to Involuntary Smoking at Home

Increased smoking restrictions in the workplace may have contributed to the shifting attitude in the population that smokers should not smoke indoors at home either (Farkas et al, 1999). Growing concerns about the health dangers of secondhand smoke, and the emphasis placed on this issue by the California Tobacco Control Program media campaign, may also have led to the adoption of home smoking restrictions. While home smoking restrictions play a vital role in protecting nonsmokers, particularly children, from secondhand smoke, there is considerable evidence that they have a much wider effect. Smokefree homes may decrease cigarette consumption, promote quitting, and help prevent relapse in former smokers (Gilpin et al., 1999; Farkas et al., 1999). In addition, recent data also suggest that smokefree homes are associated with lower smoking initiation rates in adolescents, even in homes where parents smoke (Farkas et al., 2000).

Respondents to CTS after 1990 were asked to describe their home rules on smoking by choosing from the following options:

| | |
|---|---|
| *(1) Smokefree* | *Smoking is completely banned in the home* |
| *(2) Some Restrictions* | *Smoking is permitted in certain rooms or at certain times* |
| *(3) Unrestricted* | *Smoking is allowed anywhere in the home* |

Figure 3.5 shows a continued increase in the percentage of smokefree homes, so that nearly three-quarters of California homes in 1999 were reported to be smokefree. Table




| | 1993 | 1996 | 1999 |
|---|---|---|---|
| Smokefree | 50.9 | 64.5 | 72.8 ± 1.1 |
| Some Restrictions | 20.0 | 16.6 | 12.5 ± 0.7 |
| No Restrictions | 29.1 | 18.9 | 14.7 ± 0.8 |

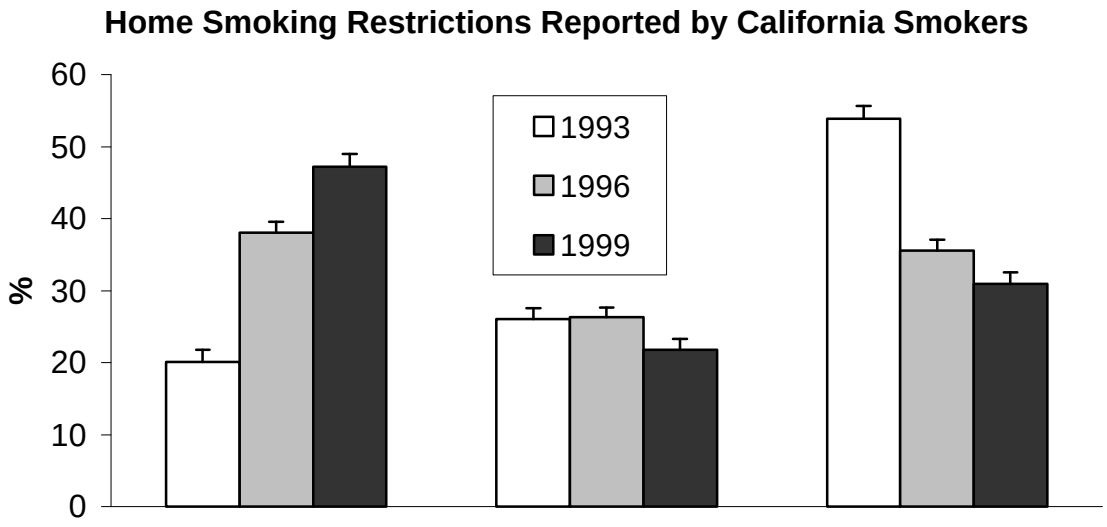
Source: CTS 1993, 1996, 1999

Figure 3.5

A3.2 in the back of this chapter shows report of home smoking restrictions by demographics.

**In 1999, nearly 50% of all smokers lived in smokefree homes, a 2.4 fold increase in 10 years.**

Since many homes do not have resident smokers, it is important to examine these trends as reported by smokers (see Figure 3.6). Between 1993 and 1996, the percentage of California smokers that reported smokefree homes increased from 20.1±1.7% to 38.1±1.5%, and further increased to 47.2±1.8% in 1999, an overall factor increase of 135%.




| | 1993 | 1996 | 1999 |
|---|---|---|---|
| Smokefree | 20.1 | 38.1 | 47.2 |
| Some Restrictions | 26.1 | 26.3 | 21.8 |
| No Restrictions | 53.9 | 35.6 | 31.0 |

Source: CTS 1993, 1996, 1999

Figure 3.6

Corresponding to the rise in smokefree homes with adult smokers, there was a significant decrease in the percentage of homes with no restrictions between 1993 and 1999. These data represent an encouraging signal that the health norms promoted by the TCP have been incorporated into the social norms of a large segment of the population.

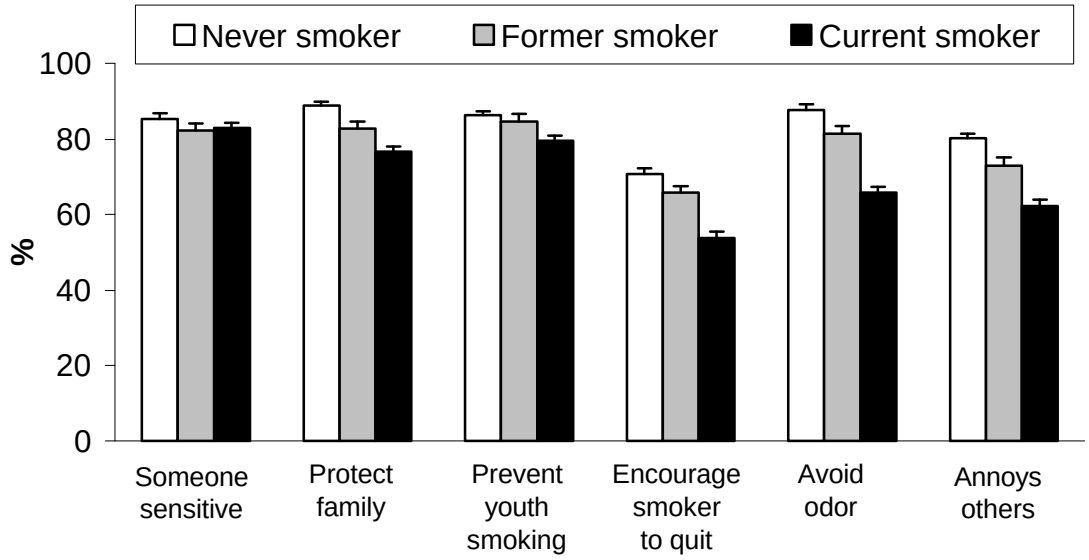
Reasons Respondents Give for Having Smokefree Homes

Respondents to the 1999 CTS were asked about reasons for having a smokefree home.

> *I'm going to read you some reasons why people have smokefree homes. For each, please indicate whether it is very important, somewhat important or not important to you for your household. The reasons were:*
> - *To protect a household member who is sensitive to smoke*
> - *To protect family from harmful health effects of environmental tobacco smoke*
> - *To discourage young people from starting to smoke*
> - *To encourage smokers to quit*
> - *To avoid unpleasant odor of smoking*
> - *Because it annoys others.*

Figure 3.7 shows the percentages that thought each reason was very important by smoking status at the time of the survey. A majority of respondents, regardless of smoking status, thought that all these were very important reasons why people should have smokefree homes. Smokers were much less likely to think having smokefree homes might encourage smokers to quit, but this result occurred in nonsmokers as well.

**Reasons for Having Smokefree Homes by Smoking Status in 1999**




| | Never smoker | Former smoker | Current smoker |
|---|---|---|---|
| Someone sensitive | 85.4 | 82.3 | 83.0 |
| Protect family | 89.0 | 82.8 | 76.7 |
| Prevent youth smoking | 86.3 | 84.7 | 79.6 |
| Encourage smokers to quit | 70.8 | 65.8 | 53.8 |
| Avoid odor | 87.7 | 81.5 | 65.8 |
| Annoys others | 80.2 | 73.0 | 62.3 |

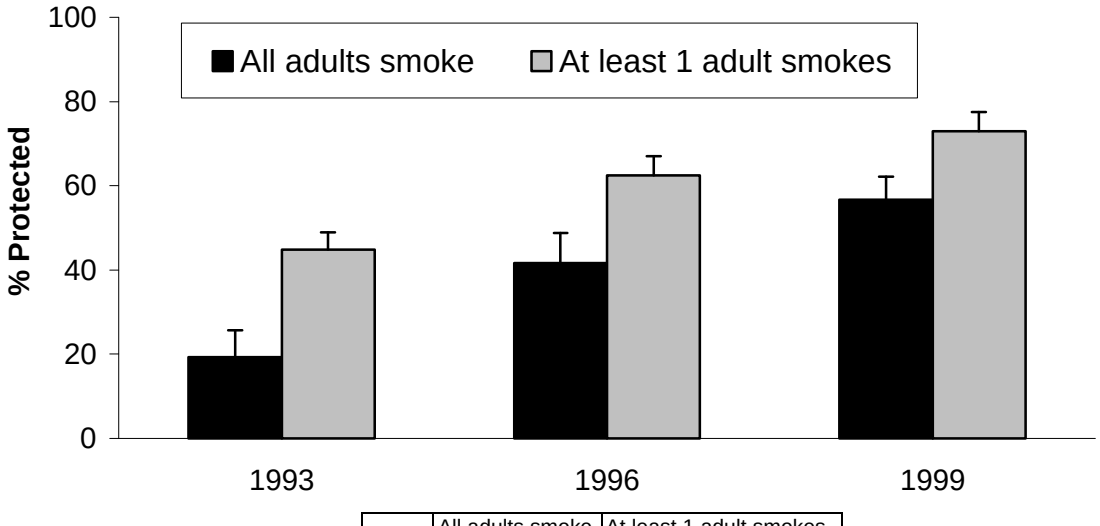
Source: CTS 1999

Figure 3.7

Protection of Children and Youth from Secondhand Tobacco Smoke in the Home

**By 1999, there was almost a 3-fold increase in protection of young children in households where all adults smoke.**

The California Environmental Protection Agency has clearly documented the risks of secondhand smoke to children (CalEPA, 1997). Children and adolescents are increasingly protected from secondhand tobacco smoke in the home either because they do not live with a smoker, *or* they live in a smokefree home. Among children under 6 years old, 91.0±1.3% were protected from ETS in the home in 1999. In homes with children age 5 years or less (Figure 3.8) where all adults smoke, the percentage with smokefree homes rose from 19.3±6.4% in 1993 to 56.7±5.5% in 1999, a factor increase of 194%. In homes with young children where only some adults smoke, 44.8±4.2% were smokefree in 1993, and this figure jumped to 73.1±4.6% by 1999, a factor increase of 63.2%.



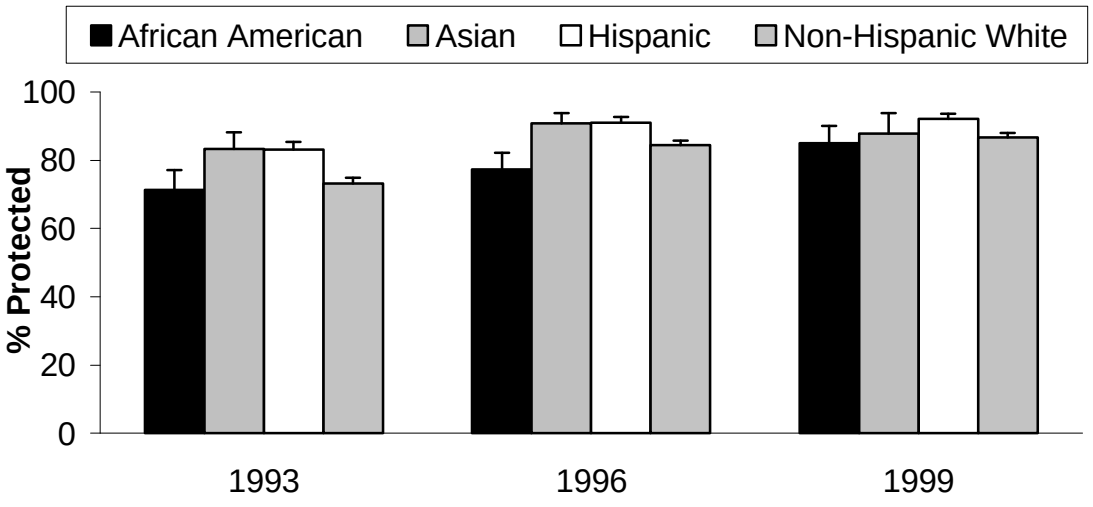

| | All adults smoke | At least 1 adult smokes |
|---|---|---|
| 1993 | 19.3 | 44.8 |
| 1996 | 41.6 | 62.4 |
| 1999 | 56.7 | 73.1 |

Source: CTS 1993, 1996, 1999

Figure 3.8

In 1999, 88.6±1.1% of California children and adolescents (0 to 17 years of age) were protected from secondhand smoke at home, about the same as in 1996 (87.0±1.0%) and significantly increased from 1993 (77.0±1.4%). Figure 3.9 shows that the protection of children and adolescents appears to have increased in all racial and ethnic groups. Some minority children and adolescents had particularly high rates of protection from involuntary smoking in the home in 1999: Hispanic, Non-Hispanic White, and Asian children and adolescents all had protection rates over the 85.0±4.9% seen in African Americans. However, the gap between African Americans and other groups is much less in 1999 than previously.

**Protection From Secondhand Smoke at Home for Children and Adolescents by Race/Ethnicity**




| | 1993 | 1996 | 1999 |
|---|---|---|---|
| African American | 71.2 | 77.3 | 85.0 |
| Asian | 83.3 | 90.7 | 87.8 |
| Hispanic | 83.1 | 91.0 | 92.0 |
| Non-Hispanic White | 73.2 | 84.4 | 86.6 |

Source: CTS 1993, 1996, 1999

Figure 3.9

### 3. Exposure to Secondhand Tobacco Smoke in Places Other Than Work or Home

The rapid increase in protection of nonsmokers from exposure to secondhand smoke suggests that some California nonsmokers may no longer be exposed to tobacco smoke at all. To estimate the percentage of such California nonsmokers, the 1999 CTS asked:

*In California, in the past 6 months, have you had to put up with someone smoking near you at any other place besides your home or your workplace?*

**In 1999, over a third of California nonsmokers led lives free of exposure to secondhand smoke.**

The percentage of nonsmokers who answered no to the above question, and who reported smokefree homes, and, if indoor workers, had smokefree workplaces with no exposure to smokers in their work area in the past two weeks, was 37.1±1.4%.

Nonsmokers who answered yes to the above question were asked:

*The last time this happened, in California, where were you?*

Figure 3.10 presents the percentage of nonsmokers who reported some exposure to secondhand tobacco smoke in places other than work or home during the past 6 months.

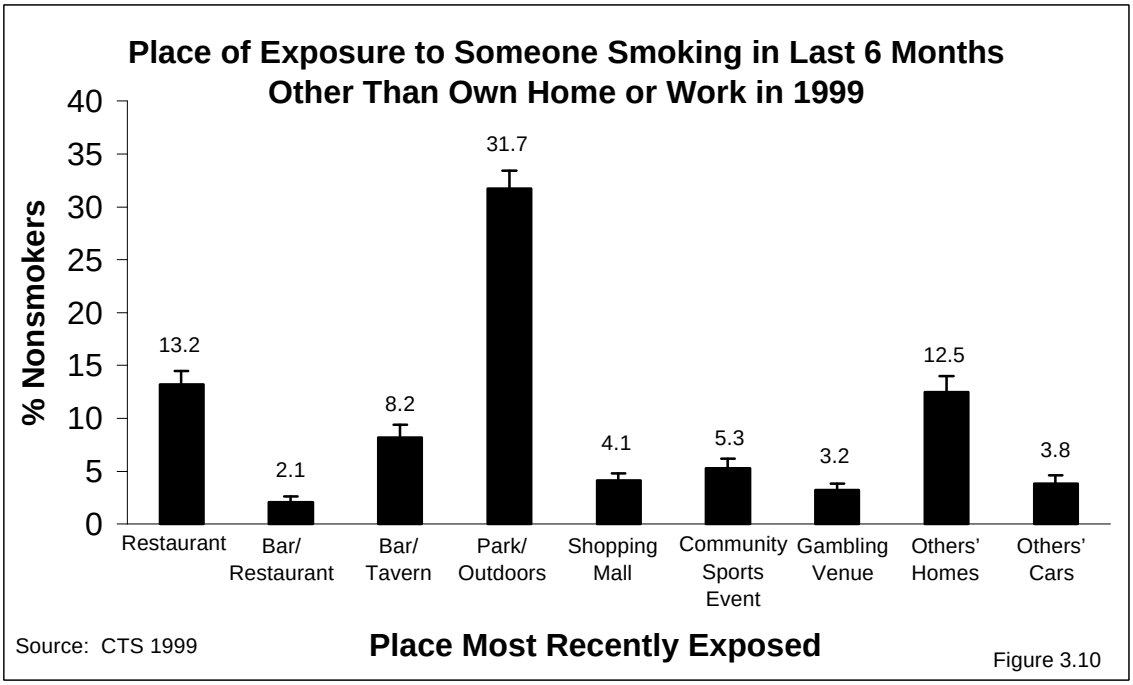



Figure 3.10

The most frequently identified indoor location of exposure to someone smoking was restaurants. However, some of this exposure may have occurred in outdoor eating areas or patios. Restaurant bars or bars/taverns were mentioned less often than restaurants probably because more Californians go out to eat than go to bars. The most frequent place identified was public parks and other outdoor areas. Shopping malls, community/sports events, and game rooms/casinos/bingo hall venues were not frequently mentioned, again likely a reflection of how people spend their time. Exposure to smoke in other peoples' homes was more frequent, but report of exposure in other's automobiles was relatively low.

The relatively high level of exposure to smokers in restaurants is consistent with the percentage of nonsmoking restaurant workers who reported that someone had smoked in their work area within the past 2 weeks. Restaurants frequently employ younger and perhaps minority workers which may partly account for the greater exposure to secondhand smoke in these demographic groups of indoor workers.

### 4. Perception that Secondhand Smoke is Harmful

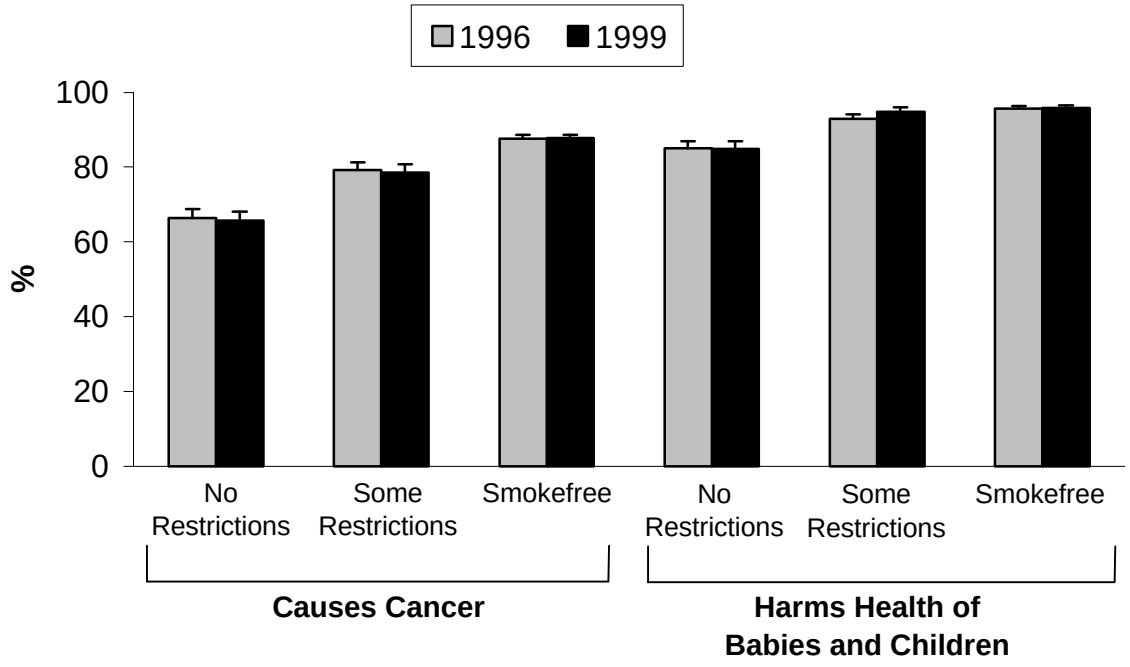
In contrast to restrictions on smoking in the workplace, which are mandated by law in California, a motivating factor for voluntarily restricting smoking in the home is acceptance of the idea that secondhand smoke is harmful to the health of nonsmokers. A major focus of the California Tobacco Program has been to disseminate knowledge to the general population about the dangers of secondhand smoke. Much of the focus of the early California Tobacco Control Program media campaign addressed this issue.

The increase in smokefree homes in California documented earlier in this chapter is likely a direct result of these efforts. Both the 1996 and 1999 CTS asked respondents to agree or disagree with the following two statements about secondhand smoke:

- *Inhaling smoke from someone else's cigarette causes lung cancer in nonsmokers.*
- *Inhaling smoke from someone else's cigarette harms the health of babies and children.*

Agreement with the statement that secondhand smoke causes cancer was high and nearly identical in both 1996 (82.2±0.9%) and 1999 (83.3±0.7%), as was the idea that it harms the health of babies and children in 1996 (93.2±0.6) and in 1999 (94.0±0.5). The reporting of these beliefs is related to CTS respondents' reporting of the presence of home smoking restrictions (Figure 3.11). As expected, those with no restrictions on smoking in the home showed significantly lower levels of agreement with these statements.

**Home Smoking Restrictions and Agreement That Secondhand Smoke is Harmful**




| | Causes Cancer | | | Harms Health of Babies and Children | | |
|---|---|---|---|---|---|---|
| | No restrictions | Some restrictions | Smokefree | No restrictions | Some restrictions | Smokefree |
| 1996 | 66.4 | 79.2 | 87.6 | 85.1 | 93.0 | 95.6 |
| 1999 | 65.7 | 78.6 | 87.8 | 84.9 | 94.9 | 95.8 |

Source: CTS 1996, 1999

Figure 3.11

Because Figure 3.11 indicates that there is little difference between 1996 and 1999 in the levels of acceptance that secondhand smoke harms the health of nonsmokers, Table 3.2 highlights the demographic breakdown of agreement with the two statements in the 1999 CTS.

**Table 3.2**
**Agreement that Secondhand Smoke Harms the Health of Nonsmokers**

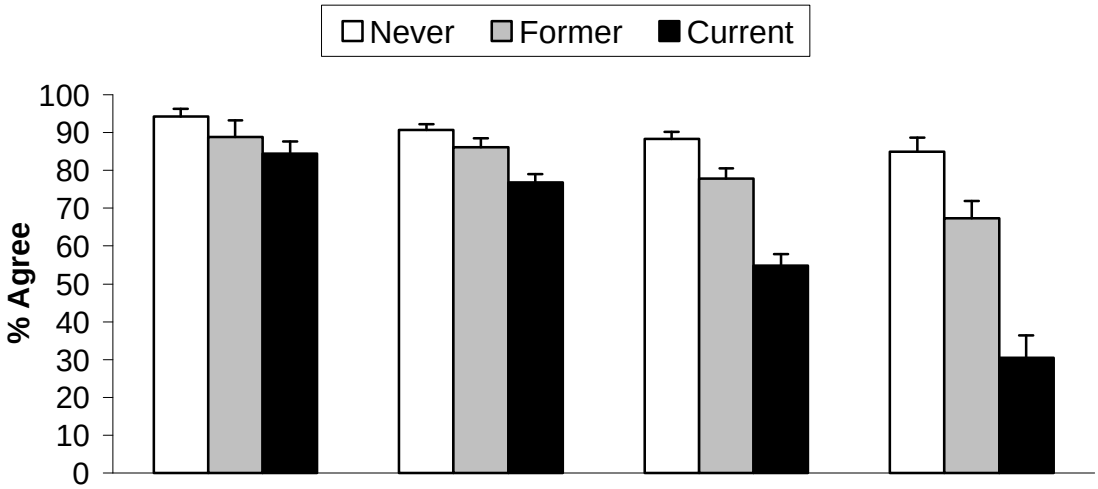
| Demographic Subgroups | Causes Cancer in Nonsmokers % | Harms the Health of Babies and Children % |
|---|---|---|
| Overall | 83.3 (±0.7) | 94.0 (±0.5) |
| Sex | | |
| Male | 80.9 (±1.0) | 92.8 (±0.8) |
| Female | 85.6 (±1.0) | 95.2 (±0.8) |
| Age | | |
| 18-24 | 91.7 (±1.5) | 97.5 (±1.0) |
| 25-44 | 87.1 (±1.1) | 95.9 (±0.6) |
| 45-64 | 78.7 (±1.4) | 92.2 (±1.0) |
| 65+ | 72.1 (±2.4) | 88.1 (±2.1) |
| Race/Ethnicity | | |
| African American | 83.7 (±3.3) | 95.4 (±2.1) |
| Asian/PI | 84.9 (±2.9) | 94.3 (±2.4) |
| Hispanic | 90.7 (±1.4) | 95.5 (±1.1) |
| Non-Hispanic White | 79.4 (±0.9) | 93.2 (±0.7) |
| Education | | |
| Less than 12 years | 86.1 (±2.3) | 92.9 (±2.0) |
| High School Graduate | 81.8 (±1.4) | 93.8 (±1.1) |
| Some College | 82.7 (±1.4) | 94.8 (±0.8) |
| College Graduate | 83.2 (±1.5) | 94.4 (±0.9) |
| Household Income | | |
| ≤$10,000 | 84.2 (±2.6) | 92.4 (±2.6) |
| $10,001-$20,000 | 82.5 (±3.0) | 93.5 (±2.3) |
| $20,001-$30,000 | 85.6 (±2.0) | 94.0 (±1.6) |
| $30,001-$50,000 | 82.4 (±1.8) | 95.0 (±1.0) |
| $50,001-$75,000 | 83.6 (±2.1) | 95.3 (±1.0) |
| >$75,000 | 83.9 (±1.6) | 94.8 (±1.0) |
| Smoking Status | | |
| Never | 90.1 (±1.1) | 96.1 (±0.6) |
| Former | 78.3 (±1.9) | 92.1 (±1.5) |
| Current | 68.9 (±1.5) | 90.1 (±1.0) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

Agreement that secondhand smoke harms the health of children and babies is at very high levels in all demographic groups. California women are significantly more likely than men to agree with both statements, and younger Californians are more likely to accept these beliefs than older Californians. Since younger people tend to pay more attention to advertising in general, younger Californians may have been more receptive to the mass-media anti-tobacco advertisements of the California Tobacco Program that focused on the health dangers of secondhand smoke or question these messages less. Hispanics showed the highest rate of agreement, significantly higher than other ethnic groups with respect to secondhand smoke causing cancer in nonsmokers. There is little relationship between level of education or income and agreement with these health concerns. Current and former smokers were significantly less likely to agree that secondhand smoke causes adverse health problems than nonsmokers.

Figure 3.12 highlights the relationship between age and smoking status to the belief that secondhand smoke causes cancer in nonsmokers. Although smoking status is significantly related to level of agreement in younger age groups (<45 years), agreement even among smokers is high. However, in those 45 years of age and older, the differential with smoking status is large. Older current smokers were much less likely than other groups to agree that secondhand smoke causes cancer in nonsmokers.

**Agreement that Secondhand Smoke Causes Cancer in Nonsmokers by Smoking Status and Age**




| | 18-24 | 25-44 | 45-64 | 65+ |
|---|---|---|---|---|
| Never | 94.3 | 90.7 | 88.3 | 84.9 |
| Former | 88.8 | 86.1 | 77.8 | 67.3 |
| Current | 84.5 | 76.9 | 54.8 | 30.5 |

Source: CTS 1999

Figure 3.12

## 5. Nonsmoker Activism

A nonsmoker asking a smoker not to smoke is a form of nonsmoker activism. Nonsmokers may make this request for several reasons, including concern for the smoker's health, concern for their own health or the health of other nonsmokers (including children) or because of simple annoyance.

The 1990 CTS asked all nonsmokers and the 1996 CTS asked a subgroup of nonsmokers if they had asked someone not to smoke in the past 12 months. When the analysis was restricted to a comparable group of nonsmokers asked the question in both years, the percentage of nonsmoker activists appeared to decline from 57.0±2.7% in 1990 to 43.6±1.9% in 1996. This decline was attributed to less exposure of nonsmokers to someone smoking in their presence because of increased workplace and home smoking restrictions. The question as it was asked in previous CTS was interpreted by some nonsmokers as asking a family member or friend who was a smoker to quit smoking.

Because of the problems outlined above, the 1999 CTS asked new, more precise questions of both nonsmokers and smokers:

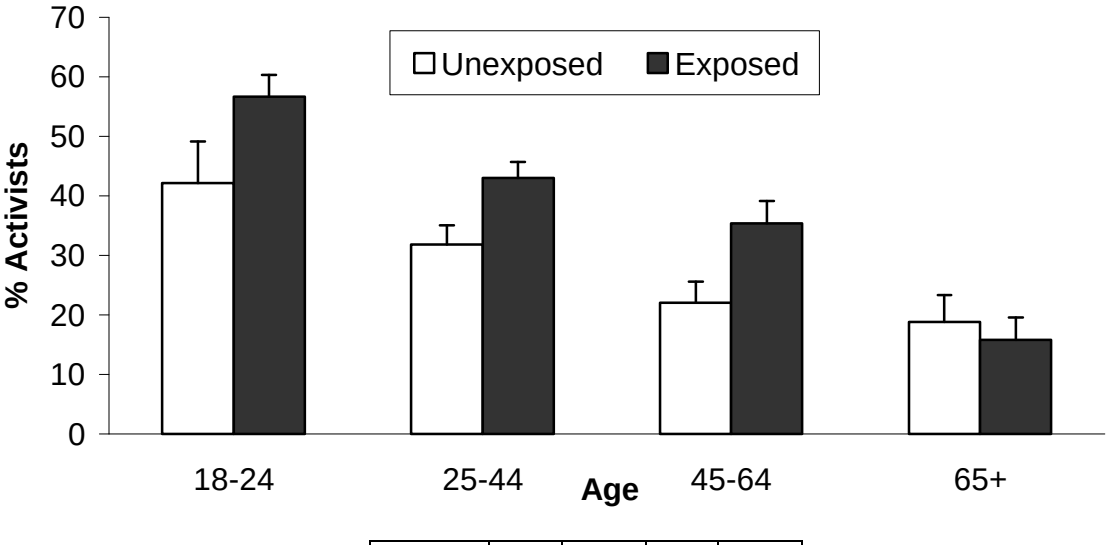
***Nonsmokers***

- *In the past 12 months, have you asked someone to put out a cigarette or not light up when they were about to do so?*
- *On the most recent occasion you asked someone not to smoke, who was that person?*
- *On that same occasion, what was the primary reason you asked that person not to smoke?*

***Smokers***

- *About how many times in the past 12 months has anyone asked you not to smoke when you were smoking or were about to smoke?*

It might be expected that nonsmokers would be more likely to become activists if they had reason to do so, that is, if they had been exposed to someone smoking in the recent past. Figure 3.13 groups nonsmokers in the same manner as reported in Section 3 of this chapter. The 37.1±1.4% of nonsmokers with no recent exposure are contrasted with all others. Among nonsmokers under 65 years of age, those exposed were indeed more likely to be activists.




| | 18-24 | 25-44 | 45-64 | 65+ |
|---|---|---|---|---|
| Unexposed | 42.1 | 31.8 | 22.0 | 18.8 |
| Exposed | 56.7 | 43.0 | 35.4 | 15.8 |

Source: CTS 1999

Figure 3.13

Table 3.3 shows the demographic breakdown of the nonsmokers who asked a smoker not to smoke and of the smokers who reported that someone had asked them not to smoke at least once in the past 12 months.

| Table 3.3<br>Nonsmoker Activism in 1999 | | |
|---|---|---|
| | **Nonsmokers Asking a Smoker Not to Smoke %** | **Smokers Asked Not to Smoke %** |
| Overall | 35.1 (±1.3) | 53.3 (±1.9) |
| Gender | | |
| Male | 34.7 (±1.7) | 57.9 (±2.6) |
| Female | 35.4 (±1.9) | 46.9 (±2.6) |
| Age | | |
| 18-24 | 53.8 (±3.4) | 72.0 (±4.2) |
| 25-44 | 38.9 (±2.2) | 54.5 (±2.3) |
| 45-64 | 30.3 (±2.5) | 45.5 (±3.2) |
| 65+ | 17.0 (±3.5) | 31.4 (±6.0) |
| Race/Ethnicity | | |
| African American | 48.4 (±6.6) | 59.5 (±5.5) |
| Asian/PI | 37.5 (±6.1) | 59.5 (±8.5) |
| Hispanic | 42.0 (±2.8) | 63.5 (±3.8) |
| Non-Hispanic Whites | 29.4 (±1.5) | 47.5 (±2.0) |
| Education | | |
| Less than High School | 43.0 (±4.4) | 62.8 (±5.2) |
| High School Graduate | 34.4 (±2.4) | 52.9 (±2.2) |
| Some College | 38.1 (±2.1) | 49.0 (±2.1) |
| College Graduate | 27.9 (±1.8) | 47.2 (±4.1) |
| Income | | |
| ≤$10,000 | 45.3 (±6.5) | 60.5 (±6.4) |
| $10,001-$20,000 | 40.1 (±4.5) | 57.4 (±4.4) |
| $20,001-$30,000 | 39.7 (±4.5) | 52.3 (±5.0) |
| $30,001-$50,000 | 36.2 (±2.5) | 52.1 (±3.6) |
| $50,001-$75,000 | 31.0 (±2.6) | 51.7 (±3.5) |
| >$75,000 | 31.1 (±2.5) | 49.8 (±3.8) |
| Location of Residence | | |
| Urban | 35.2 (±1.4) | 53.9 (±2.0) |
| Rural | 34.4 (±4.4) | 48.7 (±6.2) |

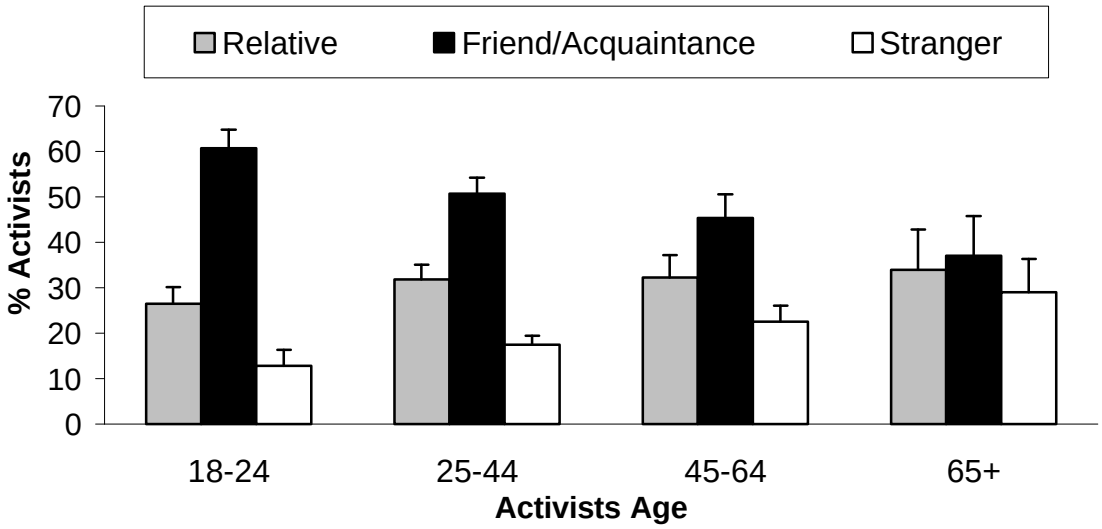
Table entries are weighted percentages and 95% confidence limits
Source: CTS 1999

Because nonsmokers outnumber smokers by at least 5 to 1, and because a nonsmoker who becomes an activist is likely to ask repeatedly, more smokers report being asked not to smoke than there are activists. Further, both activists and smokers asked not to smoke tend to be more concentrated in demographic groups with relatively higher smoking prevalence.

As emphasized in Figure 3.13, younger adults were more likely to be activists. There was no gender difference. Non-Hispanic Whites, however, were less likely to be activists than minorities, even though prevalence is relatively high in this group. Very few college graduates were activists and activism decreased with increased household income, mirroring smoking prevalence patterns.

Smokers asked not to smoke were significantly more likely to be male than female, and they were significantly more likely to be younger than older. Non-Hispanic Whites were significantly less likely to be asked not to smoke than minorities. Finally, the likelihood of being asked decreased significantly with both education level and household income. Some groups of smokers may not be asked as much because they are more careful about not lighting up around nonsmokers.

Figure 3.14 shows that younger smokers were particularly likely to ask friends and acquaintances (including co-workers) not to smoke, and least likely to ask strangers. The likelihood of asking a stranger increased significantly with age. In all, 31.0±2.1% of smokers asked not to smoke were relatives, 50.3±2.4% were friends and acquaintances, and only 18.6±1.3% were strangers.



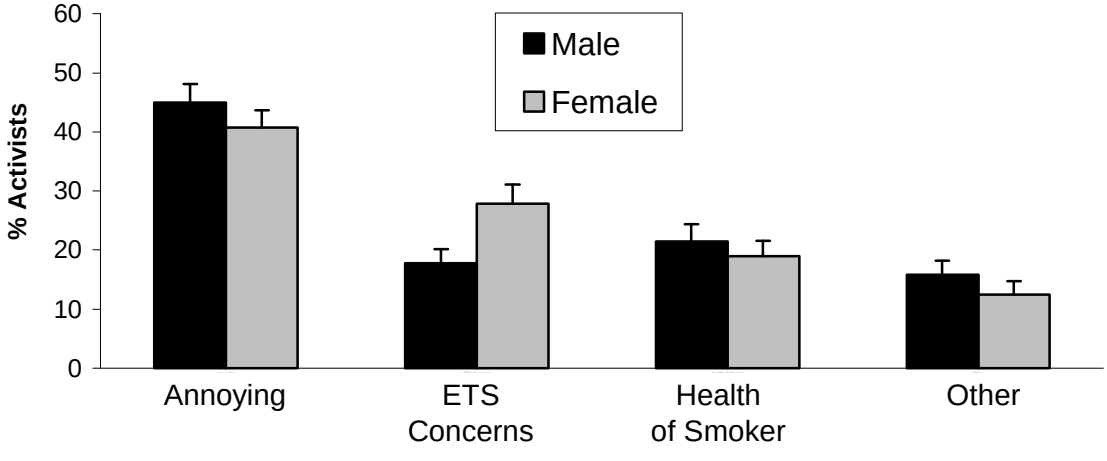

| | Relative | Friend/Acquaintance | Stranger |
|---|---|---|---|
| 18-24 | 26.5 | 60.7 | 12.8 |
| 25-44 | 31.9 | 50.6 | 17.5 |
| 45-64 | 32.2 | 45.3 | 22.6 |
| 65+ | 33.9 | 37.1 | 29.0 |

Source: CTS 1999

Figure 3.14

In 1999, the reason most cited by activists for why they asked someone not to smoke was annoyance (42.7±2.2%), which was cited almost twice as often as concerns with

secondhand smoke (23.1±2.0%) and the health of the smoker (20.1±2.0%). As shown in Figure 3.15, compared to men, women were significantly more likely to ask a smoker not to smoke because of their concern with the harmfulness of secondhand smoke to nonsmokers.




| | Annoying | ETS Concerns | Health of Smoker | Other |
|---|---|---|---|---|
| Male | 45.0 | 17.8 | 21.4 | 15.8 |
| Female | 40.7 | 27.8 | 18.9 | 12.4 |

Source: CTS 1999

Figure 3.15

## 6. Summary

This chapter showed that well over 90% of indoor workers reported smokefree workplace policies by 1999, an increase of over 166% since 1990. This finding is strong evidence of the effectiveness of California's Assembly Bill (AB-13), which took partial effect in 1995 and applied to all indoor workplaces as of January 1, 1998. Despite this high rate of reporting smokefree workplaces, exposure of nonsmokers to secondhand smoke in the workplace has increased since 1996. This increase in exposure was particularly marked for some demographic groups, and there remain inequities in the rates of exposure to secondhand smoke in the workplace, with minorities and youth experiencing significantly more exposure than Non-Hispanic White and older workers. Restaurants appear to be settings where increased efforts at enforcement of AB-13 might benefit both nonsmoking indoor workers and patrons.

This chapter also showed that between 1993 and 1999 there were large and statistically significant increases in the percent of Californians who lived in homes with smoking restrictions. By 1999, about 85% of all Californians—including smokers—reported having some type of smoking restriction in effect in their home, and nearly three-quarters lived in smokefree homes. Over 70% of smokers lived with some type of

smoking restriction in their homes, and nearly 50% of smokers lived in smokefree homes. As a result of these significantly increased levels of protection from involuntary smoking at home, the percentage of children exposed decreased significantly between 1993 and 1999. African American children and adolescents, while less protected than others from involuntary smoking at home, made important gains in protection by 1999.

In 1999, 37% of California nonsmokers experienced no exposure to secondhand tobacco smoke in their daily lives. For these people, smoking has become a nonissue. The other two-thirds of nonsmoking Californians were most likely to report exposure to secondhand tobacco smoke indoors in restaurants, and exposure outdoors is still common.

A high proportion of Californians of all educational levels and ethnic backgrounds agree that secondhand smoke causes cancer and harms the health of babies and children, an important success of the California Tobacco Program. Nonsmokers are more likely to have these views than smokers; compliance with smoking restrictions might increase if more smokers could be convinced of the harm their cigarette smoke causes.

The profile of the nonsmoker activist who asks smokers not to smoke and the smoker who is asked not to smoke reflects their social environments and likelihood of exposure to secondhand smoke. Nonsmoker activism is highest among the groups of the population with the highest smoking prevalence, younger, lower educated and lower income groups. All nonsmokers should be encouraged to voice their objection to secondhand smoke where ever and whenever they are exposed to it.

## CHAPTER 3: KEY FINDINGS

1. In 1999, 93.4±0.8% of California indoor workers reported that smoking was not allowed in their workplace, up from 35.0±1.3% in 1990, a factor increase of 167%.

2. Nonsmoking indoor workers were less exposed to secondhand smoke in their workplace in 1999 (15.6±1.4%) compared to 1990 (29.0±1.8%). Even so, between 1996 and 1999 there was an upturn in such reports.

3. In 1999, indoor workers in plants/factories, stores/warehouses and restaurants/bars reported more exposure to secondhand smoke than workers in classrooms, hospitals or offices. While exposure was lower in workplaces with more than 50 employees, the size of smaller workplaces was not related to reported exposure.

4. More and more California homes are smokefree; in 1999, 73.2±1.1% of California homes had a smokefree policy, compared to 50.9±0.9% in 1993, a factor increase of 43.8%. In 1999, 47.2±1.8% of smokers lived in smokefree homes, up by a factor of 135% from 20.1±1.7% in 1993.

5. With the increase in smokefree homes, children and adolescents are increasingly protected from exposure to secondhand smoke in the home. In 1999, 88.6±1.1% of children and adolescents lived in smokefree homes, up from 77.0±1.4% in 1993, a factor increase of 15.1%.

6. In 1999, 37.1±1.4% of nonsmoking Californians not only lived and/or worked in smokefree environments, but also could not report an instance of exposure to someone smoking in the past 6 months. Among those who did report an instance outside the workplace or home, exposure in restaurants was the most frequent indoor setting mentioned.

7. In 1999, 94.0±0.5% of California adults agreed that secondhand smoke harms the health of babies and children and 83.3±0.7% agreed that it causes cancer in nonsmokers. Older smokers were much less likely to agree that secondhand smoke causes cancer in nonsmokers.

8. In 1999, 35.1±1.3% of nonsmokers reported asking a smoker not to smoke, and this nonsmoker activism was more prevalent among demographic groups with a relatively high smoking prevalence, younger, less educated, lower income persons. Nonsmokers were most likely to ask relatives or friends and acquaintances not to smoke, but the propensity to ask strangers increased with the age of the nonsmoker.

## Table A3.1 Workplace Smoking Policy (1999 Adult CTS)

| | Size of Workplace | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | <50 | | | | | 50+ | | | | |
| | Extent of Ban | | | | | Extent of Ban | | | | |
| **OVERALL** | Total Ban | Work Area Ban | Less/No Restrictions | Population Size | Sample Size | Total Ban | Work Area Ban | Less/No Restrictions | Population Size | Sample Size |
| | (%) | (%) | (%) | (n) | (n) | (%) | (%) | (%) | (n) | (n) |
| **TOTAL** | 91.2 | 4.2 | 4.6 | 6,744,063 | 4,387 | 96.3 | 2.5 | 1.2 | 5,825,159 | 3,537 |
| **SEX** | | | | | | | | | | |
| Male | 88.1 | 5.6 | 6.3 | 3,432,487 | 2,162 | 96.6 | 2.2 | 1.2 | 2,967,952 | 1,754 |
| Female | 94.3 | 2.9 | 2.8 | 3,311,576 | 2,225 | 96.0 | 2.9 | 1.1 | 2,857,207 | 1,783 |
| **AGE** | | | | | | | | | | |
| 18-24 | 90.8 | 6.2 | 3.1 | 1,187,710 | 830 | 95.8 | 3.8 | 0.4 | 640,549 | 439 |
| 25-44 | 91.4 | 4.1 | 4.5 | 3,326,117 | 2,113 | 96.2 | 2.5 | 1.4 | 3,373,663 | 1,937 |
| 45-64 | 91.7 | 3.1 | 5.1 | 2,027,855 | 1,325 | 96.5 | 2.3 | 1.2 | 1,719,548 | 1,106 |
| 65+ | 83.8 | 6.1 | 10.1 | 202,381 | 119 | 99.4 | 0.4 | 0.2 | 91,399 | 55 |
| **RACE/ETHNICITY** | | | | | | | | | | |
| Hispanic | 88.9 | 6.4 | 4.7 | 2,041,159 | 1,063 | 95.0 | 3.1 | 1.9 | 1,335,294 | 707 |
| Non-hispanic White | 92.5 | 2.6 | 5.0 | 3,613,552 | 2,757 | 96.8 | 2.2 | 1.0 | 3,141,789 | 2,183 |
| African-American | 91.0 | 5.8 | 3.2 | 340,254 | 182 | 96.9 | 1.7 | 1.4 | 473,302 | 234 |
| Asian/PI | 91.6 | 5.6 | 2.8 | 685,545 | 330 | 96.1 | 3.7 | 0.1 | 797,125 | 371 |
| Other | 86.4 | 6.9 | 6.7 | 63,553 | 55 | 95.5 | 0.8 | 3.8 | 77,649 | 42 |
| **EDUCATION** | | | | | | | | | | |
| <12 | 87.0 | 7.7 | 5.4 | 1,155,311 | 418 | 90.1 | 5.7 | 4.2 | 528,526 | 198 |
| 12 | 88.3 | 4.7 | 7.0 | 1,718,297 | 1,269 | 94.6 | 3.7 | 1.7 | 1,131,767 | 760 |
| 13-15 | 93.8 | 2.5 | 3.6 | 1,989,871 | 1,528 | 97.4 | 2.0 | 0.6 | 1,570,623 | 1,147 |
| 16+ | 93.5 | 3.5 | 3.0 | 1,880,584 | 1,172 | 97.6 | 1.7 | 0.7 | 2,594,243 | 1,432 |
| **HOUSEHOLD INCOME** | | | | | | | | | | |
| Missing | 92.5 | 4.1 | 3.4 | 588,620 | 370 | 96.9 | 1.9 | 1.2 | 470,614 | 243 |
| $10,000 or less | 86.7 | 7.7 | 5.5 | 433,432 | 231 | 89.7 | 10.0 | 0.4 | 176,442 | 107 |
| $10,001 to $20,000 | 88.4 | 6.1 | 5.4 | 737,085 | 441 | 97.0 | 2.4 | 0.7 | 393,558 | 214 |
| $20,001 to $30,000 | 88.4 | 5.9 | 5.7 | 932,650 | 559 | 95.0 | 2.5 | 2.5 | 554,538 | 310 |
| $30,001 to $50,000 | 90.2 | 5.0 | 4.8 | 1,313,963 | 899 | 93.7 | 4.0 | 2.3 | 1,019,673 | 677 |
| $50,001 to $75,000 | 92.3 | 2.6 | 5.1 | 1,247,639 | 849 | 95.7 | 2.9 | 1.3 | 1,183,523 | 752 |
| over $75,000 | 94.9 | 2.1 | 3.1 | 1,490,674 | 1,038 | 98.6 | 1.1 | 0.3 | 2,026,811 | 1,234 |
| **URBAN/RURAL** | | | | | | | | | | |
| Urban | 91.1 | 4.3 | 4.6 | 6,143,837 | 3,871 | 96.6 | 2.5 | 0.9 | 5,521,845 | 3,286 |
| Rural | 91.7 | 3.3 | 5.0 | 600,226 | 516 | 90.7 | 3.6 | 5.7 | 303,314 | 251 |
| | | | | | | | | | | |
| **REGION** | | | | | | | | | | |
| Los Angeles | 88.7 | 5.6 | 5.7 | 1,950,635 | 917 | 96.3 | 2.5 | 1.2 | 1,880,100 | 881 |
| San Diego | 95.0 | 2.9 | 2.1 | 560,658 | 262 | 97.7 | 1.1 | 1.3 | 497,189 | 236 |
| Orange | 87.3 | 6.5 | 6.2 | 552,305 | 386 | 95.7 | 4.1 | 0.2 | 527,588 | 312 |
| Santa Clara | 96.5 | 2.5 | 0.9 | 371,549 | 220 | 98.5 | 1.2 | 0.3 | 408,597 | 266 |
| San Bernadino | 88.6 | 4.8 | 6.6 | 340,112 | 244 | 97.2 | 2.4 | 0.5 | 212,254 | 142 |
| Alameda | 88.2 | 5.7 | 6.1 | 261,712 | 163 | 98.4 | 1.6 | . | 360,142 | 191 |
| Riverside | 87.8 | 4.0 | 8.1 | 248,171 | 180 | 97.1 | 2.0 | 0.8 | 164,435 | 117 |
| Sacramento | 91.3 | 3.4 | 5.3 | 203,036 | 154 | 96.9 | 1.2 | 1.9 | 219,436 | 155 |
| Contra Costa | 96.3 | 2.5 | 1.1 | 160,059 | 133 | 97.6 | . | 2.4 | 187,055 | 131 |
| San Francisco | 92.7 | 4.8 | 2.5 | 228,343 | 161 | 93.6 | 6.0 | 0.4 | 195,707 | 172 |
| San Mateo, Solano | 96.1 | 1.4 | 2.6 | 248,403 | 160 | 94.4 | 3.4 | 2.2 | 207,634 | 158 |
| Marin, Napa, Sonoma | 93.4 | 2.1 | 4.5 | 191,990 | 165 | 98.6 | 0.2 | 1.2 | 110,502 | 101 |
| Butte, Colusa, Del Norte, Glenn, etc. | 92.6 | 3.9 | 3.5 | 240,490 | 182 | 82.3 | 7.0 | 10.7 | 111,652 | 77 |
| San Luis Obispo, Santa Barbara, Ventura | 95.7 | 3.5 | 0.8 | 304,362 | 210 | 99.8 | 0.2 | . | 191,376 | 126 |
| Amador, Alpine, Calaveras,El Dorado,etc. | 92.3 | 3.8 | 3.9 | 229,635 | 187 | 97.3 | 1.0 | 1.7 | 152,008 | 115 |
| Santa Cruz | 89.2 | 3.2 | 7.6 | 148,879 | 192 | 97.9 | 1.9 | 0.2 | 105,166 | 112 |
| Fresno, Madera, Merced, Stanislaus | 91.7 | 2.1 | 6.2 | 259,911 | 202 | 88.5 | 10.6 | 0.9 | 176,754 | 116 |
| Imperial, Inyo, Kern, Kings, Mono, Tulare | 93.3 | 2.2 | 4.5 | 243,813 | 269 | 95.1 | 3.0 | 1.9 | 117,564 | 129 |

## Table A3.2 Home Smoking Restriction (1999 Adult CTS)

| **OVERALL** | Total Household Ban (%) +/- 95% CI | Partial Ban (%) +/- 95% CI | No Restrictions (%) +/- 95% CI | Population Size (n) | Sample Size (n) |
|---|---|---|---|---|---|
| **TOTAL** | 72.8 +/- 1.1 | 12.5 +/- 0.7 | 14.7 +/- 0.8 | 23,905,198 | 14,729 |
| **SEX** | | | | | |
| Male | 71.8 +/- 1.4 | 11.7 +/- 1.1 | 16.5 +/- 1.1 | 11,692,309 | 7,272 |
| Female | 73.9 +/- 1.3 | 13.2 +/- 1.2 | 12.9 +/- 1.1 | 12,212,889 | 7,457 |
| **AGE** | | | | | |
| 18-24 | 70.1 +/- 2.6 | 16.4 +/- 2.4 | 13.5 +/- 2.1 | 3,327,571 | 2,191 |
| 25-44 | 76.1 +/- 1.5 | 12.2 +/- 1.2 | 11.6 +/- 1.0 | 10,542,044 | 6,389 |
| 45-64 | 71.2 +/- 2.0 | 12.4 +/- 1.6 | 16.4 +/- 1.5 | 6,706,146 | 4,363 |
| 65+ | 68.4 +/- 2.7 | 9.5 +/- 1.4 | 22.1 +/- 2.7 | 3,329,437 | 1,786 |
| **RACE/ETHNICITY** | | | | | |
| Hispanic | 78.0 +/- 1.9 | 8.8 +/- 1.1 | 13.2 +/- 1.6 | 6,507,041 | 3,235 |
| Non-hispanic White | 71.3 +/- 1.1 | 13.2 +/- 1.1 | 15.5 +/- 0.8 | 13,035,257 | 9,410 |
| African-American | 68.5 +/- 3.8 | 13.6 +/- 2.8 | 17.9 +/- 3.6 | 1,482,027 | 758 |
| Asian/PI | 71.3 +/- 3.6 | 17.2 +/- 3.5 | 11.6 +/- 2.8 | 2,477,472 | 1,102 |
| Other | 65.9 +/-11.5 | 15.0 +/- 9.8 | 19.1 +/- 7.4 | 403,401 | 224 |
| **EDUCATION** | | | | | |
| <12 | 73.3 +/- 2.9 | 10.6 +/- 2.5 | 16.1 +/- 2.8 | 4,782,917 | 1,758 |
| 12 | 68.4 +/- 1.9 | 13.7 +/- 1.4 | 17.9 +/- 1.4 | 6,221,535 | 4,336 |
| 13-15 | 73.4 +/- 1.7 | 13.3 +/- 1.5 | 13.4 +/- 1.0 | 6,396,717 | 4,759 |
| 16+ | 76.2 +/- 1.6 | 11.9 +/- 1.3 | 11.9 +/- 1.3 | 6,504,029 | 3,876 |
| **HOUSEHOLD INCOME** | | | | | |
| Missing | 72.2 +/- 3.5 | 11.2 +/- 2.8 | 16.6 +/- 2.5 | 2,677,237 | 1,490 |
| $10,000 or less | 66.7 +/- 4.3 | 12.7 +/- 2.8 | 20.6 +/- 3.3 | 2,036,208 | 1,060 |
| $10,001 to $20,000 | 73.9 +/- 4.0 | 10.8 +/- 1.7 | 15.3 +/- 3.4 | 2,735,017 | 1,572 |
| $20,001 to $30,000 | 69.4 +/- 3.2 | 12.5 +/- 2.4 | 18.0 +/- 2.7 | 3,029,646 | 1,774 |
| $30,001 to $50,000 | 71.0 +/- 2.8 | 13.7 +/- 2.1 | 15.3 +/- 2.1 | 4,378,820 | 2,863 |
| $50,001 to $75,000 | 73.2 +/- 2.0 | 13.9 +/- 1.7 | 12.9 +/- 1.7 | 3,915,910 | 2,593 |
| over $75,000 | 78.4 +/- 2.0 | 11.8 +/- 1.7 | 9.9 +/- 1.3 | 5,132,360 | 3,377 |
| **URBAN/RURAL** | | | | | |
| Urban | 72.8 +/- 1.1 | 12.7 +/- 0.8 | 14.6 +/- 0.8 | 21,686,059 | 12,990 |
| Rural | 73.5 +/- 2.9 | 10.6 +/- 1.9 | 15.9 +/- 2.2 | 2,219,139 | 1,739 |
| **REGION** | | | | | |
| Los Angeles | 71.7 +/- 2.3 | 12.3 +/- 1.5 | 16.0 +/- 1.6 | 6,961,682 | 3,129 |
| San Diego | 73.0 +/- 4.3 | 13.0 +/- 3.1 | 14.0 +/- 2.8 | 2,025,890 | 943 |
| Orange | 75.8 +/- 3.0 | 12.6 +/- 2.6 | 11.7 +/- 2.2 | 1,952,763 | 1,189 |
| Santa Clara | 76.8 +/- 4.1 | 12.6 +/- 3.8 | 10.6 +/- 2.9 | 1,198,554 | 731 |
| San Bernadino | 72.7 +/- 4.7 | 12.7 +/- 3.2 | 14.6 +/- 3.1 | 1,120,416 | 779 |
| Alameda | 70.6 +/- 7.6 | 14.4 +/- 4.8 | 15.0 +/- 6.3 | 1,019,881 | 598 |
| Riverside | 75.8 +/- 4.8 | 9.0 +/- 3.2 | 15.2 +/- 3.9 | 976,702 | 678 |
| Sacramento | 75.0 +/- 4.2 | 11.9 +/- 3.2 | 13.1 +/- 3.1 | 838,583 | 600 |
| Contra Costa | 74.4 +/- 5.4 | 10.5 +/- 4.4 | 15.1 +/- 3.4 | 655,733 | 497 |
| San Francisco | 60.4 +/- 9.7 | 23.1 +/-11.1 | 16.4 +/- 4.1 | 644,186 | 512 |
| San Mateo, Solano | 70.2 +/- 5.4 | 12.6 +/- 4.3 | 17.2 +/- 5.0 | 820,811 | 558 |
| Marin, Napa, Sonoma | 74.6 +/- 4.2 | 12.4 +/- 3.5 | 12.9 +/- 3.4 | 594,959 | 510 |
| Butte, Colusa, Del Norte, Glenn, etc. | 68.7 +/- 5.2 | 11.7 +/- 4.1 | 19.6 +/- 4.6 | 775,761 | 578 |
| San Luis Obispo, Santa Barbara, Ventura | 74.3 +/- 4.5 | 12.2 +/- 3.0 | 13.5 +/- 3.8 | 1,002,031 | 638 |
| Amador, Alpine, Calaveras,El Dorado,etc. | 77.5 +/- 4.8 | 11.1 +/- 3.7 | 11.3 +/- 2.7 | 928,440 | 639 |
| Santa Cruz | 75.8 +/- 4.4 | 11.8 +/- 3.6 | 12.4 +/- 3.3 | 463,698 | 543 |
| Fresno, Madera, Merced, Stanislaus | 72.5 +/- 6.5 | 12.8 +/- 5.6 | 14.6 +/- 4.2 | 1,052,982 | 680 |
| Imperial, Inyo, Kern, Kings, Mono, Tulare | 71.7 +/- 3.6 | 10.2 +/- 2.4 | 18.1 +/- 3.1 | 872,126 | 927 |

## CHAPTER 3: GLOSSARY

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Ever smoker* – has smoked at least 100 cigarettes in lifetime.

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Never smoker* – has smoked fewer than 100 cigarettes in his or her lifetime.

*Nonsmoker* – a *never smoker* or a *former smoker*

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# Chapter 4

# ADOLESCENT AND YOUNG ADULT SMOKING

# CHAPTER 4: ADOLESCENT AND YOUNG ADULT SMOKING

## Introduction

For many people who smoke a first cigarette as an adolescent, a period of experimentation can lead to decades of addicted smoking (Pierce & Gilpin, 1996), so that successful, long-term cessation is difficult to achieve (USDHS, 1988). For these reasons, prevention of adolescent experimentation with tobacco is one of the major goals of the California Tobacco Control Program (TEOC, 1991).

The process of smoking uptake can take many years. For most, it begins in childhood and does not end until early adulthood. Almost all children are adamant that they will never become smokers. In the preadolescent years, individuals begin the process of becoming smokers by first changing their attitudes toward smoking. As their commitment to never smoke weakens, some will eventually make the transition from never smoker to experimenter by puffing or smoking their first cigarette. Of those who make this transition, some never smoke another cigarette.

After of a period of experimentation that may last for several years, about half of experimenters will make the transition to established smoking (Choi et al., 1997). Someone is considered an established smoker if they report smoking at least 100 cigarettes in their lifetime. Even then the uptake process is not complete; many of the experimenters who become established smokers are still very light smokers and may not even smoke every day. During early adulthood many of these established smokers will make the transition from occasional or non-daily to daily smoking, and some will eventually transition from light daily smoking to heavy daily smoking. Some established smokers never make the transition from occasional to daily smoking. Also, some daily smokers never become really heavy smokers.

This chapter focuses on several of the key transitions in the smoking uptake process described above. Each of these transitions may present important opportunities for intervention. Section 1 defines levels of adolescent smoking experience and presents trends in adolescent smoking behavior in recent years. Section 2 describes trends in some important correlates of adolescent smoking initiation. Section 3 focuses on the later steps of the smoking uptake process in adolescents and young adults, addressing the issue of increased smoking among young adults. Section 4 summarizes the results of the chapter.

## 1. Trends in Adolescent Smoking Behavior

Defining Levels of Experience with Smoking

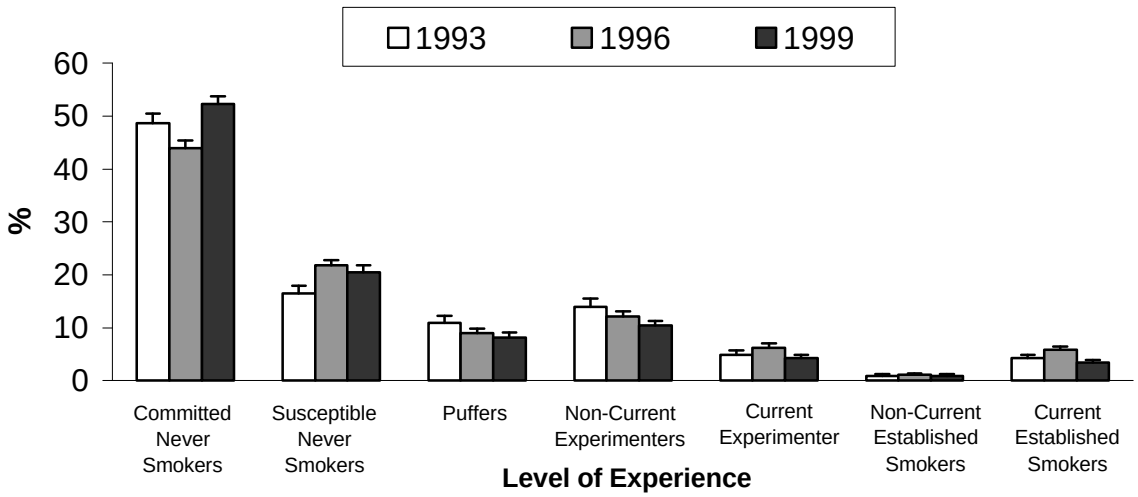
In this report, various questions from the California Tobacco Surveys (CTS) of 1993, 1996 and 1999 are used to classify California adolescents into 7 groups based on their experience with smoking and their risk of future smoking (Choi et al., 2001). For a complete list of the survey questions used to make these distinctions, see the Appendix at

the end of this chapter. Table 4.1 summarizes this categorization of adolescent smoking experience.

**Table 4.1**
**Levels of Adolescent Smoking Experience**

| Category | Definition |
|---|---|
| Committed Never Smoker | Has never smoked a cigarette, even a few puffs, and expresses a strong commitment not to smoke |
| Susceptible Never Smoker | Has never smoked a cigarette, even a few puffs, but lacks a strong commitment not to smoke |
| Puffer | Has puffed on a cigarette, but denies having smoked a whole cigarette |
| Non-Current Experimenter | Reports smoking fewer than 100 cigarettes in lifetime, but has not smoked during the last 30 days |
| Current Experimenter | Reports smoking fewer than 100 cigarettes in lifetime, and has smoked during the last 30 days |
| Non-Current Established Smoker | Reports smoking at least 100 cigarettes in lifetime, but has not smoked during the last 30 days |
| Current Established Smoker | Reports smoking at least 100 cigarettes in lifetime, and has smoked during the last 30 days |

Figure 4.1 shows the distribution of 12-17 year old California adolescents according to these categories in 1993, 1996 and 1999. The trends for some of these groups are described in detail in the following sections.




| | Committed Never Smokers | Susceptible Never Smokers | Puffers | Non-Current Experimenters | Current Experimenters | Non-Current Established Smokers | Current Established Smokers |
|---|---|---|---|---|---|---|---|
| 1993 | 48.6 | 16.5 | 10.9 | 13.9 | 4.9 | 0.9 | 4.3 |
| 1996 | 44.0 | 21.8 | 9.0 | 12.1 | 6.2 | 1.1 | 5.8 |
| 1999 | 52.3 | 20.5 | 8.1 | 10.4 | 4.3 | 0.9 | 3.4 |

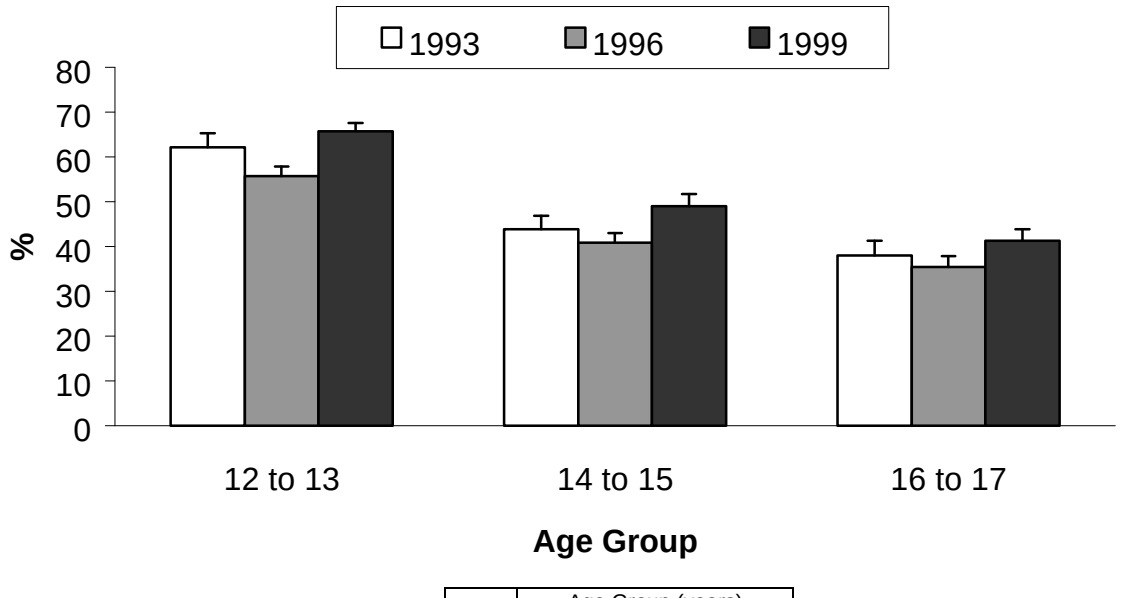
Source:CTS 1993,1996,1999

Figure 4.1

Never Smokers

Keeping as many adolescents as possible never smokers is a primary aim of tobacco control efforts, and having a large percentage remain committed never smokers is a measure of the success of these efforts. In 1993, 48.6±1.9% of adolescents 12-17 years of age were classified as committed never smokers (Figure 4.1). Between 1993 and 1996 the percent of adolescents who were committed never smokers showed a significant 9.5% factor decline to 44.0±1.4%. Since 1996, this percentage showed a significant 18.9% factor increase to 52.3±1.4%. A significantly higher percent of adolescents were committed never smokers in 1999 (by a factor of 7.6%) than in 1993.

Figure 4.2 shows the percentages of committed never smokers by age group. In 1999, 65.7±1.9% of the 12-13 year olds but only 41.3±2.6% of the 16-17 year olds were committed never smokers. These percentages indicate that in all age groups, there is considerable room for increasing the percentage of committed never smokers.




| | Age Group (years) | | |
|---|---|---|---|
| | 12-13 | 14-15 | 16-17 |
| 1993 | 62.2 | 43.9 | 38.0 |
| 1996 | 55.8 | 40.9 | 35.5 |
| 1999 | 65.7 | 49.0 | 41.3 |

Source: CTS 1993,1996,1999

Figure 4.2

**In 1999, 52.3±1.4% of adolescents 12-17 years of age were committed never smokers, an increase by a factor of 18.9% since 1996.**

The decline in committed never smokers from about two-thirds of the 12-13 year olds to about 40% of the 16-17 year olds suggests that during the next 3 to 5 years around 40% of the younger group will progress toward smoking. Thus, prevention efforts should start

well before adolescence. The fact that more older teens were committed never smokers in 1999 than in earlier years suggests that a higher percentage of committed never smokers should make it to adulthood without becoming smokers.

Table 4.2 shows that from 1993 to 1996 both boys and girls showed decreases in the percentages that were committed never smokers, but the decrease was significant only for girls. Then between 1996 and 1999 the percentages for both sexes increased significantly.

**Table 4.2**
**Committed Never Smokers in Demographic Subgroups of Adolescents 12-17 Years of Age**

| | 1993 % | 1996 % | 1999 % | Factor Decrease 1993-1996 % | Factor Increase 1996-1999 % |
|---|---|---|---|---|---|
| Overall | 48.6 (±1.9) | 44.0 (±1.4) | 52.3 (±1.4) | -9.5 | 18.9 |
| Gender | | | | | |
| Boys | 45.1 (±2.8) | 42.5 (±2.1) | 50.2 (±2.0) | -5.8 | 18.1 |
| Girls | 52.0 (±2.6) | 45.7 (±2.0) | 54.4 (±2.3) | -12.1 | 19.0 |
| Race/Ethnicity | | | | | |
| African American | 59.4 (±6.1) | 50.3 (±4.8) | 61.8 (±4.6) | -15.3 | 22.9 |
| Asian/PI | 60.0 (±6.7) | 48.2 (±4.7) | 55.4 (±5.3) | -19.7 | 14.9 |
| Hispanic | 44.4 (±4.2) | 39.4 (±2.7) | 48.4 (±2.6) | -11.3 | 22.8 |
| Non-Hispanic White | 48.1 (±2.2) | 45.5 (±1.9) | 53.1 (±1.9) | -5.4 | 16.7 |
| School Performance | | | | | |
| Much Above Average | 63.7 (±4.6) | 58.5 (±3.1) | 63.9 (±3.0) | -8.2 | 9.2 |
| Above Average | 52.4 (±3.7) | 45.6 (±2.1) | 56.2 (±2.6) | -13.0 | 23.2 |
| Average or Below | 39.4 (±2.8) | 34.4 (±1.9) | 43.1(±2.2) | -12.7 | 25.3 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1993,1996,1999

This same general pattern was present in all race/ethnicity groups. From 1996 to 1999 all race/ethnic groups except Asians showed a significant increase in the percentage of committed never smokers. And in all groups except Asians, the rate was higher in 1999 than it was in 1993, but was significantly higher only for Non-Hispanic Whites. The percentage of committed never smokers among teens who rated their own school performance as much better than average returned to its 1993 level in 1999, while the percentages observed for the remaining teens in 1999 significantly exceeded their 1993 levels.

Experimenters

Experimenters have smoked at least one cigarette, but not yet reached at least 100 in their lifetime. Since 1993 there has been a steady decrease in the rates of non-current

experimentation among California adolescents (Figure 4.1). While in 1993, 13.9±1.6% of California adolescents were non-current experimenters, in 1999 only 10.4±0.9% fell into this category, a reduction by a factor of 25.2%. The status of current experimenter is probably fairly unstable. Some will shortly progress to established smoking, others may continue to experiment only very intermittently, and some will decide not to continue experimenting at all. Only a relatively small fraction of California adolescents are currently experimenting with cigarettes (Figure 4.1).

Non-Current Experimenters

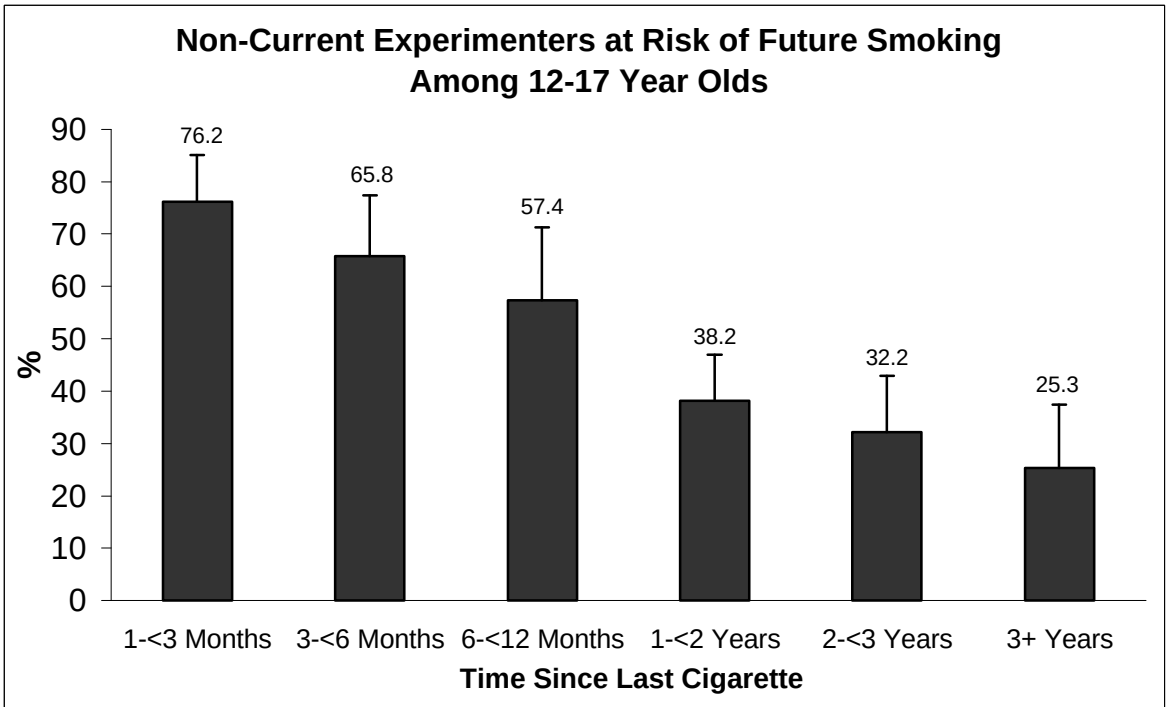
Since smoking is very intermittent during the early phases of experimentation (Chassin et al., 1985), it is likely that some of the non-current experimenters will experiment again, while others will not. This raises the question of who is at risk to experiment again, and how long it needs to be since they last experimented before the risk of future smoking is low.

All ever smokers (see Appendix or Glossary) were asked whether they would smoke a cigarette in the next year. Experimenters who answered definitely not were considered to be at low risk for further experimentation. Also, the CTS asks all non-current smokers, including experimenters but not puffers:

*How long ago did you smoke your last cigarette?*

**Not until non-current experimenters had been abstinent for a year was the majority at low risk for future smoking.**

Using the answers to this question for the 1999 CTS, non-current experimenters were divided into groups according to the time since their last cigarette. As expected, Figure 4.3 shows that the longer non-current experimenters have avoided




Source: CTS 1999

Figure 4.3

smoking a cigarette, the lower is their risk of future smoking. However, it took at least a year of cigarette avoidance before a majority (61.8±8.7%) of non-current experimenters ruled out future smoking.

Table 4.3 shows the percentage of ever experimenters who have been abstinent three months or longer when surveyed in 1993, 1996 and 1999. The three month cut-off encompassed just under half of all experimenters.

**Table 4.3**
**Non-Current Adolescent Experimenters (Last Cigarette >3 Months Ago) Among Demographic Groups of Adolescents Ever Experimenters 12-17 Years of Age**

| | 1993 % | 1996 % | 1999 % |
|---|---|---|---|
| Overall | 47.4 (±4.7) | 41.4 (±3.0) | 47.8 (±3.0) |
| Sex | | | |
| Male | 46.7 (±5.6) | 39.5 (±4.1) | 47.9 (±4.9) |
| Female | 48.1 (±6.0) | 43.6 (±5.2) | 47.8 (±5.0) |
| Age | | | |
| 12-13 | 34.4 (±9.8) | 37.2 (±8.6) | 46.3 (±11.2) |
| 14-15 | 43.1 (±6.0) | 42.2 (±5.0) | 54.0 (±5.8) |
| 16-17 | 55.1 (±6.6) | 41.7 (±4.8) | 43.8 (±4.9) |
| Race/ethnicity | | | |
| African American | 50.3 (±20.9) | 44.8 (±12.6) | 41.7 (±13.7) |
| Asian/PI | 46.2 (±17.1) | 48.1 (±13.3) | 44.9 (±14.4) |
| Hispanic | 41.0 (±8.9) | 36.6 (±5.9) | 45.7 (±5.5) |
| Non-Hispanic White | 50.8 (±5.0) | 42.3 (±3.8) | 50.9 (±5.0) |
| School Performance | | | |
| Much better than average | 54.8 (±13.9) | 47.7 (±8.0) | 51.8 (±12.2) |
| Better than average | 54.4 (±6.8) | 43.1 (±5.4) | 49.0 (±5.8) |
| Average or below | 41.5 (±5.6) | 38.1 (±4.6) | 45.8 (±5.3) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1993,1996,1999

Because of the small sample sizes, only a few of the differences shown in Table 4.3 are interpretable. Overall, in 1996 when adolescent smoking prevalence was high, the percent of experimenters who had not smoked in at least 3 months was lower than in 1993 or 1999. In 1993, a much higher percentage of 16-17 year old experimenters were former experimenters than 12-13 year olds, but in 1999 these percentages were about the same. The 16-17 year olds showed the biggest decrease between 1993 and 1996 (significant), and the percentage of non-current experimenters in this age group had not rebounded much by 1999. This result may indicate that by 1999 experimentation was delayed for older adolescents, and not as many have decided to stop experimenting yet.

Non-Hispanic Whites showed a significant decrease between 1993 and 1996, but they rebounded by 1999. While Hispanics also showed this pattern, the changes were not significant, and the other minorities may not have rebounded at all. The percent of non-

current experimenters among those reporting average or below school performance is closer to the other groups in 1999 than in the previous years.

Other than the few differences noted above, no demographic group showed an exceptionally high rate of being non-current experimenters. However, besides demographics, there are likely psycho-social or environmental predictors of smoking uptake that may be inversely associated with likelihood of cessation of experimentation.

Established Smokers

Adolescents who report smoking at least 100 cigarettes in their lifetime are considered established smokers, and most who report reaching this level were current smokers when surveyed (Figure 4.1). This finding underscores the addictive nature of nicotine; once adolescents have smoked a considerable amount they are unlikely to quit.

**In 1999, only 8.0±1.1% of adolescents 15-17 years of age were established smokers, a decrease by a factor of 33.9% since 1996.**

Because very few adolescents under 15 years of age have progressed to established smoking (0.7±0.3% in 1999), Table 4.4 shows the percentage of established smokers (current and non-current) in demographic groups of 15-17 year olds. Between 1993 and 1996, the percent of established smokers in this age group grew from 9.9±1.5% to 12.1±1.4%, a factor increase of 22.2%. Then, between 1996 and 1999, the rate of established smoking fell to 8.0±1.1%, a factor decrease of 33.9%.

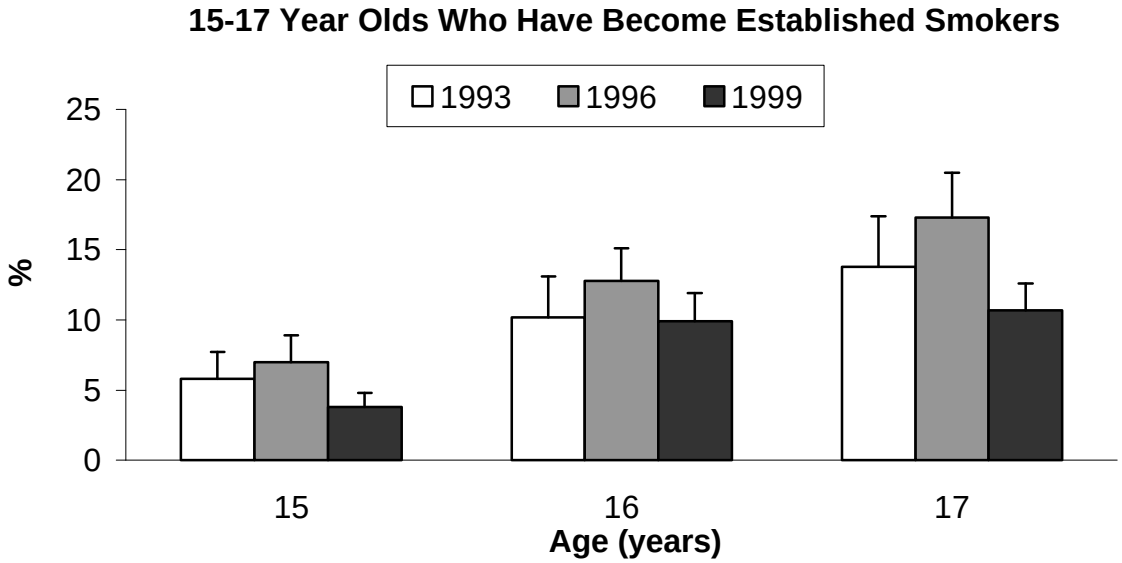
**Table 4.4**
**Established Smoking Among Demographic Subgroups of Adolescents 15-17 Years of Age**

| | 1993 % | 1996 % | 1999 % | Factor Increase 1993-1996 % | Factor Decrease 1996-1999 % |
|---|---|---|---|---|---|
| Overall | 9.9 (±1.5) | 12.1 (±1.4) | 8.0 (±1.1) | 22.2 | -33.9 |
| Gender | | | | | |
| Boys | 10.5 (±2.2) | 12.5 (±2.0) | 8.5 (±1.3) | 19.0 | -32.0 |
| Girls | 9.2 (±2.0) | 11.7 (±1.8) | 7.5 (±1.4) | 27.2 | -35.9 |
| Race/Ethnicity | | | | | |
| African American | 2.5 (±2.7) | 5.7 (±3.5) | 4.0 (±3.0) | 128.0 | -29.8 |
| Asian/PI | 6.9 (±7.6) | 8.3 (±3.4) | 5.4 (±3.0) | 20.3 | -34.9 |
| Hispanic | 6.1 (±1.8) | 8.1 (±2.0) | 6.0 (±1.3) | 32.8 | -25.9 |
| Non-Hispanic White | 13.7 (±2.0) | 16.2 (±1.9) | 11.1 (±1.8) | 18.2 | -31.5 |
| School Performance | | | | | |
| Much Above Average | 5.2 (±2.6) | 5.6 (±1.9) | 4.2 (±1.8) | 7.7 | -25.0 |
| Above Average | 9.0 (±2.4) | 10.2 (±2.2) | 6.8 (±1.8) | 13.3 | -33.3 |
| Average or Below | 12.2 (±2.2) | 17.4 (±2.1) | 11.1 (±1.7) | 42.6 | -36.2 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1993,1996,1999

The trends in established smoking for boys and girls were about the same. While African Americans appeared to show the largest increase between 1993 and 1996, it was not statistically significant, and established smoking appears to be down in all race/ethnic groups in 1999, although only the decrease in Non-Hispanic Whites was significant. The decline among adolescents with average or below average school performance was also significant.

Figure 4.4 shows the percent of adolescents of each age who had progressed to established smoking in 1993, 1996 and 1999. It shows that the overall pattern of an increase between 1993 and 1996 and decrease from 1996 to 1999 was present in all three ages. Because of the significant decline from 1996 to 1999, both 15 and 17 year olds experienced a significant net decrease in established smoking in 1999 as compared to 1993.




| | Age (years) | | |
|---|---|---|---|
| | 15 | 16 | 17 |
| 1993 | 5.8 | 10.2 | 13.8 |
| 1996 | 7.0 | 12.8 | 17.3 |
| 1999 | 3.8 | 9.9 | 10.7 |

Source: CTS 1993,1996,1999

Figure 4.4

Unless something happens to spur adolescent smoking in the future, the low rates of established smoking among 15-17 year old adolescents should herald a decline in adult smoking prevalence in the future.

Adolescent Quitting

A number of studies have indicated that adolescent smokers think about quitting and intentionally try to quit (Ershler et al., 1989; Zhu et al., 1999). In 1999, California adolescent current smokers (n=509) were no exception.

The 1999 CTS asked all current adolescent smokers:

- *Have you ever seriously thought about quitting smoking?*
- *When was your most recent quit attempt?*
- *When you tried to quit, did you use… a nicotine patch or nicotine gum, an antidepressant like Zyban, a smoking cessation program, self-help materials?*

If an adolescent answered the second question by giving a date or an approximate date, rather than saying that they never tried to quit, they were credited with a quit attempt. Only those so credited were asked the third question and they could answer yes or no to each type of cessation assistance mentioned.

Table 4.5 shows the responses current smokers gave to these questions about quitting according to whether the current smoker was an experimenter or an established smoker.

**Table 4.5**
**Quitting Behavior Among Current Adolescent Smokers**

| | Experimenters % | Established Smokers % |
|---|---|---|
| Thought about quitting | 56.5 (±8.0) | 84.2 (±6.4) |
| Attempted to quit | 57.5 (±7.9) | 79.8 (±7.2) |
| Quitters using assistance | | |
| Self-help materials | 6.0 (±2.8) | 13.0 (±5.7) |
| Counseling program | 0.3 (±0.5) | 2.2 (±2.1) |
| Nicotine replacement | none | 4.2 (±3.1) |
| Antidepressant | none | 0.9 (±1.2) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

**Nearly 80% of adolescent current established smokers in 1999 reported trying to quit sometime in the past.**

The previous sections of this chapter showed that few adolescents under 15 years of age are established smokers, and many of the current experimenters are under 15 years of age. Thus, it would be expected that a higher percentage of current established smokers had seriously thought about quitting sometime in the past compared to current experimenters, who are younger and have not been smoking as long. However, over half of current experimenters had considered the wisdom of continuing to experiment. About the same fraction had actually made a quit attempt. Similarly, nearly as many of the established smokers who had thought about quitting had also made a quit attempt.

Some quitters had even used a form of cessation assistance. Twice as many established smokers used self-help materials as did experimenters. While none of the experimenters used a medical aid, about 4% of established smokers used nicotine replacement and nearly 1% used an antidepressant. Although the percentage using nicotine replacement might seem low, only about 14% of adult current or recent former smokers used nicotine

replacement for their most recent quit attempt (see Chapter 6), and the rate of use among adult smokers who smoked less than a pack of cigarettes a day was only 9.3±1.5%. Taken together, and considering that typical adolescent cigarette consumption is well under a pack a day, these findings indicate that adolescent smokers may be using nicotine replacement as much as comparable adult smokers are.

## 2. Trends in Correlates of Adolescent Smoking

Research indicates that peer attitudes or perceived peer attitudes about smoking are related to adolescent smoking uptake. Adolescents who report that their peers express strong anti-smoking views are less likely to smoke (Collins et al., 1987; Hahn et al., 1990). On the other hand, adolescents with more positive views of smoking, who see cigarettes as having some social or personal benefit and view it as a harmless activity, are more likely to smoke (Bauman et al., 1984; Swan et al., 1990). Further, adolescents who have favorable reactions to cigarette advertising and promotions are also more likely to smoke (Evans et al., 1995; Gilpin et al., 1997; Pierce et al., 1998). While these factors may influence individuals to smoke, they may also be the result of adolescent smoking, so that changes in these perceptions follow changes in adolescent smoking rather than vise versa.

Table 4.6 shows the changes in several important correlates of smoking between 1993 and 1999. Details on the survey items and scales used to measure these constructs are included in the Appendix to this chapter.

**Table 4.6**
**Changes in Correlates of Adolescent Smoking Prevalence**

| Correlate | 1993 % | 1996 % | 1999 % | Factor Change 1993-1996 % | Factor Change 1996-1999 % |
|---|---|---|---|---|---|
| Peer Norms | | | | | |
| People your age care about staying off cigarettes | 51.3 (±1.7) | 41.0 (±1.2) | 54.5 (±1.3) | -20.1 | 32.9 |
| Best friends disapprove of your smoking on a daily basis | 72.4 (±1.7) | 64.3 (±1.3) | 71.7 (±1.1) | -11.2 | 11.5 |
| Attitudes toward smoking | | | | | |
| Agree smoking cigarettes has some benefit | 65.2 (±1.9) | 64.3 (±1.3) | 58.3 (±1.6) | -1.4 | -9.3 |
| Agree that it is safe to smoke cigarettes | 45.1 (±1.5) | 47.9 (±1.6) | 41.1 (±1.5) | 6.2 | -14.2 |
| Reactions to Advertising and Promotion | | | | | |
| Have a favorite cigarette advertisement | 65.4 (±2.0) | 64.5 (±1.2) | 56.4 (±1.3) | -1.4 | -12.6 |
| Willing to use a promotional item from a tobacco company | 25.0 (±1.7) | 24.8 (±1.2) | 15.7 (±1.1) | -0.8 | -36.7 |
| Have a promotional item from a tobacco company | 8.9 (±0.9) | 13.7 (±1.1) | 8.9 (±0.9) | 53.9 | -35.0 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1993,1996,1999

In 1993, smoking prevalence for 12-17 year-old California adolescents was 9.2±1.1%. This rate increased to 12.0±1.1% in 1996 and then declined to 7.7±0.8% in 1999 (see Appendix to Chapter 2). The correlates listed in Table 4.6 tended to track these changes in prevalence. They took a turn in the direction of promoting smoking when prevalence was higher in 1996 but returned to more benign levels by 1999 when prevalence fell.

As prevalence increased between 1993 and 1996, adolescents reported a drop by a factor of 20.1% in the number of people their age who cared about staying off cigarettes. They also showed a factor drop of 11.2% in the percentage of their best friends who would disapprove of their smoking on a daily basis. As prevalence decreased between 1996 and 1999, adolescents reported an increase by a factor of 32.9% in the number of people their age who cared about staying off cigarettes. They also report a rise by a factor of 11.5% in the percentage of their best friends who would disapprove of their smoking on a daily basis.

The percentage of adolescents who reported that it was safe to smoke cigarettes increased by a factor of 6.2% between 1993 and 1996 as prevalence increased. But during the same period, the percentage of adolescents who saw some benefit to smoking stayed about the same. As prevalence decreased between 1996 and 1999, the percentage of adolescents who saw some benefit to smoking dropped by a factor of 9.3% and the percentage who saw cigarette smoking as safe dropped by a factor of 14.2%. The rates for these attitudes were significantly lower in 1999 than in 1993.

The percentage of adolescents who reported that they possessed a tobacco industry promotional item increased by a factor of 53.9% between 1993 and 1996, but the percentage of adolescents who had a favorite cigarette advertisement or who were willing to use a tobacco industry promotional item stayed about the same. When prevalence fell between 1996 and 1999, the percentage of adolescents who possessed a tobacco industry promotional item or who would be willing to use one dropped by a factor of about 35%. During the same time, the percent of adolescents with a favorite cigarette advertisement also dropped by a factor of 12.6%. Except for possession of a promotional item, the rates in 1999 were significantly lower than in 1993.

Whether or not the level of these correlates are predictive of future smoking in the individual or are the result of higher or lower levels of adolescent smoking cannot be determined from the present data.

### 3. Has the Smoking Uptake Window Widened to Include Young Adults?

In recent years, the tobacco industry has intensified its promotional efforts aimed at young adults. It has sponsored concerts and special events including Kamel-Club nights at bars and clubs. These events usually feature cigarette giveaways. Whether these industry promotional activities have widened the window for smoking uptake by enticing young adult nonsmokers to take up smoking is unknown. Chapter 2 showed that smoking prevalence appears to have increased in recent years among young adults 18-24 years of

age, but data presented in that chapter suggested that a substantial fraction of this group had become regular smokers before they reached young adulthood.

The 1992 and 1999 CTS asked adult never smokers 2 of the 3 questions (questions 5 and 7, see Appendix to this chapter) that were used in the adolescent survey to distinguish committed from susceptible never smokers. For consistency, only the 2 questions answered by both adolescents and young adults were used in this section to identify individuals at risk of smoking initiation in the near future.

In addition, young adult established smokers from the 1992 and 1999 CTS were categorized as daily smokers with the following questions:

- ***1992****: On how many of the past 30 days did you smoke cigarettes?*
- ***1999****: Do you smoke cigarettes every day, some days or not at all?*

Current adult smokers in the 1992 CTS were considered daily smokers if they answered everyday or 30 days, and respondents to the 1999 CTS who answered everyday to the second question were classified as current daily smokers.

Current adolescent daily smokers from both the 1992 and 1999 CTS were identified from their responses to the question used to determine current smoking status.

*Think about the last 30 days. On how many of these days did you smoke?*

Those who answered "all of them" were classified as current daily smokers.

The first column of Table 4.7 shows the percentage of never smokers who are at risk to smoke. The second column indicates the percent of ever smokers (at least a whole cigarette) who transitioned to established smokers (report smoking at least 100 cigarettes in lifetime), and the third column shows the percentage of ever smokers who are current daily smokers by age group for both surveys.

**Table 4.7**
**Transitions in the Smoking Uptake Process Among Adolescents and Adults in 1992 and 1999**

| Age Group | Never Smokers at Risk to Smoke | | Ever Smokers Who Became Established Smokers | | Current Daily Smokers Among Ever Smokers | |
|---|---|---|---|---|---|---|
| | 1992 % | 1999 % | 1992 % | 1999 % | 1992 % | 1999 % |
| 12-14 | 22.6 (±3.3) | 23.6 (±2.1) | 5.2 (±3.4) | 4.7 (±2.1) | | |
| 15-17 | 18.5 (±4.1) | 21.7 (±2.2) | 16.3 (±4.8) | 20.1 (±2.6) | 48.8 (±14.8) | 34.3 (±6.7) |
| 18-20 | 9.2 (±8.2) | 7.5 (±3.2) | 49.0 (±8.9) | 44.3 (±5.9) | 48.4 (±11.1) | 44.6 (±7.0) |
| 21-25 | 2.2 (±2.7) | 3.9 (±2.4) | 53.3 (±7.6) | 54.8 (±4.0) | 48.1 (±14.6) | 45.2 (±4.1) |
| 26-30 | 3.8 (±3.9) | 4.4 (±3.0) | 57.7 (±6.0) | 52.4 (±3.5) | 47.8 (±6.7) | 38.0 (±3.9) |
| 31-35 | 5.6 (±6.7) | 3.5 (±2.7) | 60.2 (±5.4) | 52.9 (±4.3) | 47.0 (±8.1) | 37.8 (±4.4) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1992,1999

In 1992, there was a large drop in the percentage of never smokers who were at risk between 18-20 and 21-25 years of age, but in 1999 the drop appeared to occur earlier, between 15-17 and 18-20 years of age. At 21-25 years of age or beyond, neither survey showed any change, and the rates from each were very similar. The remaining risk is probably because of a few individuals who are unwilling to definitely rule out anything.

The conversion of ever smokers to established smokers appears to occur in the late teens (15-17 and 18-20 year age groups), and to a lesser extent into the twenties. In 1992, this process tended to go on longer than in 1999. In 1999, there was no further accrual after age 21-25 years. Thus, conversion rates for 31-35 year olds were significantly different between surveys. Data for 12-14 year olds were unstable due to small sample sizes and are not presented.

Finally, the conversion of ever smokers to current daily smokers also appeared to occur slightly later in 1999 than in 1992, but the confidence intervals make this unclear. The lower levels of current daily smoking among ever smokers in 1999 suggest that more of them are still occasional smokers.

In sum, young adults in 1999 do not appear to be at higher risk, or to be converting to established smoking at higher levels than seen in comparable age groups earlier in the decade. They may, however, be delaying becoming daily smokers. This delay may or may not represent an extension of the smoking uptake window. Nevertheless, it is not what would be expected from the tobacco industry targeting of young adults. If the targeting were successful, there would be a more sustained increase in conversion rates that ends at higher rates of conversion in 1999 than earlier in the decade.

Occasional Smokers Who Have and Have Not Smoked Daily in the Past

The possible delay in conversion to daily smoking among young adults in 1999 noted above warrants further investigation.

The 1999 CTS asked all current occasional smokers questions to determine if they had ever been daily smokers:

- ***Adults:*** *Have you ever smoked daily for a period of 6 months or more?*
- ***Adolescents:*** *Have you ever smoked a cigarette every day for at least a month?*

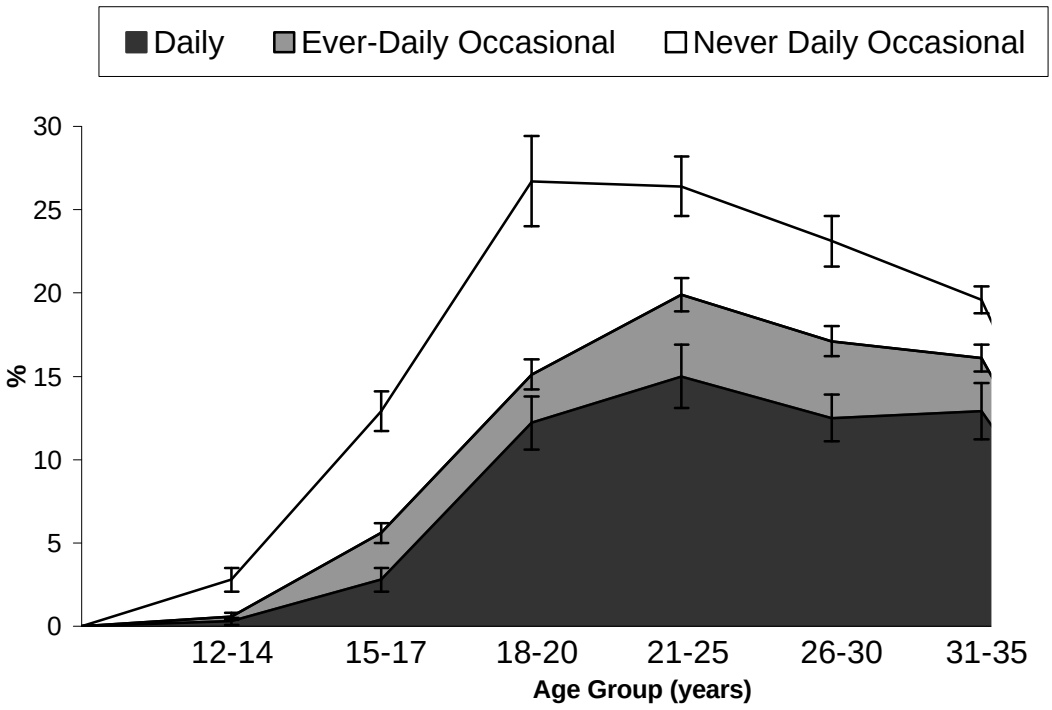
If respondents answered yes to the appropriate question, they were considered to be ever-daily occasional smokers, and if they responded no they were considered to be never-daily occasional smokers.

Figure 4.5 depicts current smoking status among the same age groups as in Table 4.7. The top curve in the figure indicates the overall current smoking prevalence (in last 30 days for both adults and adolescents), the middle curve the prevalence of occasional smoking, and the bottom curve the prevalence of daily smoking. Thus, the distance between the top two curves represents the fraction of occasional smokers who have never

smoked daily, and the area between the bottom two curves the fraction of occasional smokers who were former daily smokers.

Among 12-14 year old current smokers, the distance between the top two curves indicates that nearly 80% were never-daily occasional smokers. This percentage drops to less than 60% among the 15-17 year olds and to less than 45% among the 18-20 year olds. The fraction of never-daily occasional smokers peaked at 11.6±2.7% among the 18-20 year olds and then declined steadily to 3.5±0.8% among the 31-35 year olds.

**Daily and Occasional Smoking in Adolescents and Young Adults**




| | Age Group (years) | | | | | |
|---|---|---|---|---|---|---|
| | 12-14 | 15-17 | 18-20 | 21-25 | 26-30 | 31-35 |
| Daily | 0.3 | 2.8 | 12.2 | 15.0 | 12.5 | 12.9 |
| Ever-Daily Occasional | 0.3 | 2.8 | 2.9 | 4.9 | 4.6 | 3.2 |
| Never-Daily Occasional | 2.2 | 7.3 | 11.6 | 6.5 | 6.0 | 3.5 |

Source: CTS 1999

Figure 4.5

The fractions of daily smokers (below the bottom curve) and ever-daily occasional smokers (between bottom two curves) peaked at 15.0±1.0% and 4.9±1.0%, respectively, for 21-25 year olds. Between 18-20 and 21-25 years of age, the percentage of never-daily occasional smokers declined by a factor of nearly 45%, from 11.6±2.7% to 6.5±1.8% for a percentage point difference of 5.1. Between 18-20 and 21-25 years of age, the percentage of daily smokers increased from 12.2±0.9% to 15.0±1.0%, a difference of 2.8 percentage points, and the rates for ever-daily occasional smoking

increased from 2.9±0.9% to 4.9±1.0%, a difference of 2.0 percentage points. The combined increases in daily and ever-daily current occasional smoking of 4.8 percentage points observed between these age groups is very close to the 5.1 percentage point decrease in never-daily occasional smoking observed during the same period of time.

**About half of 18-20 year old occasional smokers will convert to daily smoking before age 25.**

These results suggest that about half of the never-daily occasional smokers 18-20 years of age will progress to daily smoking in the next 5 years. These results also show that nearly 25% of the 21-35 year olds who have ever smoked on a daily basis were currently occasional smokers. Why such a significant fraction of these young adult smokers switched from daily to occasional smoking is unknown. There may be more young adult smokers in recent years who believe that if they confine their smoking to a few social occasions they will not harm their health and will avoid addiction. The switch from daily to occasional smoking, assuming that it was not present to the same extent in earlier years, may be responsible for the somewhat lower rates of current daily smoking among current established smokers seen in Table 4.7.

Cigarette Consumption in Daily and Occasional Established Smokers

The final stages of the smoking uptake process encompass the transitions among established smokers that relate to increases in cigarette consumption. As occasional smokers become daily smokers their consumption will increase. Occasional smokers who have never smoked daily may have a different level of consumption than those who have smoked daily in the past.

The 1999 CTS asked all current occasional smokers the following question:

- ***Adults:*** *During the past 30 days, on the days that you did smoke, about how many cigarettes did you usually smoke per day?*
- ***Adolescents:*** *On the days that you did smoke, what was the average number of cigarettes that you smoked?*

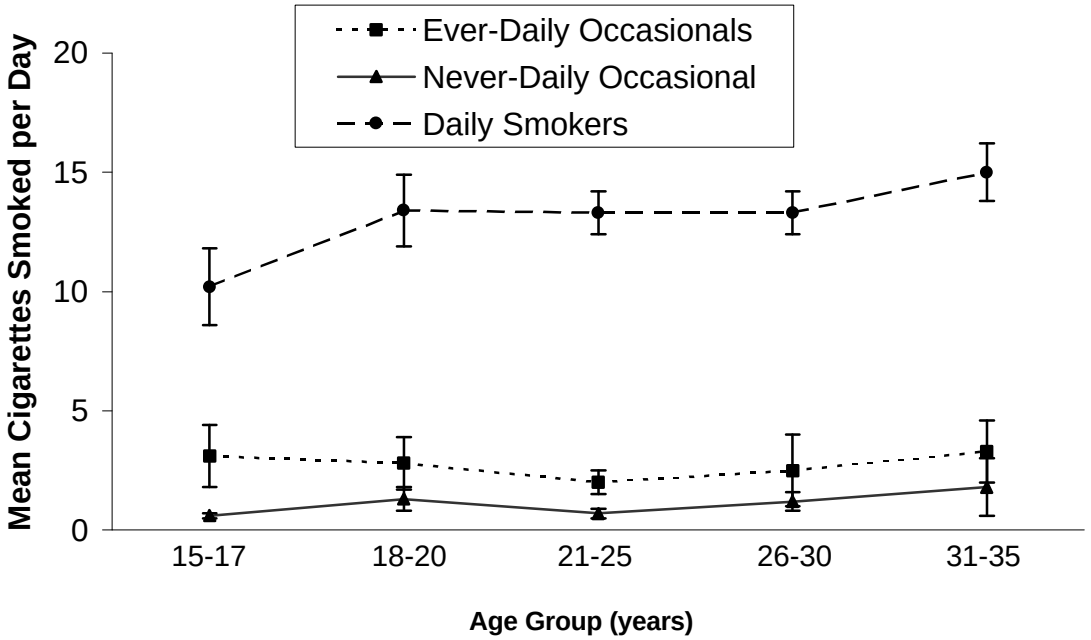
Using this information, the mean daily cigarette consumption was computed as the product of the number of days smoked per month and the number of cigarettes smoked on the days when smoking took place divided by 30 days.

For adolescent daily smokers, daily cigarette consumption was determined from the above adolescent question, but adult daily smokers were asked:

*How many cigarettes on average do you smoke per day?*

Figure 4.6 shows the mean numbers of cigarettes smoked per day for different age groups of current established smokers.

**Mean Daily Cigarette Consumption Among Daily Smokers, Ever-Daily Occasional Smokers, and Never-Daily Occasional Smokers**




| | Age (years) | | | | |
|---|---|---|---|---|---|
| | 15-17 | 18-20 | 21-25 | 26-30 | 31-35 |
| Ever-Daily Occasional Smokers | 3.1 | 2.8 | 2.0 | 2.5 | 3.3 |
| Never-Daily Occasional Smokers | 0.6 | 1.3 | 0.7 | 1.2 | 1.8 |
| Daily Smokers | 10.2 | 13.4 | 13.3 | 13.3 | 15.0 |

Source: CTS 1999

Figure 4.6

Figure 4.6 indicates that cigarette consumption among daily smokers increases significantly from late adolescence to young adulthood, and then remains constant until the early thirties. Although the results are not plotted, the increase in consumption continues until about age 50 years. The increase beginning in the early thirties is probably because some of the lighter daily smokers are starting to quit, leaving behind a group that are heavier smokers. In the same vein, although consumption among daily smokers seems constant during the twenties, occasional smokers converting to light daily smokers may obscure increases in daily consumption related to building up tolerance among the already daily smokers.

Figure 4.6 also shows that ever-daily occasional smokers on average smoked more cigarettes per day than never-daily smokers, but in some age groups these differences were not significant. There was a significant increase in the mean daily consumption among the never-daily occasional smokers 15-17 years of age and those 18-20 years of

age. After that, the trends are difficult to interpret, because some never-daily smokers may be converting to daily smoking, or to daily smoking and back to occasional smoking once again. Regardless, the main changes in consumption appear to be occurring between ages 15-17 and 18-20 years as adolescents transition to established smoking.

## 4. Summary

Between 1993 and 1996, California experienced a significant increase in adolescent smoking. Fortunately, between 1996 and 1999 this disturbing trend was reversed. Even more encouraging, 1999 saw a significant increase in the percentage of committed never smokers. These changes were most noticeable among older adolescents, non-Hispanic Whites, and among students who reported lower levels of school performance. Continued progress toward increasing the percentage of adolescent committed never smokers will eventually result in lower adult rates of smoking prevalence.

The spike in adolescent smoking observed in 1996 may be due to the "Joe Camel" advertising campaign that was targeted toward children and adolescents beginning in the late 1980s (Pierce et al., 1999). The adolescent cohort exposed to the "Joe Camel" campaign has now become young adults. The higher rate of smoking among the members of this cohort may partially account for the slowing in the rate of decline recently observed in California adult smoking prevalence (see Chapters 1 and 2).

Only about half of adolescent experimenters will become established smokers. However, it may take several years after experimentation ceases before the risk of future smoking is minimal; it was not until after a year of abstinence that the majority were at low risk. Current adolescent established smokers are interested in quitting, and nearly 80% have tried.

There was no evidence that tobacco industry promotional campaigns aimed at young adults are making young adult never smokers more at risk to smoke, or encouraging those who had experimented during adolescence to begin again and convert to established smoking.

Since many young adults are still completing the smoking uptake process, tobacco control efforts should be targeted at this age group in an attempt to reduce the rate of conversion to established smoking in the late teens and to daily smoking in the twenties.

## CHAPTER 4: KEY FINDINGS

1. By 1999, the percent of California adolescents 12-17 years of age who were committed never smokers was 53.3±1.4%, which, despite a decrease in 1996, was significantly higher than the rate of committed never smokers in 1993, 48.6±1.9%.

2. The percent of adolescents 15-17 years of age who had become established smokers was only 8.0±1.1% in 1999, a factor decrease of 33.9% since 1996.

3. In 1999, 79.8±7.2% of current adolescent established smokers reported they had tried to quit in the past. Some of these quitters (4.2±3.1%) had used nicotine replacement, and this rate of use may not be much different than among adult light smokers.

4. The relation between the timing of the Joe Camel campaign and patterns in youth smoking prevalence since 1990 together with the recent declines in youth smoking prevalence suggests that the increase in young adult smoking in 1999 reflects the maturing of the youth cohort previously influenced by the Joe Camel campaign, rather than more recent tobacco industry campaigns targeting young adults.

5. In 1999, a high proportion of young adult established smokers (approximately 45% of 18-20 year olds) have never smoked daily. About 25% of young adult smokers over 20 years of age have reverted to occasional smoking after a period of daily smoking for at least 6 months.

## CHAPTER 4: APPENDIX

Definitions of Categories Used to Describe Adolescent Smoking Experience

Four survey questions were used to assess an adolescent's experience with smoking. All adolescents were asked:

*1. Have you ever smoked a cigarette?*

Those who answered in the affirmative were then asked:

*2. Have you smoked at least 100 cigarettes in your life?*
*3. Think about the last 30 days. On how many of these days did you smoke?*

Those who denied ever smoking a cigarette (question 1) were asked:

*4. Have you ever tried or experimented with smoking, even a few puffs?*

Those answering no to questions 1 and 4 were considered never smokers; if the answer to question 1 was yes, they were considered ever smokers. Three additional questions were used to divide the never smokers into two groups, those with a strong commitment to remain a never smoker, and those who appeared to be at risk to begin smoking in the near future. The never smokers were asked:

*5. Do you think you will try a cigarette soon?*
*6. If one of your best friends were to offer you a cigarette, would you smoke it?*
*7. At any time during the next year do you think you will smoke a cigarette?*

Only adolescents who answered no question 5 and "definitely not" to questions 6 and 7 were categorized as committed never smokers. The rest of the never smokers were called susceptible never smokers.

A puffer is someone who has never smoked a cigarette (no to question 1) but who later admits to puffing by answering yes to question 4. An experimenter has smoked a cigarette (yes to question 1), but not as many as 100 cigarettes (no to question 2).

Anyone who had smoked a cigarette (adolescent ever smoker) was also asked:

*8. On how many of the past 30 days did you smoke cigarettes?*

If the answer to the above question was none, then the ever smoker was considered a non-current smoker and if the respondent replied with a number between 1 and 30, he or she was considered a current smoker.

Questions Used to Define Adolescent Norms and Attitudes

This section of the Appendix explains the correlates of adolescent smoking summarized in section 2 of this chapter, which survey questions were involved, and how the responses were coded for analysis.

To assess peer norms, all adolescents were asked:

- *Do you think people your age care about staying off cigarettes?*
- *How do you think your best friends would feel about you smoking on a daily basis?*

Adolescents who answered yes to the first question and disapprove to the second question were considered to be recipients of peer pressure **not** to smoke.

To determine whether adolescents saw some benefit to smoking, they were asked to give their opinion (yes or no), not what they think others believe, to each of the following statements:

- *Smoking can help people when they are bored.*
- *Cigarette smoking helps people relax.*
- *Cigarette smoking helps reduce stress.*
- *Smoking helps people feel more comfortable at parties and in other social situations.*
- *Smoking help people keep their weight down.*

Adolescents who answered yes to any of these questions saw some benefit to smoking.

Similarly, to determine whether adolescents saw smoking as a safe activity, they were asked to agree or disagree with the first 2 of the following statements and answer yes or no to the third:

- *It's safe to smoke for only a year or two.*
- *If I started to smoke regularly, I could stop smoking anytime I wanted.*
- *Do you believe there is any harm in having an occasional cigarette?*

Adolescents who agreed with either of the first 2 questions or answered no to the last question were considered to view smoking as a safe activity.

To determine adolescent reaction to tobacco advertising and promotion, they were asked the following 2 questions:

- *What is the name of the cigarette brand of your favorite cigarette advertisement?*
- *Do you think you would ever use a tobacco industry promotional item such as a tee shirt?*

Adolescents who provided the name of a cigarette brand to the first question were considered to have a favorite cigarette advertisement. Those who answered yes to the second question were considered willing to use a tobacco industry promotional item.

To determine whether these adolescents possessed a promotional item from a tobacco company they were asked whether, in the last 12 months, they had:

- *Exchanged coupons for an item with a tobacco brand name or logo on it?*
- *Received as a gift or for free, any item with a tobacco brand name or logo on it?*
- *Purchased any item with a tobacco brand name or logo on it?*

Adolescents who answered yes to any of these 3 questions possessed a tobacco industry promotional item.

## CHAPTER 4: GLOSSARY

### Adolescents

*Committed never smoker* – a *never smoker* who does not expect to try a cigarette soon and who answers definitely not to whether he or she would accept a cigarette offered by a friend and to a question about whether he or she will smoke in the next year.

*Current established smoker* – has smoked a cigarette on at least one day in the past month and has smoked at least 100 cigarettes in his or her lifetime.

*Current experimenter* – has smoked a cigarette on at least one day in the past month, but has not yet smoked 100 cigarettes in his or her lifetime.

*Current smoker* – has smoked a cigarette on at least one day in the past month.

*Daily smoker* – answers 25 or more days to the question about how many days in the last month he or she smoked.

*Established smoker* – has smoked at least 100 cigarettes in his or her lifetime.

*Ever smoker* – has smoked a cigarette (excludes *puffers*).

*Experimenter* – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

*Former established smoker* – an *established smoker* who has not smoked a cigarette on any days of the past month.

*Never smoker* – has never smoked or even puffed on a cigarette.

*Never smoker at risk* – see *susceptible never smoker*.

*Non-current established smoker* – see *former established smoker*.

*Non-current experimenter* – has not smoked a cigarette on any days in the past month, and has not smoked at least 100 cigarettes in his or her lifetime.

*Non-current smoker* – has not smoked a cigarette on any days in the past month.

*Nonsmoker – never smoker* or *non-current smoker.*

*Occasional smoker*[1] – answers less than 25 days to the question about how many days in the last month he or she smoked.

*Puffer* – someone who has not smoked a cigarette, but admits to puffing on one.

*Susceptible never smoker* – a *never smoker* who either expects to try a cigarette soon or who does **not** answer definitely not to whether he or she would accept a cigarette offered by a friend or to a question about whether he or she will smoke in the next year.

**Adults**

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Daily smoker* – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes everyday (new question).

Ever-daily occasional smoker – *current smoker* who has not smoked on everyday of the past month, but has smoked everyday for a period of at least 6 months in the past.

*Never-daily occasional smoker – current smoker* who has not smoked on every day of the past month and has never smoked everyday for a period of 6 months or longer.

*Occasional smoker*[1] – a *current smoker* who smoked on at least 1 day in the past month (old question sequence) or who says he or she now smokes some days (new question).

[1] For this chapter, the adult definition is used since comparisons are made across age groups of adolescents and young adults.

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# Chapter 5

# PARENTAL INFLUENCES ON ADOLESCENT SMOKING

# CHAPTER 5: PARENTAL INFLUENCES ON ADOLESCENT SMOKING

## Introduction

Becoming a smoker is a social process that appears to begin in Californians around age 10 years and continues throughout adolescence (Choi et al., 2000; Pierce et al., 1998). During these years, young people typically live at home, encountering a number of parental influences that could be associated with whether or not they become smokers. A number of studies on smoking initiation have highlighted the correlation between parental smoking behavior and the likelihood that children would become smokers (CDC, 1994). Parents who smoke provide models of the behavior as well as the opportunity to obtain cigarettes.

Studies have also suggested that aspects of parenting other than parental smoking influence the probability of adolescent smoking. These include associations of adolescent smoking with parental education level (Ary & Biglan, 1988; Murray et al., 1984; Waldron & Lye, 1990) as well as single parent status in the home (Elder & Caspi, 1988; Goddard, 1992). Further, the likelihood of an adolescent smoking appears to be related to the adolescent's expectations of how parents might react upon learning that the adolescent had smoked a cigarette (Hansen et al., 1987; Eiser et al., 1989). Parental control over adolescents has also been associated with adolescent smoking (Chassin et al., 1986) and with other problem behaviors (Pandina & Schuele, 1983). Other correlates of smoking behavior include family conflict and lack of parent involvement with life interests of the adolescents (Biglan et al., 1995). These results are consistent with the influence of parenting practices on the development of problem behavior in general (Metzler et al., 1994; Brown et al., 1993; Chilcoat & Anthony, 1996).

In any study of the relationship of parent behavior and practices to adolescent smoking, it is very important to account for other important influences on smoking behavior. A primary question is whether good parenting practices are sufficient to overcome influences to smoke, such as those from tobacco marketing. While this chapter does not address this question, it describes some current parenting practices in California related to the issue of adolescent smoking.

This chapter presents preliminary data on parent behaviors and practices that might influence children against smoking. Section 1 reports on the distribution of adults who smoke and who live with adolescents, thereby providing models for smoking behavior. Section 2 describes expectations parents have for their adolescents regarding smoking as reported by the adolescent. Section 3 describes how parents who smoke and those who have tried to quit smoking explain their behavior to their adolescents, as these messages may communicate benefits and consequences of smoking to adolescents. Section 4 concerns other parenting practices related to smoking, such as discussing the risks of

smoking, asking adolescents about smoking that occurs among friends, and parent perceptions of their adolescent's smoking and risk to smoke. Section 5 summarizes the findings of the chapter.

Two sets of data are discussed in this chapter. Sections 1 and 2 report on 6,090 adolescents from the 1999 California Tobacco Survey (CTS). Sections 3 and 4 report on data collected in 1999 on a sample of 2,504 adolescents and parents. In this survey, interviews were attempted for 1 parent, usually the mother, of each adolescent. Adolescents were first interviewed at ages 12 through 15 years as part of the 1996 CTS, and were re-interviewed in 1999 about their smoking behavior and attitudes and that of their parents. Funded by the Robert Wood Johnson (RWJ) Foundation, this survey data is referred to in this chapter as the 1996-1999 Cohort Survey. Details of the methodology of the surveys are presented in the technical documentation for this report (Gilpin et al., 2001).

## 1. Adult Smoking in Adolescent Homes

Adults who smoke at home provide adolescents with opportunities to observe firsthand both smoking behavior and its consequences. By observation and in conversation, the adolescent will obtain information about the benefits and the risks associated with smoking as well as the difficulties of quitting. A smoker in the home also means that cigarettes will be available in the home, providing a number of opportunities for the adolescent to obtain a cigarette for experimentation.

**In 1999, just over a quarter of California adolescents lived in households with at least one adult smoker**.

Table 5.1 presents data on exposure of California adolescents to smoking in the household in 1999. Just over a quarter currently live with a smoker (20.0±1.2% lived with 1 current smoker and 6.6±1.6% lived with 2 or more current smokers). Another 10.1±0.9% of adolescents lived with a smoker who had quit sometime during the last 5 years and who may be at risk to return to smoking. Rates of exposure to smoking at home did not differ by gender of the adolescent, but younger adolescents (age 12-13 years) were more likely to live with nonsmokers than older adolescents. Notably, one-third of African American adolescents lived with current smokers, and Asian youth had the lowest exposure to smokers at home (22.5%) compared to other ethnic groups. Exposure to smoking at home was markedly lower (16.8%) for adolescents whose parents were college graduates compared to adolescents whose parents had lower levels of education.

**Table 5.1**
**Exposure to Smoking in Households of California Adolescents by Adult Smoking Status and Adolescent Demographic Group, 1999**

| Adolescent Demographic Group | Smoking Status of Adults in Household | | | |
|---|---|---|---|---|
| | 2+ Current Smokers % | 1 Current Smoker % | Quit in Last 5 Years % | No Smokers in Last 5 Years % |
| Overall | 6.6 (±0.8) | 20.0 (±1.2) | 10.1 (±0.9) | 63.3 (±1.6) |
| Gender | | | | |
| Female | 7.0 (±1.3) | 20.7 (±1.6) | 10.4 (±1.4) | 61.9 (±2.0) |
| Male | 6.3 (±0.9) | 19.3 (±1.8) | 9.8 (±1.0) | 64.6 (±2.3) |
| Age | | | | |
| 12-13 | 5.1 (±1.0) | 18.4 (±2.0) | 10.0 (±1.4) | 66.5 (±2.3) |
| 14-15 | 6.8 (±1.1) | 21.7 (±2.5) | 10.7 (±1.6) | 60.8 (±3.0) |
| 16-17 | 8.1 (±1.8) | 19.9 (±1.8) | 9.5 (±1.7) | 62.5 (±2.7) |
| Race/Ethnicity | | | | |
| African American | 4.9 (±2.8) | 27.5 (±4.7) | 9.4 (±3.1) | 58.2 (±4.3) |
| Asian/PI | 5.9 (±2.9) | 16.6 (±6.2) | 8.3 (±2.5) | 69.3 (±7.1) |
| Hispanic | 6.3 (±1.3) | 19.8 (±1.8) | 11.0 (±1.5) | 62.9 (±2.4) |
| Non-Hispanic White | 7.4 (±1.1) | 19.3 (±2.0) | 9.8 (±1.3) | 63.5 (±2.1) |
| Education-Head of Household | | | | |
| <12 | 7.9 (±1.9) | 22.4 (±2.7) | 10.3 (±2.2) | 59.4 (±3.7) |
| 12 | 10.6 (±2.3) | 23.6 (±2.2) | 12.5 (±2.7) | 53.3 (±2.8) |
| 13-15 | 6.0 (±1.7) | 22.0 (±2.8) | 10.9 (±1.7) | 61.1 (±3.3) |
| 16+ | 3.1 (±1.1) | 13.7 (±2.2) | 7.2 (±1.3) | 76.0 (±2.4) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

## 2. Parental Expectations Regarding Adolescent Smoking

When adolescents expect a strong negative reaction from parents relating to their potential smoking, they may be less willing to experiment and continue with smoking, although the nature and strength of the parent-child relationship probably influence this. In the 1999 CTS, adolescents were asked about the expected reactions of their parents to their smoking:

> *If you lit up a cigarette tomorrow in front of your parents, how do you think they would react?*

Possible responses were: tell you to stop and be very upset, tell you to stop and not be upset, not tell you to stop but disapprove, and have no reaction. Respondents who gave the first response were categorized as having parents who were strongly against the adolescent smoking now.

Perceived parental disapproval, however, may change as the adolescent approaches adulthood and becomes more independent. Therefore, adolescents were also asked to either agree or disagree with the statement:

*When I'm older my parents won't mind if I smoke.*

Respondents who disagreed with this statement were categorized as having parents who were against future smoking by the adolescent. These 2 questions were combined into 3 categories of perceived parental expectations for adolescent smoking, as shown in Table 5.2. Adolescents who responded that they perceived their parents would be against them smoking now and in the future were classified as having strong perceived parental expectations regarding smoking. Adolescents who perceived their parents would be against them smoking now, but wouldn't mind them smoking in the future were classified as having moderate perceived parental expectations regarding smoking. Finally, adolescents who perceived that their parents would not be against them smoking now were classified as having weak perceived parental expectations regarding smoking.

**Table 5.2**
**Perceived Parental Expectations for Adolescent Smoking Now and in the Future According to Adolescent Responses**

| Perceived Parental Expectation Category | Adolescent Responses | |
|---|---|---|
| | **Now** | **When Older** |
| Strong | Tell you to stop and be very upset | Disagree |
| Moderate | Tell you to stop and be very upset | Agree |
| Weak | Tell you to stop and not be upset<br>Not tell you to stop but disapprove<br>Have no reaction | Any |

**Over three-quarters of adolescents in 1999 reported that their parents didn't want them to smoke now or in the future.**

Overall, 78.7±1.0% of adolescent respondents to the 1999 CTS reported that their parents had strong expectations against their smoking, 12.9±1.0% reported that their parents had moderate expectations, and 8.8±1.3% reported that their parents had weak expectations. Parental reinforcement of strong expectations against smoking for their adolescent is strongly associated with low rates of adolescent smoking and is likely a key parenting practice to deter adolescent smoking throughout adolescence and into adulthood, when the risk for smoking uptake drops considerably. Rates of ever smoking among adolescents were low (11.7±1.6% overall) for those who perceived strong expectations even if parents smoked (9.9±2.0% for adolescents of never-smoking parents, 12.6±5.3% for adolescents of parents who had not smoked for at least 3 years, and 16.5±3.4% for parents who were current smokers). This is in contrast to adolescents who perceived moderate (31.6±6.7%) or weak expectations (30.5±10.3%).

Figure 5.1 shows the rate of adolescent ever smokers among 12-14 year olds by level of their perceived parental expectations regarding smoking. Only 1.7±0.8% of adolescents with strong parental expectations had ever smoked compared to 9.9±5.6% of those with moderate and 12.3±8.7% of those with weak expectations.

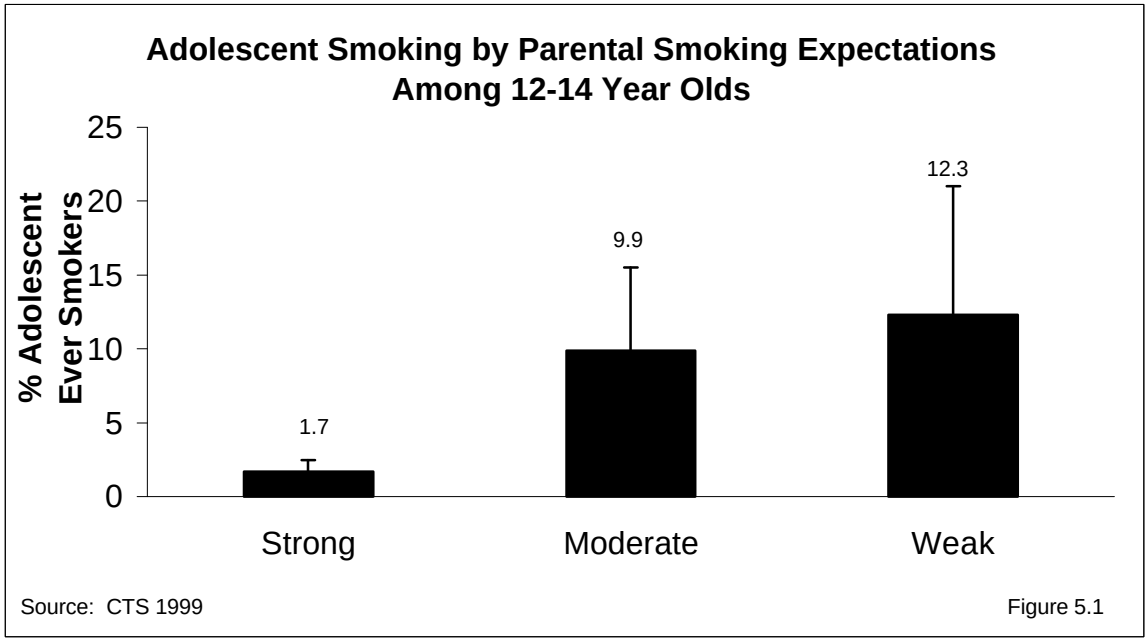
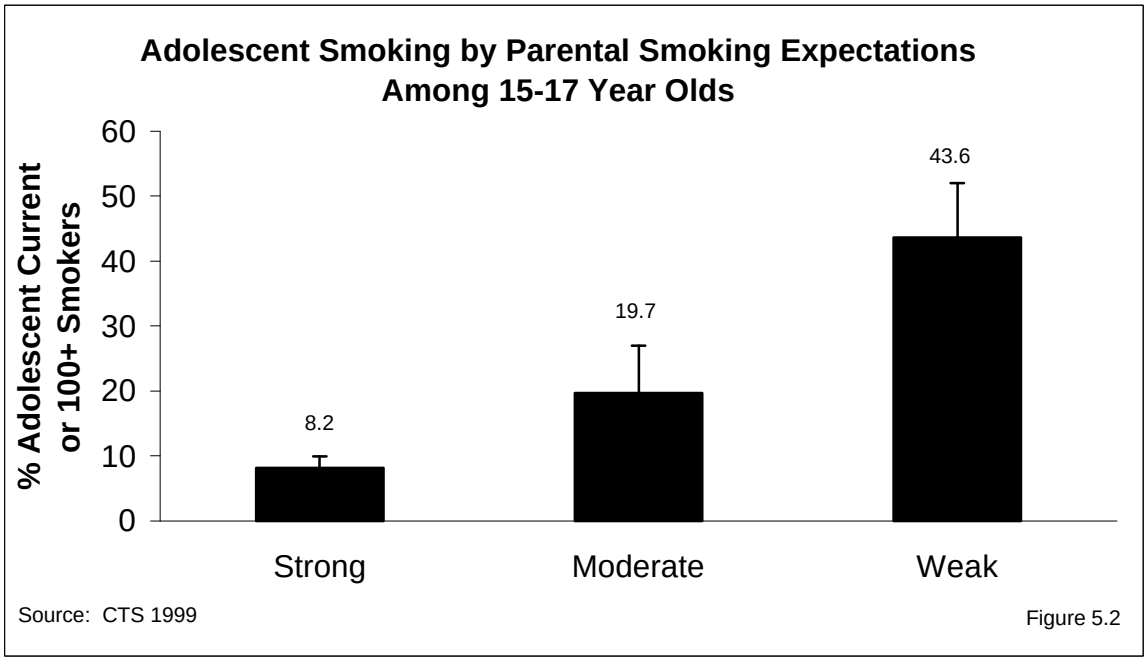



Figure 5.2 shows the rate among 15-17 year old adolescents who had either smoked in the last month before the survey, or who had smoked at least 100 cigarettes in their



lifetime by level of their perceived parental expectations regarding smoking. Only 8.2±1.7% of those with strong parental expectations were current or established smokers compared to approximately 19.7±7.3% of those with moderate expectations and 43.6±8.4% of those with weak parental expectations. Strong perceived expectations are clearly associated with lower rates of smoking behavior and these results did not differ significantly according to parental smoking status. Smoking rates significantly increased with weaker levels of parental expectations for both age groups.

Table 5.3 shows perceived parental expectations regarding adolescent smoking by adolescent demographic group. In general, the data suggest that parents have higher expectations for girls than for boys and for younger adolescents compared to older ones.

**Table 5.3**
**Strong Parental Expectations Regarding Adolescent Smoking by Adolescent Demographic Group, 1999**

| Adolescent Demographic Group | African American | Asian/ Other | Hispanic | Non-Hispanic White |
|---|---|---|---|---|
| Overall | 73.5 (±4.7) | 83.7 (±3.2) | 76.4 (±2.1) | 80.0 (±1.9) |
| Age 12-14 years | 82.6 (±6.0) | 91.8 (±3.5) | 79.4 (±2.7) | 85.8 (±2.5) |
| Male | 81.3 (±10.3) | 87.8 (±6.3) | 75.6 (±3.8) | 83.9 (±3.3) |
| Female | 84.0 (±6.7) | 96.0 (±2.9) | 83.6 (±3.4) | 87.8 (±3.3) |
| Age 15-17 years | 62.9 (±8.1) | 76.5 (±6.1) | 73.4 (±3.6) | 73.9 (±2.9) |
| Male | 56.2 (±11.7) | 74.7 (±7.7) | 70.8 (±4.5) | 72.4 (±4.2) |
| Female | 68.5 (±9.8) | 78.9 (±6.9) | 76.3 (±5.5) | 75.4 (±3.8) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

The rate of strong expectations decreased with adolescent age for all ethnic groups, although this decrease was less evident for Hispanics (79.4±2.7% for 12-14 year olds versus 73.4±3.6% for 15-17 year olds). For African Americans the rate of strong perceived parental expectations was lower (62.9±8.1% for 15-17 year olds vs. 82.6±6.0% for 12-14 year olds) to a greater extent than all other ethnic groups, especially for males (56.2±11.7% vs. 81.3±10.3%). These results contradict previous hypotheses of strong parenting practices associated with low rates of smoking among African American adolescents.

Asian adolescents reported the highest rates (91.8±3.5% for 12-14 year olds and 76.5±6.1% for 15-17 year olds) of strong perceived parental expectations against their smoking, but these rates also sharply declined for older adolescents, especially for females (96.0±2.9% for 12-14 year old females vs. 78.9±6.9% for 15-17 year old females). These results suggest that smoking is perceived as more acceptable in the Asian culture as youth reach adulthood, and earlier for young males than females.

## 3. Quitting and Relapsing Among Parents

How Parents Who Smoke Explain Their Smoking Behavior to Adolescents

In the 1996-1999 cohort sample of parents and children, the 307 parents who smoked were asked:

*What is the primary reason you give your adolescent for your smoking?*

**Parents more frequently tell their adolescents that they smoke because they are addicted to nicotine, rather than because of a benefit to smoking.**

It appears that the majority of parents who smoke are telling their adolescents that nicotine addiction is a problem for them. Almost half (44.1±8.3%) of the parents who smoked reported that they were addicted beyond control (i.e., they were unable to quit; Figure 5.3). A further 20.8±6.3% indicated that they were addicted and that they were trying to quit. Another 20% reported that they told their adolescents that smoking provided a benefit to them, with 12.6±5.7% indicating that smoking helped reduce stress or control weight and 7.3±2.8% indicating that it was an activity that they enjoyed. Finally, 10.8±4.5% of parents reported that they did not discuss their smoking with their adolescents.

**Reasons Parents Who Smoke Gave Their Adolescents for Their Smoking**

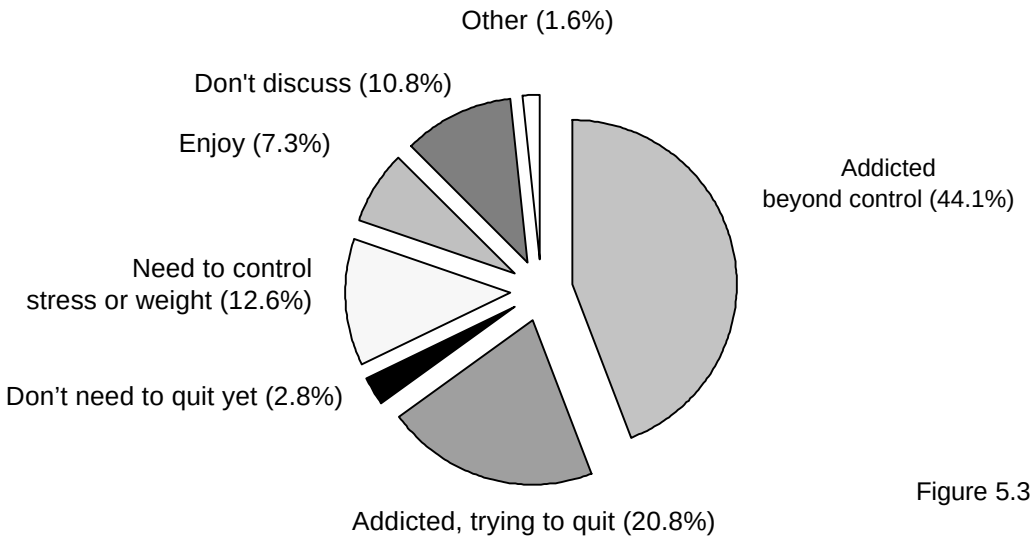



Figure 5.3

Source: Cohort Survey, 1996-1999

How Parents Who Attempt to Quit Explain Relapsing to Their Adolescents

In the 1996-1999 cohort study of parents (mostly mothers) and adolescents, 55.5±8.2% of the parents who smoked reported making a quit attempt of a day or longer in the last year, and 50.5±10.9% of these parents had relapsed at the time of interview. For a more detailed description of demographic categories of smokers who attempted to quit and those who relapsed from the 1999 CTS, see Chapter 6.

In the 1996-1999 cohort survey, parents were asked for the explanation they gave their adolescents for their relapse to smoking after the parents' attempt to quit in the last 12 months:

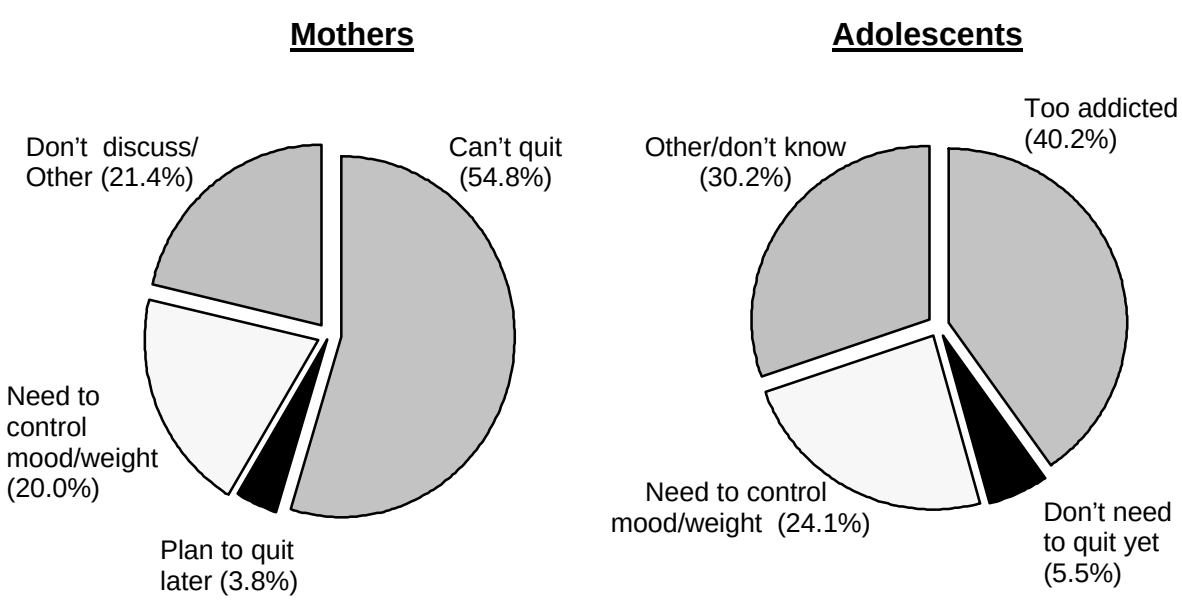
| |
|---|
| *When you relapsed to smoking, which of the following best describes how you explained it to your adolescent?* |

Adolescents were also asked to give the main reason they thought their parent had relapsed with the following open-ended question:

| |
|---|
| *What do you think is the main reason why he/she was unsuccessful?* |

To make the results more comparable, only data on mothers interviewed and mothers whom adolescents reported on were analyzed. Responses for mothers and adolescents were categorized as presented in Figure 5.4.

**Mother and Adolescent Reports on Reasons for Parent Relapse**




Source: Cohort Survey, 1996-1999

Figure 5.4

The most common response from mothers (can't quit, 54.8±10.6%) and adolescents (too addicted, 40.2±9.7%) suggests that the majority of parents who smoke and attempt to quit but relapse convey the extremely addictive nature of smoking to their children. Another common explanation of relapse reported by adolescents was that their mothers needed the benefit of cigarettes to help control their mood or their weight (24.1±7.8%), and 20.0±17.1% of mothers surveyed gave this as an explanation. A small percentage of adolescents reported their mothers planned to quit later (5.5±3.2%), and a small percentage of mothers reported they didn't need to quit yet (3.8±4.2%). A further 6% of mothers responded that they didn't discuss relapsing with their adolescents (6.5±7.6%), and about 30% of adolescents reported that either they didn't know why their mother had relapsed (20.7±9.5%) or reported some other reason (9.5±6.1%).

## 4. Other Parenting Practices Related to Adolescent Smoking

Discussing the Risks of Smoking

Periodically discussing with adolescents the dangers of smoking is another strategy that parents may use to communicate consistent and continued concern about smoking to their adolescents. To discern the importance to parents of discussing the risks of smoking with young children, they were asked the following hypothetical question:

*If parents see children under 10 years pretending to smoke, what do you think they should do?*

Response choices were: use the opportunity to talk about the risks of smoking, just tell them not to smoke, let them see you are annoyed but don't make an issue of it, or another unspecified response. Figure 5.5 presents categories of parent responses to this question. The majority (78.6±2.0%) of parents reported that they should use the

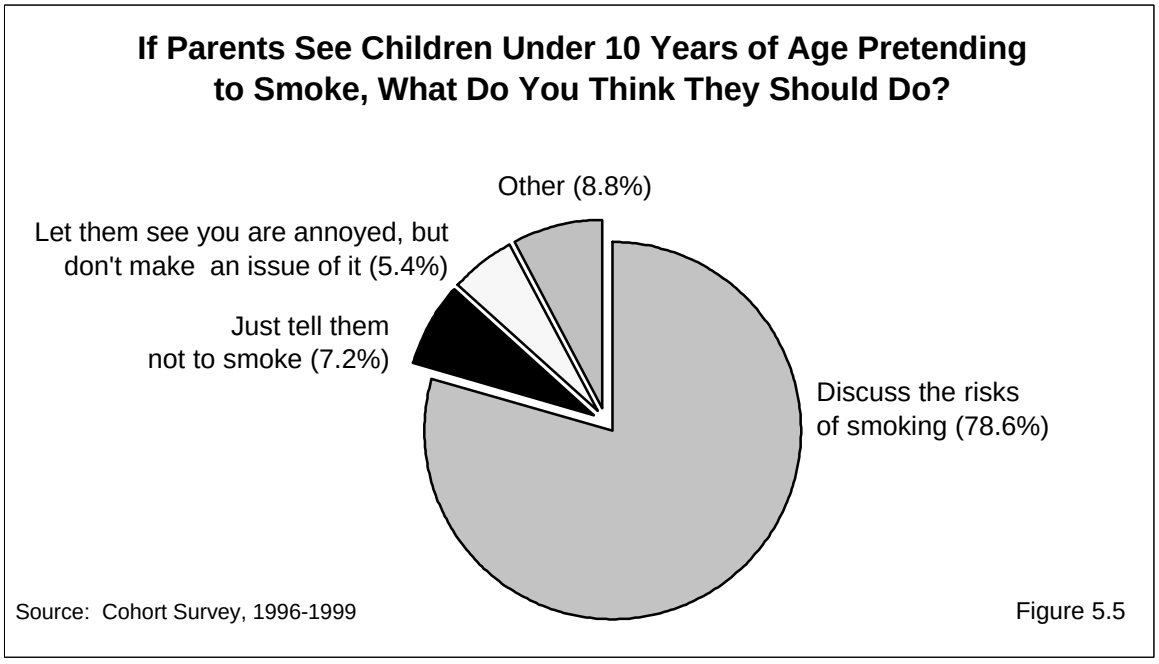



Figure 5.5

opportunity presented by a child less than 10 years of age pretending to smoke to talk about the risks of smoking. Other possible responses for parents were just tell them not to smoke (7.2±1.5%), let them see you are annoyed, but don't make an issue of it (5.4±1.0%), and a variety of other responses (8.8±1.3%).

Parents who were current smokers were less likely (68.1±8.4%) than parents who were former smokers for at least 3 years (76.3±4.9%) or parents who were long-term former smokers or never smokers (81.1±2.3%) to report they should discuss the risks of smoking. There were no significant differences in the percentage of parents who reported that they should discuss the risks of smoking by adolescent age, gender, or race/ethnicity.

To assess adolescents' perceptions of whether their parents had ever discussed the risks of smoking with them, adolescents were asked:

| *Have your parents ever talked to you about the risks of smoking?* |
|---|

Table 5.4 presents the results to this question by adolescent demographic group. While the percentage of adolescents who reported that their parents had discussed the risks of smoking with them did not differ significantly by adolescent gender, it decreased for older adolescents, which may be the result of adolescent recall bias. Older adolescents may have forgotten their parents had discussed the risks of smoking with them when they were younger. Alternatively, parents may see a decreased need for discussing the risks of smoking with their adolescents as they get older, or may decide over time that discussing the risks of smoking has less impact or becomes ineffective as their adolescent matures.

Results also suggest that there may be cultural differences related to parents discussing the risks of smoking with their adolescents. African American and Non-Hispanic White adolescents were the most likely and Asian adolescents were the least likely to report their parents had discussed the risks of smoking with them.

**Table 5.4**
**Adolescent Responses Regarding Parents**
**Discussing the Risks of Smoking, 1996-1999 Cohort Survey**

| Demographic Group-Adolescent & Parent Smoking Status | Adolescents Reporting Parents Talked to Them About Risks of Smoking % |
|---|---|
| Overall | 67.9 (±2.9) |
| Age of Adolescent (years) | |
| 15 | 74.4 (±4.7) |
| 16 | 68.0 (±4.5) |
| 17 | 65.3 (±5.0) |
| 18 | 64.1 (±4.9) |
| Adolescent Gender | |
| Male | 67.4 (±3.7) |
| Female | 68.4 (±4.1) |
| Adolescent Race/Ethnicity | |
| African American | 72.3 (±8.8) |
| Asian/PI | 55.9 (±7.7) |
| Hispanic | 65.3 (±6.0) |
| Non-Hispanic White | 72.0 (±2.9) |
| Adolescent Smoking Status | |
| Committed Never Smokers | 68.0 (±4.4) |
| Experimenters | 65.7 (±4.3) |
| Never Smokers At Risk | 67.6 (±5.4) |
| Smoked 100+ Cigarettes | 75.8 (±6.6) |
| Parental Smoking Status | |
| Current Smokers | 64.2 (±6.6) |
| Former Smokers (in last 3 years) | 72.8 (±7.5) |
| Long-Term Former Smokers or Never Smokers | 67.7 (±3.5) |

Table entries are weighted percentages and 95% confidence limits.
Source: Cohort Survey, 1996-1999

The percentage of adolescents who reported their parents had discussed the risks of smoking with them did not differ by parental smoking status. It was higher if the adolescent had already smoked at least 100 cigarettes (75.8±6.6%) compared to committed never smokers (68.0±4.4%), never smokers at risk (67.6±5.4%), and experimenters (65.7±4.3%). Because only a few in the sample had smoked at least 100 cigarettes (n=200), this finding was not significant, but it suggests that parents may be discussing the risks of smoking after they became aware that the adolescent was smoking.

Parental Inquiry About Smoking Among Adolescent Friends

Having friends who smoke is a consistent predictor of adolescent smoking (CDC, 1994). One way that parents can monitor their adolescents' choice of friendship groups is to ask adolescents about any smoking that may occur when they are with their friends. Regardless of whether the answer parents receive is truthful, concern about smoking will have been expressed to the adolescent. In order to assess how likely a parent would be to ask their adolescents about smoking, parents were asked:

*How often do you think parents should ask their adolescents if any smoking occurs when they are out with their friends?*

**Nearly half of parents think they should ask regularly about smoking that occurs when their adolescents are out with friends.**

Possible responses were regularly, every now and then, and not at all. The vast majority (90.7±1.7%) of parents responded that they thought parents should ask their adolescents if any smoking occurs when the adolescent is out with friends at least every now and then, with 47.4±3.0% reporting that parents should ask regularly (Table 5.5).

**Table 5.5**
**Parent Responses-Asking Adolescents About Smoking When They Are With Friends, 1996-1999 Cohort Survey**

| DemographicGroup-Adolescent & Parental Smoking Status | Parents Reporting That Parents Should Regularly Ask Their Adolescents If Smoking Occurs |
|---|---|
| Overall | 47.4 (±3.0) |
| Age of Adolescent (years) | |
| 15 | 49.5 (±4.2) |
| 16 | 47.5 (±4.9) |
| 17 | 45.6 (±5.4) |
| 18 | 46.0 (±6.4) |
| Gender | |
| Female | 45.6 (±3.7) |
| Male | 49.1 (±4.1) |
| Race/Ethnicity | |
| African American | 54.8 (±11.4) |
| Asian/PI | 46.5 (± 7.1) |
| Hispanic | 36.7 (±3.2) |
| Non-Hispanic White | 62.2 (±5.3) |
| Adolescent Smoking Status | |
| Committed Never Smokers | 49.9 (±5.0) |
| Never Smokers At Risk | 51.6 (±6.9) |
| Experimenters | 44.3 (±4.2) |
| Smoked 100+ Cigarettes | 41.3 (±8.6) |
| Parental Smoking Status | |
| Long-term Former Smokers or Never Smokers | 51.4 (±3.6) |
| Former Smokers (in last 3 years) | 36.9 (±5.7) |
| Current Smokers | 38.7 (±7.1) |

Table entries are weighted percentages and 95% confidence limits.
Source: Cohort Survey, 1996-1999

Compared to non-Hispanic whites, parents of adolescents from all other ethnic groups were less likely to report that parents should ask their adolescents regularly about smoking with friends, especially parents of Hispanic adolescents. Parents who were current smokers or former smokers were less likely to report that parents should ask their adolescents regularly about smoking with friends than parents who were nonsmokers. The percentage of parents who responded that parents should ask regularly did not differ significantly by adolescent age, gender, or smoking status.

Parental Knowledge of Adolescent Smoking Behavior

It is possible that parenting relating to smoking depends on whether the parent perceives their adolescent is smoking or is at risk to smoke. In order to assess parents' perceptions of their adolescent's smoking behavior, all parents were asked the following question:

*Has your adolescent ever smoked a cigarette?*

Possible responses were: I know that he/she has smoked a cigarette, I strongly suspect he/she has smoked a cigarette, I don't think he/she has smoked a cigarette, or I am confident he/she hasn't smoked a cigarette.

Secondly, parents were asked to assess the risk of their adolescent smoking in the future by the following question:

*What do you think your adolescent would do if one of his/her best friends were to offer him/her a cigarette? Do you think there is any chance he/she would take a puff on it? (Yes/No)*

Parent responses to these 2 questions were categorized into 3 groups: 1) those who responded that they knew their adolescent had already smoked, 2) those who responded that the adolescent hadn't smoked yet but would take a puff on a cigarette (at risk); and 3) those who responded that the adolescent hadn't smoked yet and would not take a puff on a cigarette (not at risk). The concordance of parent responses and smoking status reported by adolescents is shown in Table 5.6.

**Table 5.6**
**Parent and Adolescent Responses Regarding**
**Adolescent Ever Smoking, 1996-1999 Cohort Survey**

| **Adolescent Responses** | **Parent Responses** | | | |
|---|---|---|---|---|
| **Adolescent Smoking Status** | **Never Smoked, Not At Risk** | **Never Smoked, At Risk** | **Smoked** | **Total** |
| Committed Never Smokers | 30.1 (±2.1) | 3.3 (±0.8) | 0.6 (±0.4) | 33.9 (±2.2) |
| Never Smokers At Risk | 15.8 (±1.6) | 4.2 (±1.1) | 0.3 (±0.3) | 20.3 (±1.9) |
| Experimenters | 20.9 (±2.0) | 6.8 (±1.3) | 7.9 (±1.4) | 35.7 (±2.3) |
| Established Smokers | 1.6 (±0.8) | 1.1 (±0.4) | 7.4 (±1.4) | 10.1 (±1.6) |

Table entries are weighted cell percentages and 95% confidence limits.
Source: Cohort Survey, 1996-1999

Altogether about half of parents correctly identified their adolescent's smoking status: nearly a third (30.1%) classified committed never smokers as not at risk to smoke, 4.2% classified never smokers who were at risk to smoke as being at risk, and parents

identified some experimenters (7.9%) and established smokers (7.4%) as having smoked. Most parents of committed never smokers (88.7±2.4%, or 30.1±2.1% of 33.9±2.2%) correctly classified their adolescents as not at risk to smoke. Similarly, parents of adolescents who had already progressed to established smokers were reasonably accurate (73.7%, or 7.4±1.4% of 10.1±1.6%) in their perceptions of these adolescents as having already smoked.

Nearly 40% of parents were inaccurate in their perceptions of their adolescents' risk for smoking. For adolescents who had never smoked but who were at risk to smoke, 77.8% (15.8±1.6% of 20.3±1.9%) of parents identified them as not being at risk to smoke. For adolescents who had experimented, 58.5% (20.9±2.0% of 35.7±2.3%) of parents perceived them as never smokers who were not at risk to smoke. Finally, for adolescents who had already smoked 100 cigarettes, 15.8% (1.6±0.8% of 10.1±1.6%) of their parents classified them as never smokers who were not at risk to smoke.

## 5. Summary

The 1996-1999 cohort survey results support a proactive approach for parents in discouraging their adolescents from starting to smoke. Parents who smoke should express to their adolescents how difficult it is for them to quit smoking because of the addictive power of nicotine. All parents, regardless of their smoking status, should consistently express their expectations that the adolescent not smoke both now and in the future, monitor adolescent smoking behavior, and discuss the risks of smoking with them.

These results are cross-sectional and do not prove causality of parenting practices with respect to adolescent smoking behavior. There may be important limitations on how effective parents can be in discouraging adolescent smoking compared to the strength of environmental influences that glamorize smoking, such as tobacco advertising. Nevertheless, parents should continually try to ensure smoke-free environments for their adolescents in their homes and clearly and frequently communicate their desire that the adolescent not smoke.

Although a majority of parents are taking steps to deter their adolescents from smoking, it must be emphasized that this process ideally begins before the adolescent becomes susceptible to smoking or experiments. Results suggest that some parents may not be engaging in parental activities to deter smoking, such as discussing the risks of smoking and asking about smoking that occurs with friends, before the adolescent experiments. With consistent, daily connection in a parent-child/adolescent relationship in which there is open communication and emotional support, these types of interaction tend to occur automatically. Encouraging participation of the child/adolescent in healthy activities that take place in positive environments, such as organized clubs or sports is also a practice that may discourage smoking.

In many instances, there were important differences among racial/ethnic groups in parenting practices that may deter adolescent smoking. Proactively enlisting parents in culturally and ethnically sensitive programs that increase parents' effectiveness in discouraging adolescent smoking may be an important tobacco control strategy.

## CHAPTER 5: KEY FINDINGS

1. Parental reinforcement of strong expectations against smoking for their adolescent is strongly associated with low rates (11.7±1.6% overall) of adolescent ever smoking and is likely a key parenting practice to deter adolescent smoking throughout adolescence and into adulthood, when the risk for smoking uptake drops considerably.

2. The majority of parents who smoke attributed the addictive power of nicotine as the reason they smoke (64.9±5.3%) or relapsed (54.8±10.6%) when they discuss their smoking with their adolescent. According to adolescent reports, many adolescents (40.2±9.7%) appear to accept this explanation.

3. Most parents (78.6±2.0%) reported that parents should discuss the risks of smoking with their children, and two-thirds of adolescents (67.9±2.9%) report that their parents had discussed the risks of smoking with them at some time.

4. The vast majority of parents (90.7±1.7%) reported that parents should ask their adolescents about smoking that occurs among friends at least every now and then, and 47.4±3.0% reported that parents should ask regularly.

5. While most parents (88.7±2.4%) of adolescent committed never smokers reported that their adolescent was not at risk to smoke, many (65.6±3.3%) parents of adolescents who were at risk to start or experiment further with smoking did not perceive their adolescents as being at risk to smoke.

## CHAPTER 5: GLOSSARY

### Adolescents

*Committed never smoker* – a *never smoker* who does not expect to try a cigarette soon and who answers definitely not to whether he or she would accept a cigarette offered by a friend and to a question about whether he or she will smoke in the next year.

*Current smoker* – has smoked a cigarette on at least one day in the past month.

*Established smoker* – has smoked at least 100 cigarettes in his or her lifetime.

*Experimenter* – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

*Never smoker* – Has never smoked or even puffed on a cigarette.

*Puffer* - someone who has not smoked a cigarette, but admits to puffing on one.

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Never smoker* – has smoked fewer than 100 cigarettes in his or her lifetime.

## CHAPTER 5: REFERENCES

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# Chapter 6

# SMOKING CESSATION: CALIFORNIA SMOKERS ARE TRYING TO QUIT

# CHAPTER 6: SMOKING CESSATION: CALIFORNIA SMOKERS ARE TRYING TO QUIT

## Introduction

The 1990 Report of the Surgeon General of the United States noted that smoking cessation is a primary preventive intervention, equally as important as preventing smoking uptake in protecting the public health from smoking-related diseases (USDHHS, 1990). Accordingly, encouraging smokers to quit is a major goal of the California Tobacco Control Program (TCP). While the maximum health benefit is from quitting altogether, a significant reduction in cigarette consumption may serve to reduce the harm from cigarettes to the smoker's health.

It may take up to 10 years from the time that smokers begin the quitting process with an expressed intention to quit until they successfully quit smoking (Pierce, 1990). Therefore, in addition to assessing the rate of successful cessation in the California population, it is important to monitor behaviors that improve smokers' chances of quitting in the long term. Progress toward successful quitting is advanced if the smoker tapers down to less than 15 cigarettes/day or makes a significant quit attempt (Farkas, 1999; Pierce et al., 1998). The duration of time before relapse is also an important variable in determining whether a smoker is increasing his or her chances for eventual successful cessation (Pierce et al., 1998).

Statewide, the TCP has used the mass media to encourage smokers to quit, with some media messages tagged with the telephone number for the California Smokers' Helpline. The TCP has also funded a myriad of smoking cessation programs on the local level. Another approach to promote cessation and reduce cigarette consumption was the efforts by the TCP to encourage implementation of smoking restrictions in public and workplaces. Educating the public about the health dangers of secondhand smoke though mass media may have also led to the increase in the number of California homes, including those with smokers, that are now smokefree (see Chapter 3). Such restrictions have been shown to be associated with quitting behavior and reductions in consumption (Farkas et al., 1999; Gilpin et al., 1999).

In addition to smoking restrictions, the use of cessation assistance also appears to increase the chances of successful cessation (Pierce et al., 1998; Zhu et al., 2000). In the mid 1990's, the tobacco control climate was such that MediCal decided to cover the cost of the nicotine patch, provided that smokers also have appropriate counseling assistance. Many calls to the California Smokers' Helpline are from smokers using the service in this manner. In addition to nicotine replacement therapy, more recently the use of special antidepressants appears to increase a smoker's chances of quitting (Jorenby et al., 1999). Finally, physician advice to quit and referral to cessation assistance programs are tobacco control strategies that promote cessation (NCI, 1994); the TCP has actively promoted the

provision by of such advice and referral by health professionals as an effective way of improving their patients' health.

Section 1 of this chapter describes the representation of adult light smokers (<15 cigarettes/day) and those with a recent quitting history in demographic subgroups, and it highlights how these distributions have changed in the last decade. Section 2 presents data from the 1996 and 1999 CTS that describe how successful each of the population demographic groups was in their most recent quit attempt. Section 3 describes the smokers who never expect to quit. Section 4 focuses on the role of smoking restrictions in promoting quitting behavior. Section 5 describes trends in smokers' use of cessation assistance, and section 6 describes trends in physician advice to quit. Section 7 summarizes the results of this chapter.

## 1. Trends in Important Predictors of Quitting

An important step toward quitting is a reduction in the number of cigarettes smoked per day. Light smokers are more successful in quitting than heavier smokers (Fiore et al., 1990; Farkas et al., 1996; Hymowitz et al., 1997). Farkas (1999) showed that smokers who tapered to under 15 cigarettes per day had a higher rate of being successfully quit two years later than other smokers; however, those who tapered but did not get below 15 cigarettes a day did not show the higher levels of successful quitting (Farkas, 1999).

Smoking <15 Cigarettes/Day

As was shown in Chapter 2, Table 2.1, there has been an increase in the percent of current smokers who are occasional smokers in recent years, and even daily smokers appear to be smoking less. In each CTS, all current smokers were asked about their cigarette consumption:

***Daily***

- *How many cigarettes on average do you smoke per day?*

***Occasional***

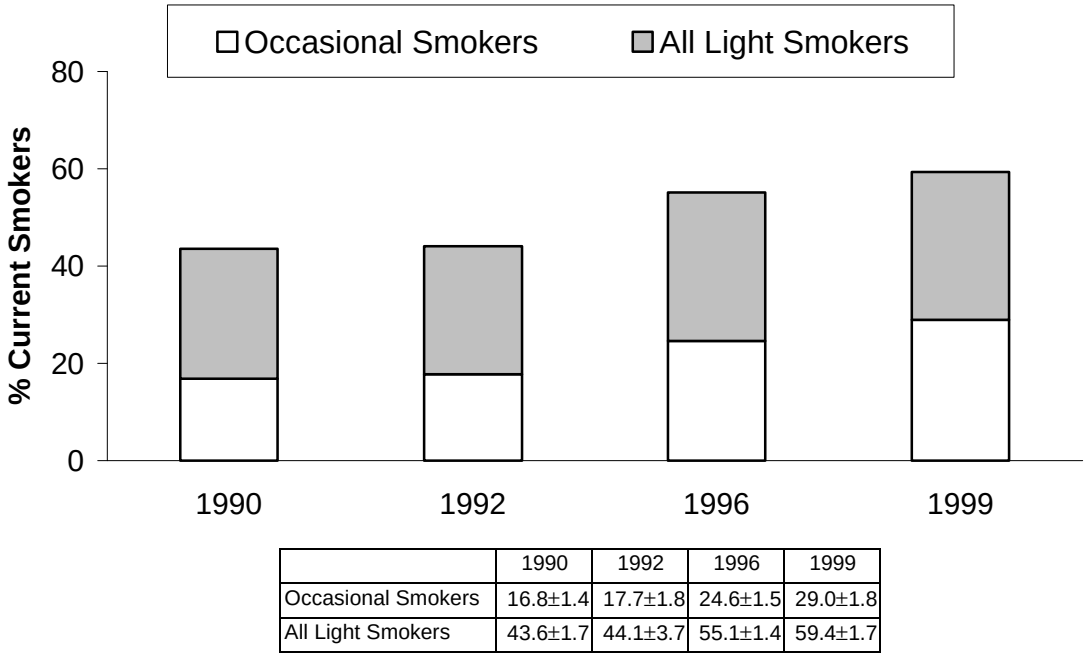
- *On how many of the past 30 days did you smoke cigarettes?*
- *On the past 30 days, on the days that you did smoke, about how many cigarettes did you usually smoke?*

For occasional smokers, daily consumption was computed as the number of days smoked times the number of cigarettes/day usually smoked, divided by 30 days. The result was under 15 cigarettes per day for all occasional smokers, so for the present analysis they were included in the group of light smokers.

**In 1996, nearly 60% of smokers smoked fewer than 15 cigarettes/day.**

Figure 6.1 provides strong evidence of progress in reducing the addiction level of smokers. In 1990, 43.6±1.7% of all current smokers were light smokers. This percentage only increased slightly in 1992, but

between 1996 and 1999 it increased by a factor of 7.8%, from 55.1±1.4% in 1996 to 59.4±1.7% in 1999. In 1999, about half of all light smokers were occasional smokers, an increase by a factor of 36.2%since 1990.




| | 1990 | 1992 | 1996 | 1999 |
|---|---|---|---|---|
| Occasional Smokers | 16.8±1.4 | 17.7±1.8 | 24.6±1.5 | 29.0±1.8 |
| All Light Smokers | 43.6±1.7 | 44.1±3.7 | 55.1±1.4 | 59.4±1.7 |

Source: CTS 1990, 1992, 1996, 1999

Figure 6.1

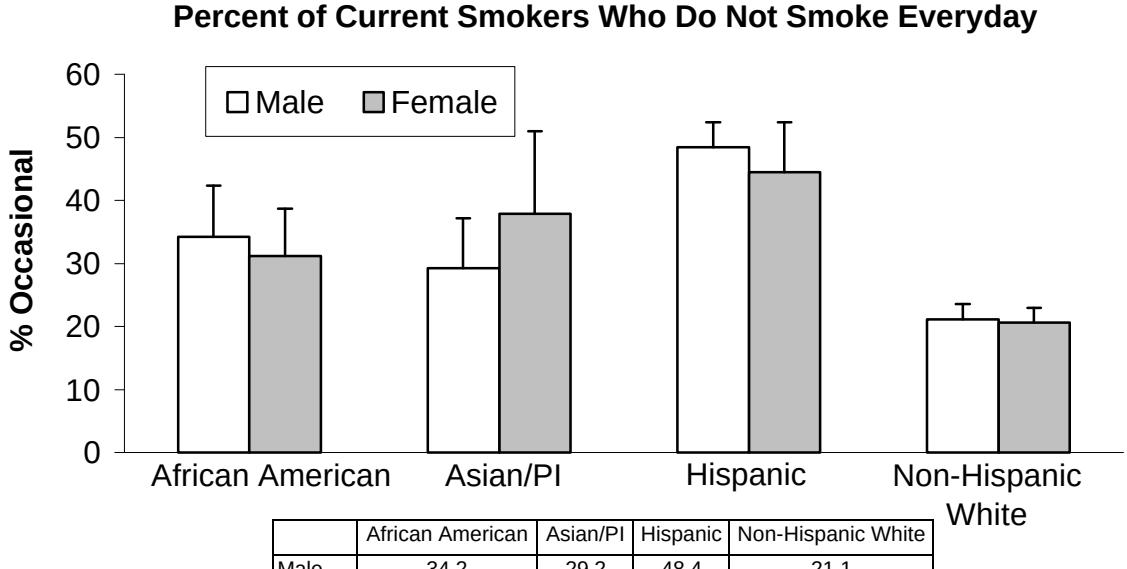
Table 6.1 shows who are the light smokers in the California population of smokers. Significantly more women were light smokers than men in each year, but the gender gap is closing. Also, in each year, the majority of young adult smokers (18-24 year olds) were light smokers. However, the young adult group is the only group that did not show a significant increase in light smoking between 1996 and 1999. Further, minorities, particularly Hispanics, were significantly more likely than Non-Hispanic White smokers to be light smokers in each year. Light smokers are disproportionately represented among those with less than a high school education and among college graduates, and this difference was significant in 1999. The income groups showing the greatest relative increases in light smoking between 1996 and 1999 were those with household incomes between $10,000 and $20,000 and those with incomes over $75,000, but this trend was not statistically significant.

**Table 6.1**
**Percentage of Current California Smokers Smoking <15 Cigarettes/Day**

| | 1990 % | 1992 % | 1996 % | 1999 % | Factor Change 1996-1999 % |
|---|---|---|---|---|---|
| Overall | 43.6 (±1.7) | 44.1 (±3.7) | 55.1 (±1.4) | 59.4 (±1.7) | 7.8 |
| Sex | | | | | |
| Male | 39.8 (±2.0) | 42.4 (±3.6) | 53.1 (±1.9) | 58.0 (±2.1) | 9.2 |
| Female | 48.3 (±2.3) | 46.2 (±5.1) | 57.8 (±1.8) | 61.3 (±2.5) | 6.1 |
| Age (years) | | | | | |
| 18-24 | 59.5 (±4.4) | 59.2 (±8.8) | 75.4 (±3.2) | 75.5 (±3.2) | 0.1 |
| 25-44 | 44.7 (±1.9) | 44.5 (±4.8) | 58.2 (±1.8) | 63.1 (±2.5) | 8.4 |
| 45-64 | 33.9 (±3.2) | 32.1 (±3.8) | 41.5 (±2.6) | 45.8 (±3.4) | 10.4 |
| 65+ | 36.9 (±4.4) | 45.0 (±7.1) | 40.6 (±4.3) | 48.4 (±7.4) | 19.2 |
| Race/ethnicity | | | | | |
| African American | 64.7 (±6.4) | 65.5 (±7.3) | 69.6 (±4.0) | 76.3 (±4.7) | 9.6 |
| Asian/PI | 59.6 (±10.4) | 60.6 (±12.2) | 67.2 (±6.4) | 71.9 (±6.6) | 7.0 |
| Hispanic | 73.0 (±3.3) | 70.7 (±6.0) | 80.7 (±2.8) | 81.5 (±2.6) | 1.0 |
| Non-Hispanic White | 32.0 (±1.5) | 34.0 (±3.2) | 42.7 (±1.7) | 46.8 (±2.3) | 9.6 |
| Education | | | | | |
| Less than 12 years | 46.3 (±4.2) | 45.6 (±15.4) | 59.5 (±3.5) | 65.7 (±4.3) | 10.4 |
| High school graduate | 41.7 (±2.5) | 42.5 (±3.1) | 50.5 (±2.0) | 52.8 (±3.0) | 4.6 |
| Some college | 42.6 (±2.5) | 42.6 (±3.6) | 54.5 (±2.8) | 58.8 (±2.3) | 7.9 |
| College graduate | 45.1 (±3.6) | 48.5 (±4.9) | 58.8 (±2.8) | 64.6 (±3.7) | 9.9 |
| Income | | | | | |
| ≤$10,000 | 52.7 (±5.9) | | 55.2 (±3.5) | 54.7 (±5.1) | -0.9 |
| $10,001-$20,000 | 47.3 (±4.6) | | 58.5 (±3.3) | 67.1 (±4.5) | 14.7 |
| $20,001-$30,000 | 43.2 (±4.0) | | 55.6 (±3.6) | 58.8 (±4.5) | 5.8 |
| $30,001-$50,000 | 38.7 (±3.5) | | 53.7 (±3.0) | 55.9 (±4.0) | 4.1 |
| $50,001-$75,000 | 38.1 (±3.4) | | 53.9 (±3.1) | 54.6 (±3.0) | 1.3 |
| >$75,000 | 43.6 (±4.6) | | 54.4 (±4.4) | 61.1 (±3.9) | 12.3 |
| Unknown | 44.4 (±4.3) | | 54.8 (±4.7) | 67.0 (±5.5) | 22.3 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1992, 1996, 1999

The differences in the rate of light smoking among racial/ethnic groups is partly accounted for by occasional smoking (Figure 6.2). Although there were no significant differences within racial/ethnic groups by gender in 1999, Hispanics show the highest rates of occasional smoking, and non-Hispanic whites show the lowest rates.




| | African American | Asian/PI | Hispanic | Non-Hispanic White |
|---|---|---|---|---|
| Male | 34.2 | 29.2 | 48.4 | 21.1 |
| Female | 31.2 | 37.8 | 44.5 | 20.6 |

Source: CTS 1999

Figure 6.2

Recent Quitting History

To track the percentage of California smokers trying to quit, each CTS asked:

*Were you smoking at all around this time 12 months ago?*

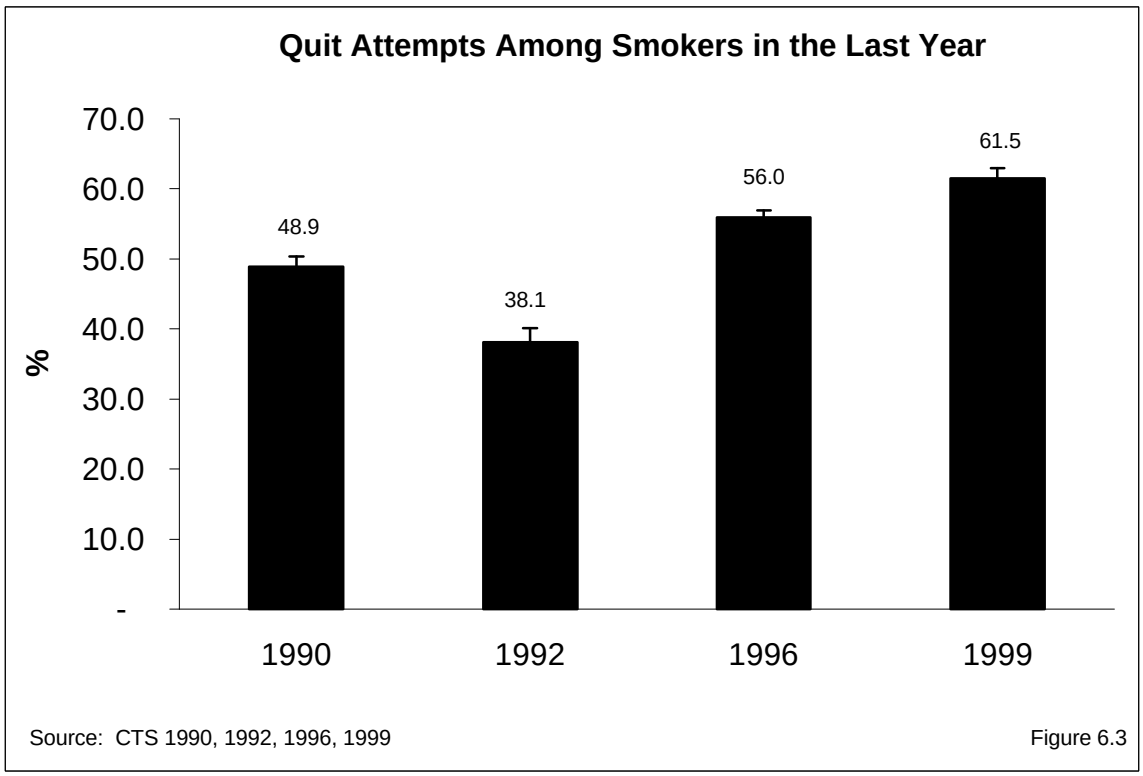
Former smokers who answered yes were considered to have made a great attempt in the past year. Current smokers were asked:

*During the past 12 months, have you quit smoking intentionally for one day or longer?*

To compute the percentage of smokers making a quit attempt in the past year, the denominator included all current smokers and former smokers who were smoking 12 months ago; and the numerator included these former smokers and the current smokers who answered yes to the question about quitting for a day or longer. A more complete description of exactly how this group is defined is given in the technical report (Gilpin et al., 2001).

Figure 6.3 shows the percentage of smokers in the last year who made a quit attempt that lasted at least a day for each CTS. Quitting declined between 1990 and 1992, but increased markedly by 1996, and again by 1999. Overall, the percentage of smokers in the past year who made a quit attempt lasting a day or longer increased by a factor of

25.9% from 1990 to 1999. The fact that over 60% of California smokers made a quit attempt in 1999 suggests that the TCP may be helping to motivate smokers to at least try to quit.




Source: CTS 1990, 1992, 1996, 1999

Figure 6.3

**Over the decade, attempts to quit among California smokers increased by a factor of over 25%**

The demographics of smokers trying to quit are presented in Table 6.2. Before 1999, there was little difference in the quit attempt rate for men and women, but the difference approached significance in 1999. In all years, smokers under the age of 45 years were more likely to try to quit than older smokers. Also, minorities had higher attempt rates than Non-Hispanic Whites. With one exception in 1996, when high school graduates quit less than other educational groups, there were no significant differences in the rates of quitting a day or longer among either education or household income groups.

**Table 6.2**
**Percent of Smokers in the Last Year**
**Who Made a Quit Attempt of One or More Days.**

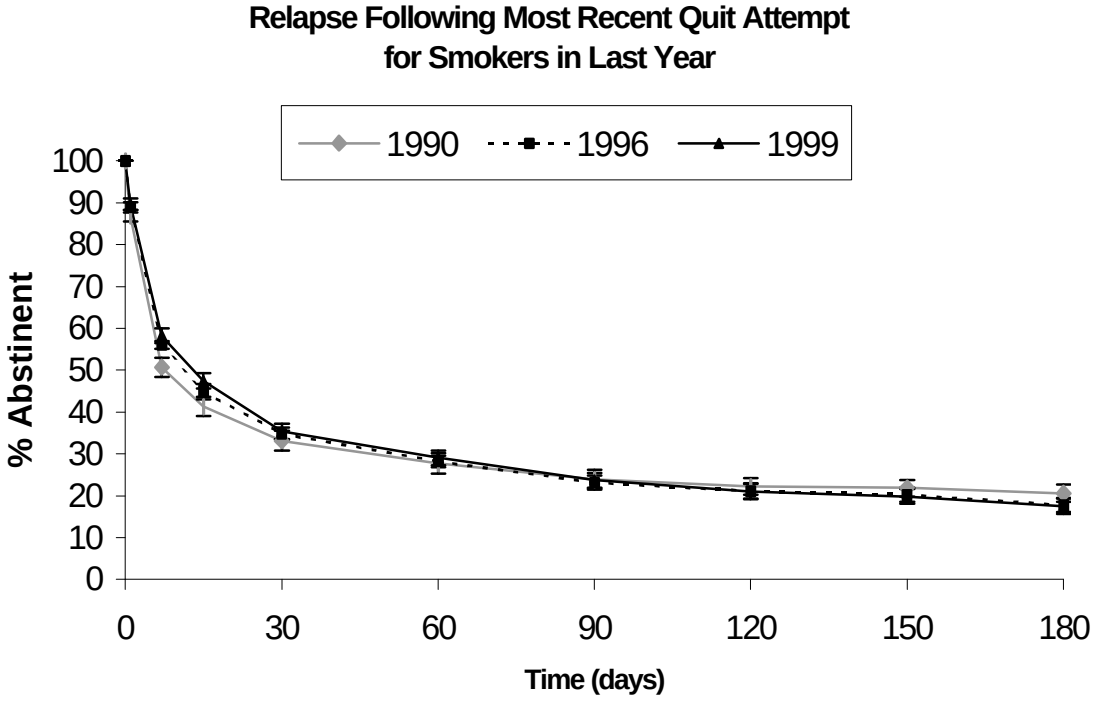
| | 1990 % | 1992 % | 1996 % | 1999 % | Factor Increase 1990-1999 % |
|---|---|---|---|---|---|
| **Overall** | 48.9 (±1.5) | 38.1 (±2.0) | 56.0 (±1.1) | 61.5 (±1.5) | 25.9 |
| **Sex** | | | | | |
| Male | 49.7 (±2.5) | 38.9 (±2.8) | 57.0 (±1.7) | 62.9 (±2.2) | 26.4 |
| Female | 47.8 (±1.9) | 37.0 (±2.8) | 54.7 (±1.7) | 59.7 (±2.3) | 24.8 |
| **Age (years)** | | | | | |
| 18-24 | 62.2 (±3.0) | 45.8(±9.3) | 75.2 (±3.1) | 78.9 (±3.3) | 26.8 |
| 25-44 | 49.6 (±2.2) | 37.3 (±2.3) | 57.2 (±1.9) | 63.1 (±2.3) | 27.4 |
| 45-64 | 42.0 (±2.8) | 36.4 (±3.8) | 45.7 (±1.7) | 50.8 (±3.1) | 20.9 |
| 65+ | 39.0 (±5.0) | 32.1 (±4.8) | 44.1 (±4.1) | 48.1 (±6.0) | 23.2 |
| **Race/Ethnicity** | | | | | |
| African American | 59.0 (±6.8) | 45.6 (±7.8) | 62.3 (±5.5) | 70.6 (±5.5) | 19.6 |
| Asian/PI | 51.1 (±8.6) | 46.0 (±11.8) | 59.3. (±5.1) | 65.5 (±5.3) | 28.2 |
| Hispanic | 57.7 (±4.7) | 39.2 (±7.6) | 66.4 (±2.7) | 67.3(±3.5) | 16.6 |
| Non-Hispanic White | 45.1 (±1.4) | 36.1 (±3.1) | 51.0 (±1.4) | 58.0 (±1.8) | 28.5 |
| **Education** | | | | | |
| Less than 12 years | 48.6 (±3.9) | 35.7 (±4.7) | 59.2 (±2.9) | 63.0 (±4.4) | 29.7 |
| High school graduate | 47.8 (±2.0) | 37.0 (±3.6) | 51.6 (±2.0) | 60.6 (±2.5) | 26.9 |
| Some college | 51.8 (±2.8) | 41.7 (±2.8) | 56.8 (±2.2) | 61.8 (±2.3) | 18.3 |
| College graduate | 47.3 (±3.1) | 40.3 (±4.4) | 58.4 (±3.0) | 60.7 (±2.9) | 28.3 |
| **Income** | | | | | |
| ≤$10,000 | 48.0 (±4.3) | | 54.3 (±3.6) | 60.4 (±4.5) | 25.8 |
| $10,001-$20,000 | 50.2 (±4.0) | | 60.3 (±3.8) | 64.5 (±3.8) | 28.4 |
| $20,001-$30,000 | 47.8 (±3.2) | | 55.5 (±3.7) | 62.2 (±3.9) | 30.1 |
| $30,001-$50,000 | 49.9 (±3.5) | | 56.0 (±2.2) | 59.2 (±3.9) | 18.6 |
| $50,001-$75,000 | 52.4 (±4.6) | | 54.9 (±3.8) | 60.8 (±4.0) | 16.1 |
| >$75,000 | 46.3 (±4.7) | | 56.0 (±4.5) | 62.9 (±3.2) | 35.8 |
| Unknown | 45.9 (±5.1) | | 53.6 (±3.8) | 60.8 (±5.8) | 32.4 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1992, 1996, 1999

## 2. Indication of Successful Quitting

The increase over the decade in the percentage of smokers in the last year making quit attempts is encouraging, but the important variable for the TCP is successful cessation. In order to accurately determine the percent of smokers who attempt a quit and go on to achieve longer-term success, an actuarial survival model was employed, using data from the 1990, 1996 and 1999 CTS. This analysis considered the length of the smokers' most recent quit attempts in the last year. For more details, see the technical documentation (Gilpin et al., 2001).

Figure 6.4 shows that in 1999 smokers who tried to quit were indeed staying off cigarettes longer than smokers did in 1996 or 1990. While the difference in the percentage still abstinent up to 120 days was significant, the curves clearly tended to converge and thereafter the difference was no longer significant. At 180 days, the percent still abstinent for 1996 and 1999 was slightly below the percent for 1990, and this difference persisted through the remainder of the year (results not shown). Thus, there was no evidence that quitters in 1999 relapse at much higher rates later in the year than quitters in 1990 or 1996.




| Time (days) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 7 | 15 | 30 | 60 | 90 | 120 | 150 | 180 |
| 1990 | 100 | 86.9. | 50.7 | 41.3 | 33.1 | 27.7 | 23.9 | 22.2 | 21.8 | 20.6 |
| 1996 | 100 | 88.9 | 56.0 | 44.9 | 34.8 | 28.2 | 23.1 | 21.1 | 20.2 | 17.7 |
| 1999 | 100 | 89.7 | 58.2 | 47.4 | 35.3 | 29.0 | 23.7 | 21.0 | 19.8 | 17.5 |

Source: CTS 1990, 1996, 1999

Figure 6.4

These findings suggest that in 1999, California smokers were finding it easier to stay off cigarettes for a week or two than previously. However, there did not appear to be any difference in the ultimate success rate. Since today's smokers trying to quit appeared to be about as successful as smokers trying to quit earlier in the decade, this is still an important finding. In time, assuming that initiation does not increase, the increase in smokers trying to quit, with equivalent success, should lead to lower population smoking prevalence in California.

An early measure of successful quitting is the percentage of quitters who are able to maintain a quit attempt for at least 90 days (Gilpin et al, 1997). Using the same type of actuarial analysis as for Figure 6.4, but restricted to demographic groups, yields the 90-day successful cessation rates presented in Table 6.3.

**Table 6.3**
**Successful Quitting (≥90 Days of Abstinence) for Most Recent Quit Attempt Among Smokers in the Last Year**

| | 1990 % | 1996 % | 1999 % | Factor Change 1990-1999 % |
|---|---|---|---|---|
| **Overall** | 23.9 (±2.2) | 23.1 (±1.7) | 23.7 (±1.8) | -0.8 |
| **Sex** | | | | |
| Male | 20.5 (±2.3) | 21.1 (±2.4) | 22.9 (±2.6) | 11.7 |
| Female | 28.0 (±4.0) | 25.8 (±2.2) | 25.0 (±2.8) | -10.7 |
| **Age** (years) | | | | |
| 18-24 | 28.0 (±6.1) | 23.0 (±4.7) | 19.1 (±2.8) | -31.8 |
| 25-44 | 20.9 (±2.1) | 22.5 (±2.2) | 24.4 (±2.6) | 16.7 |
| 45-64 | 26.1 (±4.4) | 22.6 (±2.8) | 26.2 (±5.9) | 0.4 |
| 65+ | 28.3 (±7.4) | 31.5 (±7.4) | 25.6 (±6.1) | -9.5 |
| **Race/Ethnicity** | | | | |
| African American | 18.5 (±8.0) | 17.5 (±5.0) | 18.2 (±6.1) | -1.6 |
| Asian/PI | 23.3 (±7.9) | 22.2 (±8.4) | 27.1 (±11.2) | 16.3 |
| Hispanic | 28.0 (±6.8) | 22.3 (±4.3) | 23.7 (±3.9) | -15.4 |
| Non-Hispanic White | 24.1 (±2.3) | 25.3 (±1.8) | 24.5 (± 2.1) | 1.7 |
| **Education** | | | | |
| Less than 12 years | 22.4 (±5.8) | 20.5 (±3.6) | 25.2 (±5.5) | 12.5 |
| High school graduate | 23.6 (±3.8) | 21.1 (±3.4) | 21.8 (±2.6) | -7.6 |
| Some college | 23.6 (±3.0) | 24.4 (±3.3) | 24.6 (±2.5) | 4.2 |
| College graduate | 28.6 (±4.8) | 28.1 (±3.7) | 23.8 (±3.8) | -16.8 |
| **Income** | | | | |
| ≤$10,000 | 25.5 (±9.5) | 20.5 (±4.2) | 26.5 (±7.9) | 3.9 |
| $10,001-$20,000 | 22.7 (±4.7) | 19.2 (±4.3) | 23.5 (±5.5) | 3.5 |
| $20,001-$30,000 | 22.8 (±4.5) | 21.8 (±4.0) | 22.8 (±4.5) | 0.0 |
| $30,001-$50,000 | 21.7 (±3.2) | 24.1 (±3.8) | 19.5 (±3.1) | -10.1 |
| $50,001-$75,000 | 25.8 (±6.1) | 25.3 (±4.7) | 23.4 (±4.5) | -9.3 |
| >$75,000 | 32.3 (±7.8) | 28.4 (±5.4) | 27.3(±4.8) | -15.5 |
| Unknown | 20.7 (±5.3) | 23.3 (±5.9) | 25.0 (±6.5) | 20.8 |

Table entries are weighted and 95% confidence limits.
Source: CTS 1990, 1996, 1999

**Successful cessation (at least 90 days) has remained constant over the decade.**

Successful cessation (abstinence for at least 90 days) was nearly identical for each survey year. While women showed higher rates of successful cessation than men in each year, men improved slightly and women showed slightly lower rates by 1999. Younger smokers (18-24 years) were significantly less likely to be successful in 1999 than in 1990. Older smokers (65+ years) in 1996 tended to show higher rates of success, but this difference was not evident in 1999. Although college graduates appeared to show higher rates of success in 1990 and 1996, there was no trend with educational level in 1999. While not significant, smokers with household incomes over $75,000 appeared to be more successful than other smokers.

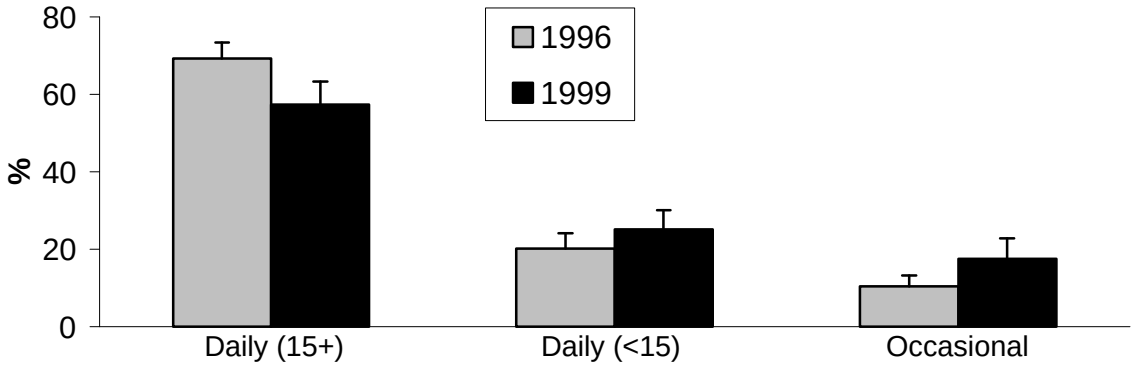
### 3. Smokers Who May Never Quit

In the report describing the results of the 1996 CTS (Pierce et al., 1998), a group of current smokers was singled out that had neither a recent quitting history (no quit attempt in the past year) nor any intention to quit in the future. These smokers explicitly stated that they never expected to quit, and because of this attitude these smokers are sometimes called hard core smokers. Perhaps a more accurate label is simply smokers who may never quit, either because they would like to quit but have a very low self-efficacy in their ability to quit, or because they like to smoke and discount the threat to their health.

**The percentage of smokers who never expect to quit has remained about the same between 1996 and 1999.**

In 1999, 1.9% of the California population over the age of 25 years, or 10.0±1.0% of smokers over age 25 (approximately 399,000 Californians) could be classified into this category. Smokers 25 years of age and younger were excluded from this category, because many are still engaged in the process of smoking uptake. By 1999, the percentage of this group of all smokers over 25 years of age had not changed appreciably (9.1±1.2%).

Figure 6.5 shows that, as a group, these smokers might be changing their behavior even though they never expect to quit. Between 1996 and 1999, there was a slight increase in




| | 1996 | 1999 |
|---|---|---|
| Daily 15+ | 69.3 | 57.3 |
| Daily <15 | 20.2 | 25.1 |
| Occasional | 10.5 | 17.6 |

Source: CTS 1996, 1999

Figure 6.5

the percentage of daily smokers in the group that smoked fewer than 15 cigarettes a day, and there was also a significant increase in the percentage who were occasional smokers. Some smokers may feel that they have reduced their consumption sufficiently for health or social reasons so that they don't need to quit. While occasional smokers may think the threat to their health is minimal, recent data indicate that even occasional smokers have an increased rate of adverse health outcomes compared to never smokers (Luoto et al., 2000).

The demographics of the group who has not tried to quit in the past year and says it never expects to quit are shown in Table 6.4. In both 1996 and 1999, a significantly higher percentage of men are in this group. Among smokers 65 years of age and older, the

**Table 6.4**
**Smokers > 25 Years of Age Who Never Expect to Quit**

| | 1996 % | 1999 % | Factor Change 1996-1999 % |
|---|---|---|---|
| Overall | 10.0 (±1.0) | 9.1 (±1.2) | -9.0 |
| Sex | | | |
| Male | 11.1 (±1.3) | 9.9 (±1.7) | -10.8 |
| Female | 8.7 (±1.2) | 8.1 (±1.4) | -6.9 |
| Age (years) | | | |
| 26-44 | 5.9 (±1.0) | 5.1 (±1.0) | -13.6 |
| 45-64 | 13.1 (±1.8) | 12.7 (±2.3) | -3.1 |
| 65+ | 27.0 (±3.6) | 22.0 (±5.5) | -18.5 |
| Race/ethnicity | | | |
| African American | 4.6 (±1.8) | 3.0 (±2.2) | -34.8 |
| Asian/PI | 7.3 (±3.2) | 7.7 (±3.4) | -5.5 |
| Hispanic | 7.1 (±1.7) | 6.5 (±2.2) | -8.5 |
| Non-Hispanic White | 11.8 (±1.2) | 11.0 (±1.4) | -6.8 |
| Education | | | |
| Less than 12 years | 11.1 (±2.8) | 9.3 (±3.3) | -16.2 |
| High school graduate | 10.8 (±1.7) | 9.3 (±2.0) | -13.9 |
| Some college | 8.1 (±1.1) | 9.0 (±1.5) | 11.1 |
| College graduate | 10.3 (±2.1) | 8.9 (±2.1) | -13.6 |
| Income | | | |
| ≤$10,000 | 13.8 (±3.9) | 10.3 (±3.7) | -25.4 |
| $10,001-$20,000 | 8.8 (±1.6) | 10.3 (±3.4) | 17.0 |
| $20,001-$30,000 | 10.4 (±2.4) | 8.7 (±2.4) | -16.3 |
| $30,001-$50,000 | 9.7 (±1.8) | 10.1 (±2.3) | 4.1 |
| $50,001-$75,000 | 6.4 (±1.7) | 7.7 (±2.3) | 20.3 |
| >$75,000 | 9.7 (±2.5) | 7.1 (±1.8) | -26.8 |
| Unknown | 13.3 (±4.1) | 10.9 (±5.4) | -18.0 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

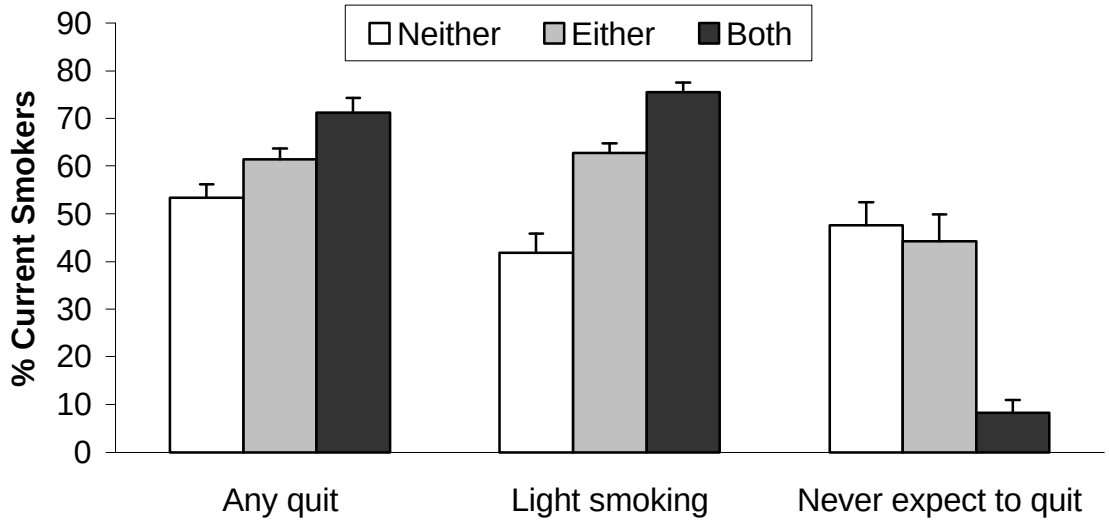
percentage in this group was very high. Non-Hispanic Whites were more likely to never expect to quit than minorities. While in 1996, the very low household income group (<$10,000/year) had the highest rate of smokers in this group, the pattern was less clear in 1999.

### 4. The Role of Workplace and Home Smoking Bans

As mentioned in Chapter 3, there is evidence that smokers who work or live where there is a ban on smoking may be more likely to be modifying their smoking behavior in ways that will increase the probability of successful cessation in the future (Gilpin et al., 1999; Farkas et al., 1999). The inconvenience of not being able to smoke whenever they desire may motivate smokers to try to quit. As they spend a significant portion of their day in an environment where they cannot smoke, some smokers will naturally consume fewer cigarettes.

Data from the 1999 CTS that illustrate this association are included in Figure 6.6. The figure shows the percentage of smokers with the behavior according to whether they **neither** live nor work under smoking bans, whether they live **or** work with smoking bans (one, but not both), or whether they both live **and** work with such bans. In this analysis, smokers who are not employed or who are not indoor workers are considered not to be working under smoking bans. The likelihood a smoker (includes former smokers) made a quit attempt in the past year was significantly higher if the smoker either lived or worked where there were smoking bans, particularly if they experienced both types of bans. This same pattern was observed for current smokers with respect to light cigarette

**Smoking Bans at Work and at Home and Quitting Behavior in 1999**




| | Neither | Either | Both |
|---|---|---|---|
| Any quit | 53.3 | 61.4 | 71.2 |
| Light smoking | 41.8 | 62.8 | 75.5 |
| Never expect to quit | 47.5 | 44.3 | 8.2 |

Source: CTS 1999

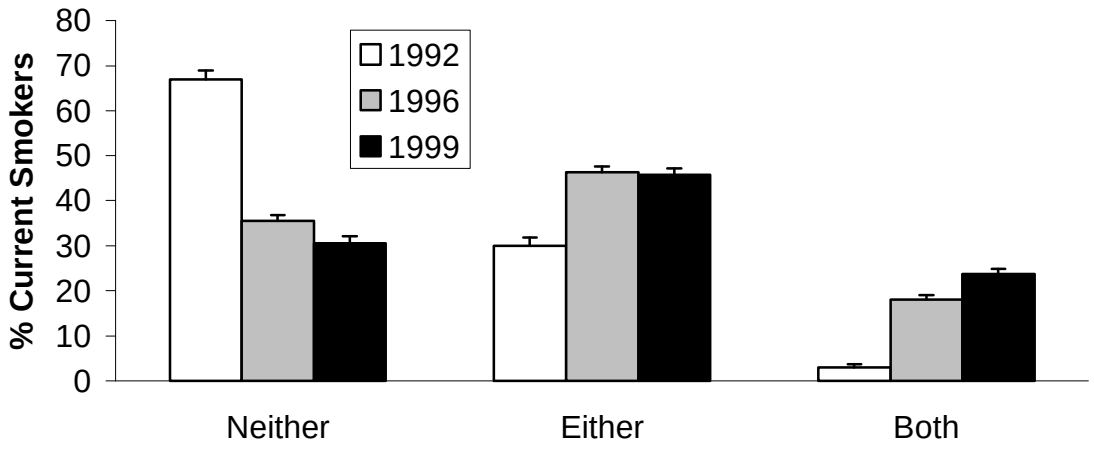
Figure 6.6

smoking (<15 cigarettes/day). In contrast, very few of the smokers who never expect to quit (see Section 3) experienced both types of smoking bans.

**In 1999, nearly a quarter of California smokers both worked and lived in smokefree environments.**

Figure 6.7 shows that the percentage of California smokers who experience smoking bans in the workplace or the home has increased markedly from 1992. In 1992, only 3.0±0.7% of California smokers both worked and lived where they couldn't smoke indoors, and this percentage increased by a factor of 690% to 23.7±1.2% by 1999.

**Current Smokers and Smoking Bans at Home and in the Workplace**




| | 1992 | 1996 | 1999 |
|---|---|---|---|
| Neither | 67.0 | 35.6 | 30.6 |
| Either | 30.0 | 46.3 | 45.7 |
| Both | 3.0 | 18.0 | 23.7 |

Source: CTS 1992, 1996, 1999

Figure 6.7

The demographics of smokers who both live and work under smoking bans are presented in Table 6.5. In 1996, significantly fewer women experienced smoking bans both at work and at home, but this difference disappeared by 1999. Younger smokers were significantly more likely to experience dual bans than older smokers, which may help keep them from building nicotine tolerance. Many smokers over the age of 65 are no longer in the workforce, so they would only possibly be subject to smokefree homes. In 1999, smokers aged 25 to 44 years are the most likely to have bans at home, perhaps to protect the health of their young children (Farkas et al., 1999; Gilpin et al., 1999). Asians were the most likely to have smoking bans both at work and at home, and the percentage was also high among Hispanics; these ethnic differences were statistically significant. Both higher education and higher household income were associated with increased levels of dual smoking bans.

| Table 6.5<br>Smokers Both Working and Living with Complete Bans on Smoking | | | |
|---|---|---|---|
| | **1992<br>%** | **1996<br>%** | **1999<br>%** |
| Overall | 3.0 (±0.7) | 18.0 (±1.1) | 23.7 (±1.2) |
| Sex | | | |
| Male | 3.6 (±1.0) | 20.3 (±1.7) | 24.0 (±1.9) |
| Female | 2.4 (±0.9) | 15.0 (±1.4) | 23.3 (±1.9) |
| Age (years) | | | |
| 18-24 | 3.8 (±2.8) | 23.8 (±3.6) | 27.5 (±3.4) |
| 25-44 | 3.7 (±1.0) | 20.9 (±1.6) | 28.3 (±1.7) |
| 45-64 | 2.1 (±0.9) | 13.4 (±2.1) | 18.3 (±2.5) |
| 65+ | 0.0 (±0.0) | 1.8 (±1.0) | 3.7 (±2.5) |
| Race/ethnicity | | | |
| African American | 2.4 (±2.3) | 12.4 (±4.3) | 20.2 (±5.9) |
| Asian/PI | 6.4 (±4.4) | 23.4 (±5.6) | 33.4 (±7.4) |
| Hispanic | 3.1 (±1.7) | 26.2 (±3.6) | 30.4 (±2.9) |
| Non-Hispanic White | 2.9 (±0.9) | 15.6 (±0.8) | 20.9 (±1.4) |
| Education | | | |
| Less than 12 years | 1.6 (±1.6) | 15.3 (±3.1) | 20.6 (±4.3) |
| High school graduate | 2.0 (±1.0) | 15.7 (±2.2) | 20.7 (±2.0) |
| Some college | 4.1 (±1.4) | 19.8 (±1.9) | 24.6 (±1.9) |
| College graduate | 7.6 (±2.2) | 24.0 (±2.5) | 33.2 (±3.7) |
| Income | | | |
| ≤$10,000 | | 10.1 (±2.6) | 13.1 (±3.8) |
| $10,001-$20,000 | | 15.2 (±2.8) | 20.0 (±3.6) |
| $20,001-$30,000 | | 15.5 (±3.6) | 23.1 (±3.7) |
| $30,001-$50,000 | | 18.6 (±2.3) | 22.7 (±2.9) |
| $50,001-$75,000 | | 22.3 (±3.4) | 24.1 (±2.5) |
| >$75,000 | | 28.1 (±4.0) | 36.5 (±3.5) |
| Unknown | | 17.4 (±4.3) | 21.8 (±4.8) |

Table entries are weighted percentages and 95% confidence intervals.
Source: CTS 1992, 1996, 1999

## 5. Smoking Cessation Assistance

In the 1980s, only about 10% of smokers sought assistance when they tried to quit (Zhu et al., 1999), but by 1996 in California, the percentage seeking assistance approached 20% (Pierce et al, 1998; Zhu et al, 2000). Assistance might be anything from obtaining self-help materials, participating in group counseling or a commercial or public-service smoking cessation program, having one-on-one counseling, or using medications such as nicotine replacement therapy or antidepressants.

Nicotine polyacrilex gum became available for use by prescription in the mid 1980s, and was made available without a physician's prescription beginning in 1996. The nicotine transdermal delivery system, the "nicotine patch," became available for use by prescription in January 1992 and "over the counter" in July 1996. In 1999, physicians could prescribe a nicotine inhalant. In 1996, the Agency for Health Care Policy Research released guidelines for smoking cessation, recommending that cessation interventions include nicotine replacement therapies whenever appropriate (Fiore et al., 1996). In the last few years, the use of Zyban, or bupropion, has been investigated for controlling mood and relieving withdrawal symptoms and was shown to increase the chance for successful cessation (Jorenby et al., 1999).

The 1992, 1993, 1996 and 1999 CTS asked smokers who had tried to quit in the last year the following question concerning the use of cessation assistance with their most recent quit attempt:

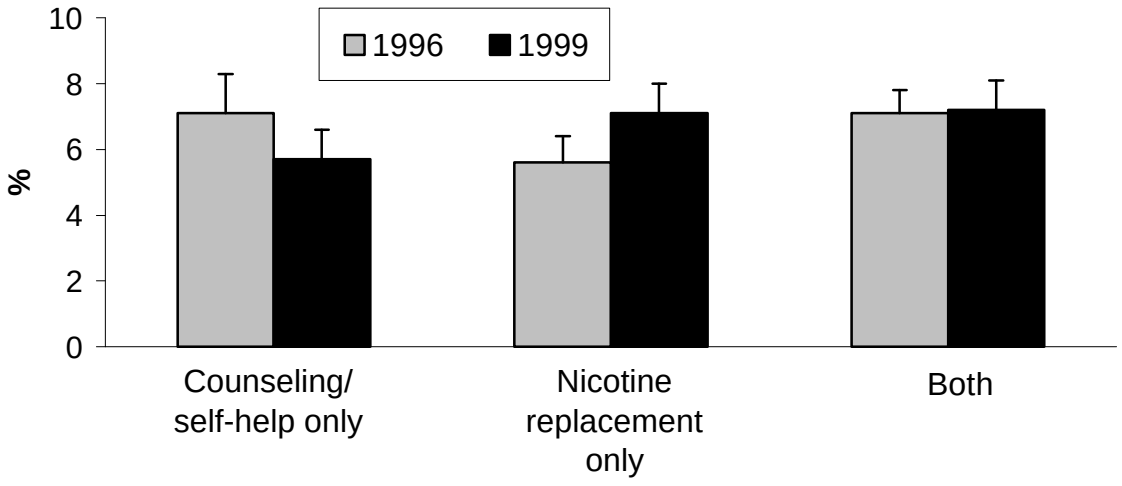
- *Did you use counseling advice or self-help materials to adjust to life without cigarettes?* ***(all CTS)***
- *For this last quit attempt, did you use a nicotine substitute such as…?* ***(1996 and 1999 CTS)***
- *For this last quit attempt, did you use an antidepressant prescribed by your physician to help you to quit such as…?* ***(1999 CTS)***

For those who indicated they had assistance, further questions probed the use of group counseling, one-on-one counseling, self-help materials, nicotine gum or the patch, and, in 1999, the use of a nicotine inhalant and of antidepressants such as Zyban.

**In 1999, 22.4±1.8% of smokers trying to quit used some form of cessation assistance, an increase by a factor of 22% since 1992.**

In 1992, 18.4±2.4% of California smokers used cessation assistance with their most recent quit attempt. This percentage increased slightly to 19.2±1.3% in 1993, increased slightly again to 19.8±1.4% by 1996, and increased again significantly by 1999 to 22.4±1.8%, a factor increase of 21.7% from 1992 to 1999.

Figure 6.8 shows the use of nicotine replacement, with or without counseling or self-help materials, for the most recent quit attempt in 1996 and 1999. For consistency, smokers using antidepressants in 1999 are omitted from the analysis. The recommended practice when using nicotine replacement therapy is to combine it with counseling or self-help (Fiore et al., 1990; Orleans et al., 1994). While in 1996, smokers were significantly more likely to adhere to this practice, in 1999, they were equally likely to opt for nicotine replacement therapy alone as with counseling.




| | 1996 | 1999 |
|---|---|---|
| Counseling/self-help only | 7.1 | 5.7 |
| Nicotine replacement only | 5.6 | 7.1 |
| Both | 7.1 | 7.2 |

Source: CTS 1996, 1999

Figure 6.8

Smokers could name more than one cessation aid product, and in 1999, 5.6±1.0% reported the use of nicotine gum, 10.9±1.2% the use of a nicotine patch, and no respondent reported using a nicotine inhalant. Of those using nicotine replacement therapy, 14.3±2.9% also reported using an antidepressant; 3.8±0.9% used an antidepressant without nicotine replacement, for an overall rate of antidepressant use of 5.3±0.9% (Zyban [3.3±0.6%], Prozac [0.6±0.3%] and others [1.9±0.5%]).

**In 1999, 14.2±1.3% of smokers trying to quit used nicotine replacement and 5.3±0.9% used antidepressants.**

Table 6.6 shows the use of nicotine replacement therapy by demographic groups of smokers from the 1996 and 1999 CTS, regardless of whether they also obtained counseling, used self-help materials or in 1999 used antidepressants. Overall, the use of nicotine replacement increased slightly but significantly between 1996 (12.7±1.1%) and 1999 (14.2±1.3%). As a point of reference, 9.3±1.8% of quitters used nicotine replacement in 1992, before it was available over the counter. While nicotine replacement became more popular with younger smokers, it appears to have lost favor with smokers age 65 years and older. Non-Hispanic Whites continued to show significantly higher rates of nicotine replacement therapy use than minorities. Use of nicotine replacement therapy was significantly more prevalent as education level increased, and smokers with higher household incomes appeared more likely to opt for nicotine replacement, but this trend was not statistically significant.

**Table 6.6**
**Use of Nicotine Replacement for Most Recent Quit Attempt Among Smokers in the Last Year**

| | 1996 % | 1999 % | Factor Change 1996-1999 % |
|---|---|---|---|
| Overall | 12.7 (±1.1) | 14.2 (±1.3) | 11.8 |
| Sex | | | |
| Male | 11.2 (±1.4) | 13.4 (±1.8) | 19.6 |
| Female | 14.7 (±1.8) | 15.4 (±2.1) | 4.8 |
| Age (years) | | | |
| 18-24 | 2.9 (±1.0) | 5.7 (±1.7) | 96.6 |
| 25-44 | 12.8 (±1.4) | 14.7 (±1.9) | 14.8 |
| 45-64 | 18.8 (±2.7) | 20.5 (±3.8) | 9.0 |
| 65+ | 24.6 (±5.5) | 19.3 (±5.9) | -21.5 |
| Race/ethnicity | | | |
| African American | 7.7 (±3.2) | 8.7 (±3.6) | 13.0 |
| Asian/PI | 11.0 (±6.1) | 9.9 (±7.2) | -10.9 |
| Hispanic | 5.6 (±2.1) | 6.7 (±2.6) | 19.6 |
| Non-Hispanic White | 17.1 (±1.4) | 19.2 (±1.7) | 12.3 |
| Education | | | |
| Less than 12 years | 9.1 (±2.7) | 10.2 (±2.8) | 12.0 |
| High school graduate | 12.8 (±1.8) | 14.7 (±2.2) | 14.8 |
| Some college | 13.0 (±2.1) | 16.0 (±2.3) | 23.1 |
| College graduate | 17.7 (±3.2) | 16.1 (±2.4) | -0.9 |
| Income | | | |
| ≤$10,000 | 8.8 (±2.4) | 12.0 (±5.3) | 36.4 |
| $10,001-$20,000 | 11.5 (±2.9) | 11.4 (±3.7) | 0.1 |
| $20,001-$30,000 | 9.0 (±2.2) | 14.1 (±3.9) | 56.7 |
| $30,001-$50,000 | 14.4 (±2.9) | 16.4 (±3.2) | 13.9 |
| $50,001-$75,000 | 14.9 (±3.1) | 16.4 (±2.7) | 10.0 |
| >$75,000 | 18.0 (±3.8) | 15.9 (±3.0) | -11.7 |
| Unknown | 12.1 (±3.3) | 10.0 (±3.1) | -17.4 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

The 1999 CTS asked all quitters more information about their use of nicotine replacement and antidepressants.

- *Who paid for your (nicotine replacement/antidepressant)?*
- *Would you recommend (nicotine replacement/antidepressant) to a friend?*
- *How long did you use (nicotine replacement/antidepressant)?*

**In 1999, the use of a medical aid for quitting was much more prevalent among smokers who smoked a pack or more of cigarettes per day.**

Table 6.7 shows the overall results for these questions. It also shows use of these aids by reported daily cigarette consumption one year before the survey. Use of nicotine replacement and antidepressants is much more prevalent among smokers who were smoking at least a pack of cigarettes per day a year before being surveyed. This result is consistent with previous studies that indicate that it is the more addicted smokers that seek smoking cessation assistance of all types (Fiore et al., 1996; Pierce et al., 1995; Zhu et al., 2000).

**Table 6.7**
**Details of Users of Cessation Aids in 1999**

| | Nicotine Replacement % | Antidepressants % |
|---|---|---|
| Consumption a year ago | | |
| <20 cigarettes/day | 9.3 (±1.5) | 3.2 (±1.1) |
| ≥20 cigarettes/day | 26.8 (±2.9) | 10.4 (±1.8) |
| Who paid for aid | | |
| Smoker completely | 55.9 (±4.0) | 36.0 (±7.1) |
| Insurance completely | 5.7 (±2.9) | 23.7 (±7.2) |
| Both partially | 5.3 (±2.0) | 31.6 (±9.0) |
| Unknown | 33.2 (±4.9) | 8.6 (±4.6) |
| Would recommend aid to friend | | |
| Overall | 82.6 (±3.5) | 61.0 (± 6.5) |
| Former | 93.6 (±4.4) | 68.0 (±16.3) |
| Current (relapsed) | 79.3 (±4.1) | 58.3 (±7.6) |
| How long aid used | | |
| Mean days | 28.7 (±2.8) | 25.0 (±4.5) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

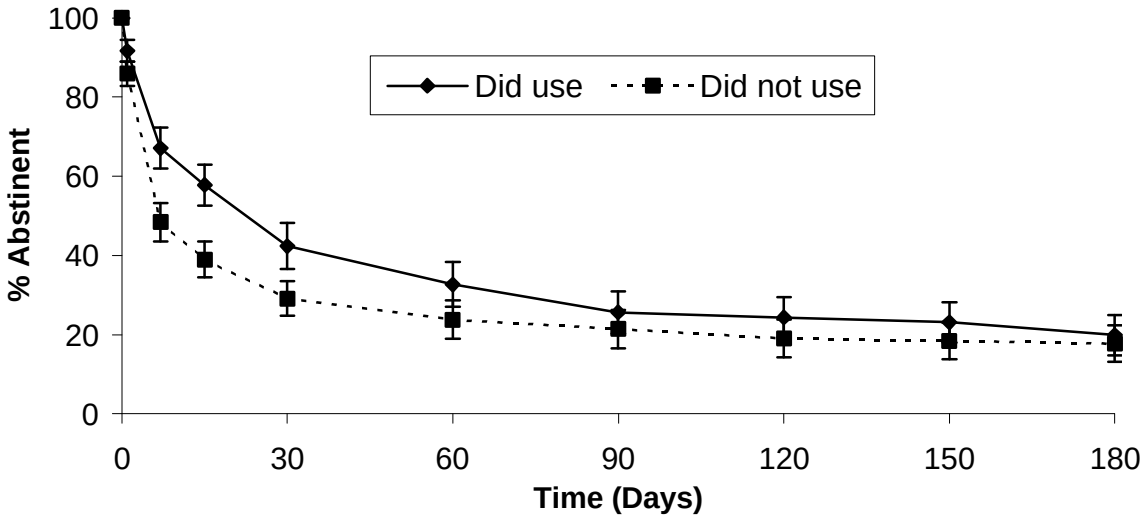
Most smokers are paying for nicotine replacement therapy completely by themselves, but because antidepressants must be obtained with a physician's prescription, it appears that some smokers' insurance plans cover these drugs. The vast majority of smokers who have used nicotine replacement say they would recommend it to a friend, but smokers were less enthusiastic about antidepressants. Not surprisingly, those who were still abstinent at the time of the survey had a more favorable view of these smoking cessation aids than those who had relapsed. Finally, on average smokers are using these aids for

about 4 weeks. This was not different from the 29.7±7.9 days of nicotine replacement use in 1992 or the 26.2±3.6 days in 1996.

**In 1999, while a medical aid appeared to prolong a quit attempt, it may not improve the rate of ultimate successful cessation.**

Because it is the heavier smokers who tend to rely on nicotine replacement and antidepressants more than the lighter smokers, Figure 6.9 shows the relapse curves for smokers who reported smoking a pack or more of cigarettes per day a year before the survey. The solid curve is for smokers who used either nicotine replacement therapy or an antidepressant or both, and the dashed curve is for smokers who used neither of these aids. Through the first three months, those who used an aid relapsed significantly less. Although the curve for the group using an aid remained above that for those not using an aid for the full year, by 90 days the relapse rates were no longer significantly different. These results suggest there may be a slight advantage for use of these aids among heavy smokers. Thus, while these aids increased the length of the quit attempt, they may not be leading to improved long-term successful quitting.

**Relapse Following Most Recent Quit Attempt for Heavy Smokers Who Did and Did Not Use a Medical Aid**




| | Time (days) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 7 | 15 | 30 | 60 | 90 | 120 | 150 | 180 |
| Did use | 100 | 91.7 | 67.1 | 57.8 | 42.4 | 32.7 | 25.6 | 24.3 | 23.1 | 19.9 |
| Did not use | 100 | 85.9 | 48.4 | 39.0 | 29.1 | 23.8 | 21.4 | 19.0 | 18.4 | 17.7 |

Source: CTS 1999

Figure 6.9

## 6. Physician Advice and Referral for Smoking Cessation

Physician advice has the potential both to encourage a quit attempt and to influence the use of assistance in that quit attempt (Fiore et al., 1990). In California, the CTS

consistently indicate that about 70% of smokers visit their physician in any given year, so there is a widespread opportunity for a brief physician intervention to encourage smokers to quit.

The 1990, 1992, 1996 and 1999 CTS asked all current and recent former smokers who had visited a physician in the past year:

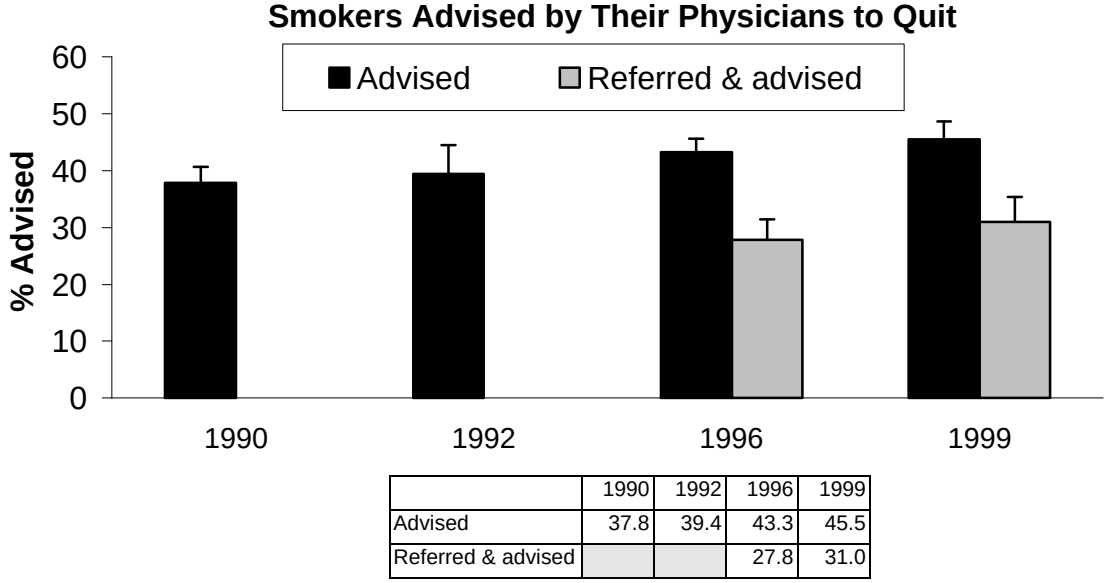
> *In the last 12 months did a doctor (in the last 12 months before you quit, did a doctor) advise you to stop smoking?*

Further, in the 1996 and 1999 CTS, this group of smokers was also asked:

- *In the last 12 months did a doctor (in the last 12 months before you quit, did a doctor) refer you to, or give you information on a smoking cessation program?*
- *Did you try to quit when your doctor advised you to stop smoking?*

**Over the decade, the percent of California smokers advised to quit by their physicians increased by a factor of 20%.**

Figure 6.10 shows the percentage of California smokers who reported they had received this intervention from their physicians. Over the decade, physician advice to quit increased by a factor of 20.3%. The percentage who were also referred by their patients to a cessation program increased from 27.8±3.6% in 1996 to 31.0±4.4% in 1999, a factor of 7.9%.




| | 1990 | 1992 | 1996 | 1999 |
|---|---|---|---|---|
| Advised | 37.8 | 39.4 | 43.3 | 45.5 |
| Referred & advised | | | 27.8 | 31.0 |

Source: CTS 1990, 1992, 1996, 1999

Figure 6.10

The demographics of smokers reporting that they were advised to quit by their physicians are shown in Table 6.8. In each year, slightly more women smokers than men smokers were advised to quit, and advice increased significantly with age. Physicians appear to be advising their smoking Hispanic patients to quit in ever-increasing numbers.

**Table 6.8**
**Physician Advice to Quit Among Smokers in the Last Year**
**With a Visit to a Physician in the Last Year**

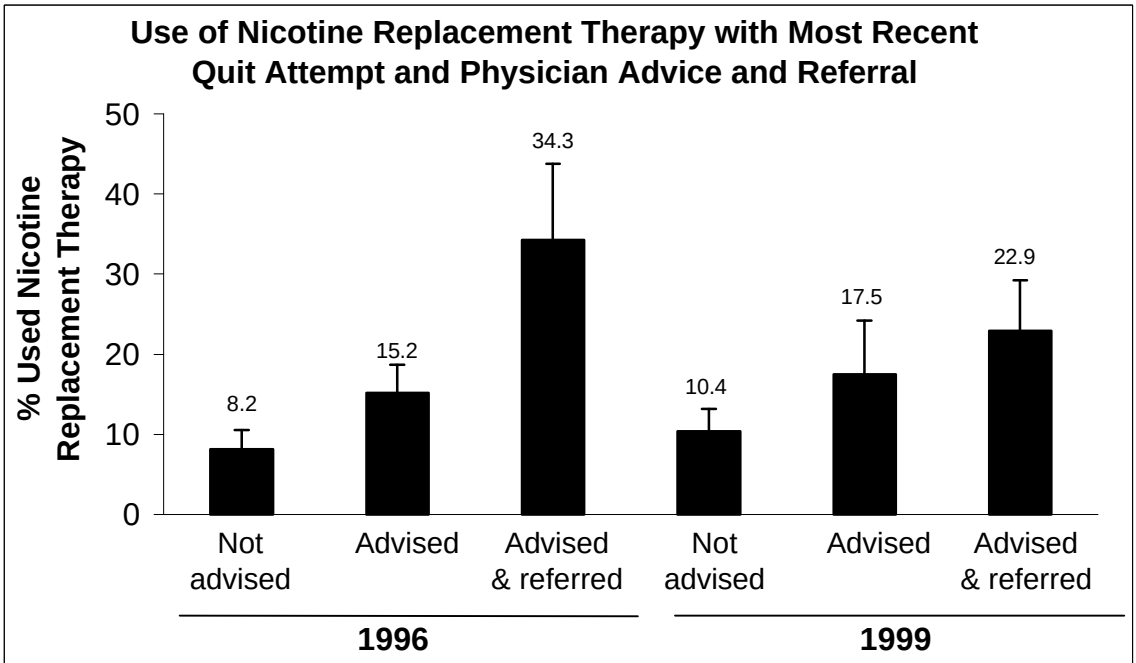
| | 1990 % | 1992 % | 1996 % | 1999 % | Factor Increase 1990-1999 % |
|---|---|---|---|---|---|
| Overall | 37.8 (±2.9) | 39.4 (±5.1) | 43.3 (±2.3) | 45.5 (±3.2) | 20.4 |
| Sex | | | | | |
| Male | 36.9 (±3.8) | 37.7 (±6.3) | 40.7 (±3.1) | 44.5 (±4.3) | 20.6 |
| Female | 38.8 (±4.1) | 41.7 (±7.1) | 46.8 (±3.5) | 47.1 (±4.5) | 21.4 |
| Age (years) | | | | | |
| 18-24 | 32.4 (±8.5) | 32.4 (±21.1) | 33.3 (±6.3) | 39.4 (±6.5) | 21.6 |
| 25-44 | 34.6 (±3.7) | 35.9 (±7.1) | 40.9 (±3.2) | 41.8 (±4.7) | 20.8 |
| 45-64 | 44.5 (±6.2) | 49.6 (±11.4) | 54.4 (±4.5) | 54.8 (±5.5) | 23.1 |
| 65+ | 48.0 (±9.0) | 54.6 (±15.5) | 42.9 (±9.3) | 53.6 (±12.2) | 11.7 |
| Race/ethnicity | | | | | |
| African American | 43.5 (±14.5) | 28.7 (±16.0 | 47.9 (±9.9) | 45.4 (±14.7) | 4.4 |
| Asian/PI | 45.1 (±17.0) | 41.2 (±18.9) | 48.7 (±10.6) | 52.1 (±13.5) | 15.5 |
| Hispanic | 21.0 (±5.7) | 29.4 (±16.6) | 34.7 (±5.8) | 37.0 (±7.4) | 76.2 |
| Non-Hispanic White | 40.5 (±3.5) | 42.1 (±5.3) | 45.6 (±2.8) | 47.2 (±3.0) | 16.5 |
| Education | | | | | |
| Less than 12 years | 32.5 (±7.2) | 32.6 (±18.2) | 38.1 (±6.3) | 49.1 (±9.9) | 51.1 |
| High school graduate | 38.7 (±3.7) | 39.8 (±9.3) | 43.8 (±4.5) | 45.0 (±5.1) | 16.3 |
| Some college | 40.4 (±5.2) | 45.6 (±6.3) | 45.2 (±3.5) | 46.8 (±4.7) | 15.8 |
| College graduate | 39.7 (±7.9) | 38.4 (±7.7) | 45.4 (±4.8) | 41.1 (±6.5) | 5.4 |
| Income | | | | | |
| ≤$10,000 | 38.1 (±12.8) | | 31.2 (±7.7) | 45.7 (±15.5) | 19.9 |
| $10,001-$20,000 | 31.2 (±7.9) | | 41.4 (±6.3) | 42.9 (±8.6) | 37.5 |
| $20,001-$30,000 | 36.2 (±7.6) | | 36.7 (±5.7) | 49.9 (±9.8) | 37.8 |
| $30,001-$50,000 | 38.9 (±5.2) | | 47.1 (±4.9) | 45.9 (±6.2) | 18.0 |
| $50,001-$75,000 | 41.2 (±5.5) | | 46.8 (±6.4) | 43.3 (±5.9) | 5.1 |
| >$75,000 | 32.5 (±9.0) | | 50.2 (±7.6) | 45.5 (±7.3) | 40.0 |
| Unknown | 43.7 (±8.4) | | 42.4 (±6.7) | 46.3 (±9.4) | 5.9 |
| Cigarette Consumption (current smokers) | | | | | |
| <20 cigarettes/day | 30.0 (±3.8) | 33.8 (±6.4) | 40.6 (±2.8) | 44.0 (±4.4) | 46.7 |
| ≥20 cigarettes/day | 47.9 (±4.6) | 48.8 (±8.8) | 50.9 (±4.7) | 58.0 (±4.8) | 21.1 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1992, 1996, 1999

While higher educated smokers were more likely to be advised in 1990, this trend had largely reversed by 1999. Studies have shown that smokers with high cigarette consumption tend to be advised more than other smokers (Frank et al., 1991; Gilpin et al., 1993). While this pattern was present in all the CTS, report of advice in 1999 was increased among smokers who smoke less, by a factor of 46.7%.

Physicians appear to be improving their approach, because in 1999 more smokers with advice/referral stated that they tried to quit as a result. In 1996, 25.3±3.2% of smokers advised to quit tried to quit, and this percentage increased to 33.4±4.3% in 1999.

Use of nicotine replacement therapy with the most recent quit attempt among smokers advised to quit is higher than among smokers not advised to quit in the past year (Figure 6.11). This is not surprising since it is the heavier smokers who tend to use nicotine replacement therapy, and it is those smokers who are more likely to be advised to quit by their physicians. If the physician also referred the patient to a smoking cessation program, the use of nicotine replacement therapy with the most recent quit attempt was even higher. Many smokers consider nicotine replacement to be a cessation program (Pierce et al., 1998). It should be noted that the most recent quit attempt may not correspond to the quit attempt prompted by the physician advice. These findings suggest that smokers are discussing nicotine replacement therapy with their physicians. Whether it was the physician or the patient that broached the subject is unknown.




Source: CTS 1996, 1999

Figure 6.11

## 7. Summary

The past decade of the California Tobacco Control Program (TCP) has produced important changes in smoking behavior. Current smokers are continuing to decrease their daily cigarette consumption. In 1999, 59.4±1.7% of current smokers smoked fewer than 15 cigarettes/day, a 7.8% factor increase in light smoking since 1996. More and more California smokers are trying to quit. The percentage of smokers with a quit attempt lasting a day or longer in the past year has increased by a factor of 25.9% between 1990 and 1999.

With the increase in the number of smokers trying to quit, it might be expected that there would be a smaller fraction of smokers actually successfully quitting, since an increased fraction of the more addicted smokers would be trying and failing. However, there is no evidence to support this assumption. In 1999, while the short–term success rate actually appeared to be slightly better, the longer-term success rate of quitters was not different from that of quitters in 1990 or 1996.

Nevertheless, there is a certain fraction of smokers that never intend to quit, and who have not tried to quit in the recent past. There is no evidence that this fraction of California smokers is increasing as smokers more able to quit successfully do so. In 1996, this group comprised 10.0±1.0% of all current smokers, and in 1999, it comprised 9.1±1.2% of all current smokers. Some of the smokers who never intend to quit may feel that they don't need to quit, because they have modified their smoking behavior by smoking less or by smoking occasionally rather than daily.

More and more California smokers both work and live in places where they cannot smoke indoors. In 1992, only 3.0±0.7% of California smokers fell into this category, but by 1999, 23.7±1.2% did. With a more limited opportunity to smoke, these smokers have reduced their daily cigarette consumption, and many more have made quit attempts in the recent past compared to smokers not constrained by smoking restrictions.

Use of smoking cessation assistance has increased by a factor of 21.7% from 1992 to 1999. In 1992, 9.3±1.8% of smokers used nicotine replacement therapy; this percentage increased to 12.7±1.1% in 1996 and to 14.2±1.3% by 1999. Smokers with relatively high daily cigarette consumption (20+ cigarettes/day) are more likely to use a medical aid (nicotine replacement therapy or an antidepressant). Such an aid appears to prolong abstinence in this group, but it may not increase the rate of ultimate success in the population of smokers trying to quit.

Physician advice to quit smoking is an intervention with the potential to reach about 70% of smokers in each year. While report of physician advice to quit has increased by a factor of 20.3% since 1990, in 1999 less than half (45.5±3.2%) of California smokers who visited a physician reported receiving that advice. About 30% of smokers who reported that their physician advised them to quit also reported the physician had told them about a smoking cessation program or made a referral to such a program. Smokers reporting this type of referral were more likely to say they quit in response to their

physicians' advice. Physicians who do advise their patients to quit might be becoming more skilled in their delivery of advice: The percentage of smokers who stated they quit because of physician advice increased between 1996 and 1999. Further, smokers were particularly likely to have used nicotine replacement therapy with their most recent quit attempt if they had been referred to a smoking cessation program by their physician, compared to those not referred.

The findings presented in this chapter point to considerable success for the TCP in modifying smokers' behavior in ways that should increase their likelihood of future successful smoking cessation. In 1999, over 60% of California smokers were motivated to make a quit attempt. Disregarding those who never expect to quit, only about 30% of smokers who want to quit eventually did not attempt to quit in 1999. More research is required to determine what measures the TCP can undertake to encourage smokers to stay off cigarettes for the long term so that they become successful former smokers.

## CHAPTER 6: KEY FINDINGS

1. In 1999, 59.4±1.7% of adult smokers were either occasional smokers or smoked less than 15 cigarettes/day.

2. Quit attempts of a day or longer increased by a factor of 25.9% from 1990 when 48.9±1.5% of smokers made a quit attempt to 61.5±1.5% in 1999.

3. Despite the increased quitting incidence by 1999, smokers were successful (abstinent at least 90 days) at about the same rate as earlier in the decade.

4. In 1999, the group of smokers (>25 years of age) with no quit attempts in the past year and absolutely no intention to quit in the future comprised 9.1±1.2% of all smokers, unchanged since 1996. Some of these smokers are light smokers who may believe that they don't need to quit.

5. Smokers both living and working in smokefree environments (23.7±1.2% in 1999) were significantly more likely to have made a recent quit attempt and to be light smokers than those with either or neither of these constraints on smoking.

6. The percentage of California smokers using some form of cessation assistance increased by a factor of 21.7% between 1992 when 18.4±2.4% of smokers used assistance and 1999 when 22.4±1.8% did. The percent using nicotine replacement therapy was 12.7±1.1% in 1996 and 14.2±1.3% in 1999, a significant increase by a factor of 11.8%. In 1999, 5.3±0.9% of smokers used an antidepressant while trying to quit.

7. Relatively heavy smokers are much more likely to chose a medical aid for smoking cessation, and in 1999, heavy smokers using such an aid (average use about 4 weeks) stayed off cigarettes longer than those who did not use one. However, by 90 days, the relapse rates were not statistically different.

8. Report of physician advice to quit by smokers visiting a physician in the last year increased by a factor of 20.4% between 1990 (37.8±2.9%) and 1999 (45.5±3.2%). If a physician also provided a referral to a smoking cessation program, smokers reported they were more likely to try to quit than if such a referral was not provided.

## CHAPTER 6: GLOSSARY

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Daily smoker* – a *current smoker* who has smoked on every day of the past month (old question sequence) or who now smokes everyday (new question).

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Light smoker* – a *current smoker* who smokes fewer than 15 cigarettes a day.

*Occasional smoker* – a *current smoker* who smoked on at least 1 day in the past month (old question sequence) or who says he or she now smokes some days (new question).

*Recent former smoker* – someone who has smoked sometime in the past year, but was a *former smoker* at the time of the survey.

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# Chapter 7

# PRICE SENSITIVITY AND TAXES

# CHAPTER 7: PRICE SENSITIVITY AND TAXES

## Introduction

Although they are an addictive product, it is widely accepted that the market for cigarettes obeys the fundamental economic principal in the Law of Demand—namely, as prices rise, demand will decrease. Thus, in the 1990s, state and federal governments have used cigarette excise taxes as a policy tool, which not only generates revenue, but which also may contribute to reductions in smoking. This policy tool, however, includes a caveat: raising cigarette prices above those from out-of-state sources may create an incentive to purchase cigarettes from lower or non-taxed sources (Lewit and Coate, 1982; Saba, et al. 1995).

In 1999, California became a high-profile testing ground for these potentially conflicting effects when it implemented a $0.50/pack voter-approved cigarette tax increase. Estimates of reductions in consumption subsequent to the new tax range from 20-30% (California Board of Equalization and Fitz, 1999). However, tax evasion may account for part of this decline. California smokers had a number of options to avoid the state tax, including Internet cigarette vendors, numerous Indian reservations across the state, military commissaries, and neighboring states and Mexico, all of which offer lower-taxed or non-taxed American cigarettes.

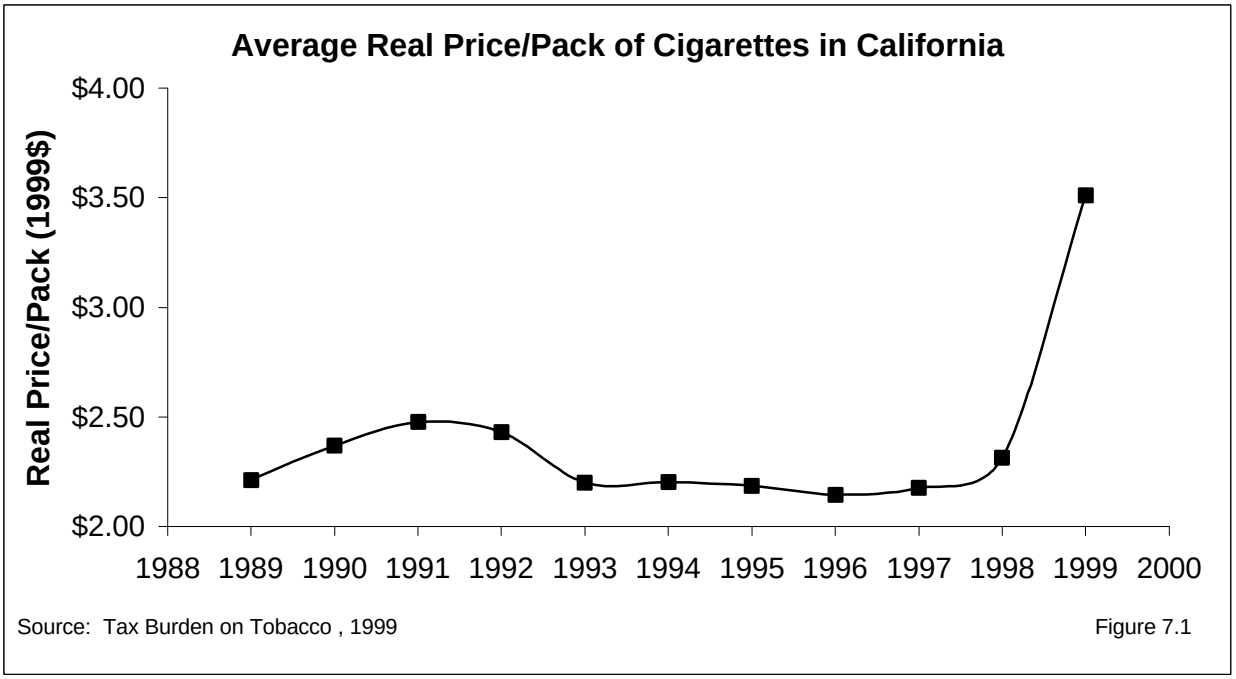
In addition to the $0.50/pack Proposition 10 excise tax increase, in 1999 smokers in California (and across the US) experienced a further price increase of approximately $0.70/pack, which the tobacco industry imposed in response to the provisions of the Multi-state Master Settlement Agreement (Meier, 1998). Thus, in 1999, cigarette prices increased by an unprecedented $1.20/pack in California.

This chapter examines the extent to which price has played a role in changes in cigarette consumption in California over the past decade. Section 1 examines trends in cigarette prices since 1989, explains the relationship between price and demand for cigarettes, and uses empirical estimates of the price elasticity of demand for cigarettes to estimate expected changes in cigarette demand over time. Section 2 examines where Californians bought their cigarettes and how much they paid, in order to analyze the potential impact of tax evasion. Section 3 uses the California Tobacco Surveys (CTS) to analyze smokers' price sensitivity and trends in price sensitivity in California. Section 4 presents CTS data on support for excise taxes among smokers and nonsmokers in California. Section 5 presents analyses of price issues for adolescent smokers. Section 6 summarizes the analyses presented in this chapter.

## 1. The Economics of Cigarette Prices

Over the past decade in California, the real price of cigarettes (adjusted for inflation) remained relatively constant, and even decreased slightly, until the 1999 excise tax increase. Figure 7.1 illustrates the changes in the real price/pack of cigarettes between 1989 and 1999 in California.

The data reflect average prices for sales of all brands on November 1 of each year as reported in the *Tax Burden on Tobacco.*[1]




The real average price of cigarettes increased slowly between 1989 and 1991, but then decreased slightly in 1992. The average real price dropped again in 1993, following the tobacco industry's widely publicized announcement that it would reduce the prices of premium brands of cigarettes (Shapiro, 1993). After 1993, the real average price of cigarettes in California stabilized at levels that were approximately equivalent to the 1989 real average price, until the dramatic upswing in 1999.

**Cigarette prices increased by $1.20/pack in 1999.**

In 1999, smokers in California experienced an increase of approximately $1.20/pack, resulting from the $0.50/pack excise tax increase and two tobacco industry price increases in response to the provisions of the Multi-State Master Settlement Agreement (Meier, 1998), totaling approximately $0.70/pack.

Price Paid for Cigarettes, 1996 and 1999

In addition to industry data on cigarette prices, in 1996 and 1999 the CTS asked all smokers two questions, which together provide information about the average price/pack paid by California smokers:

[1] The Master Settlement Agreement, which settled the lawsuits of 46 states against the tobacco industry, eliminated the Tobacco Institute (TI) in 1998. The economic consulting firm, Orzechowski and Walker took over the production of the *Tax Burden on Tobacco* in 1999, employing the same statistics and procedures as TI used in the past. The average price is weighted to reflect the proportion of cigarettes bought in cartons and by the individual pack, as well as the percentage of generic and premium brand cigarettes purchased each year. These prices include state and federal excise taxes, but do not reflect excise taxes levied by municipal governments or sales tax. The real prices were adjusted to 1999 dollars to account for inflation using the Bureau of Labor Statistic's Consumer Price Index for Urban Consumers in the Western U.S. for each year.

- *Do you usually buy cigarettes by the carton or by the pack, or do you roll your own?*
- *How much do you usually pay for a pack {carton} of cigarettes?*

Those who usually bought by the carton reported the price they usually paid for a carton, which was then converted to an average price/pack, and combined with the price/pack reported by those who usually bought by the pack to calculate a composite average price/pack. Table 7.1 presents the self-reported average price paid/pack of cigarettes, analyzed by demographic group, amount smoked, quitting intentions, and household income.

**Table 7.1**
**Average Price/Pack Paid by California Smokers**
**(Adjusted for Carton Purchases; Adjusted for Inflation to 1999 $)**

| | **1996 %** | **1999 %** | **Factor Increase 1996-1999 %** |
|---|---|---|---|
| Overall | $2.06±0.02 | $3.27±0.02 | 58.7 |
| Gender | | | |
| Female | 2.02±0.02 | 3.20±0.03 | 58.4 |
| Male | 2.08±0.02 | 3.32±0.03 | 58.4 |
| Age | | | |
| 18-24 | 2.29±0.04 | 3.51±0.06 | 53.3 |
| 25-44 | 2.12±0.02 | 3.36±0.03 | 58.5 |
| 45-64 | 1.88±0.03 | 3.07±0.04 | 63.3 |
| 65+ | 1.77±0.05 | 2.90±0.09 | 62.9 |
| Race/Ethnicity | | | |
| African American | 2.12±0.04 | 3.35±0.08 | 58.0 |
| Asian/PI | 2.15±0.04 | 3.38±0.08 | 57.2 |
| Hispanic | 2.20±0.04 | 3.40±0.06 | 54.5 |
| Non-Hispanic White | 2.00±0.02 | 3.21±0.03 | 60.5 |
| Amount Smoked | | | |
| 1-14 cigs/day | 2.16±0.02 | 3.39±0.03 | 57.7 |
| 15-24 cigs/day | 1.96±0.03 | 3.16±0.02 | 61.2 |
| 25+ cigs/day | 1.81±0.04 | 2.99±0.11 | 65.2 |
| Quitting Intention | | | |
| Never expect to quit | 1.91±0.04 | 3.12±0.07 | 63.4 |
| Will quit in > 6 months | 2.05±0.03 | 3.23±0.03 | 57.6 |
| Will quit in next 6 months | 2.09±0.03 | 3.33±0.04 | 59.3 |
| Will quit in next month | 2.18±0.05 | 3.38±0.07 | 55.0 |
| Annual Household Income | | | |
| $\leq$ $75,000 | 2.04±0.02 | 3.26±0.03 | 59.8 |
| Over $75,000 | 2.16±0.04 | 3.34±0.04 | 54.6 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

Table 7.1 shows that California smokers reported paying slightly less on average than the industry-reported average real price/pack, which was $2.15 in 1996 and $3.51 in 1999. The difference between self-reported and industry-reported prices is relatively small, but increased from about 4% to about 7% between 1996 and 1999. These differences may simply reflect bias in memory or reporting, or may reflect a preference for individuals to report whole digits or to round down to the nearest $0.05 or $0.10 increment, which could be exacerbated as prices rise. In any case, in both years the differences between self-reported and industry-reported cigarette prices are within an acceptable margin of error.

Table 7.1 shows that in both 1996 and 1999, there were significant differences between age groups: younger smokers reported paying significantly more than older smokers. Also in each year, men reported paying significantly more than women, and minorities reported paying more than non-Hispanic White smokers. Typically, younger smokers and minorities smoke less than older smokers and non-Hispanic White smokers. Therefore, it makes sense that these groups would pay higher prices, since they are more likely to buy by the pack than by the carton.

Lighter smokers (<15 cigarettes/day) paid significantly more per pack than moderate smokers (15-24 cigarettes/day), who in turn paid significantly more than heavy smokers (25+ cigarettes/day). This makes sense because heavier smokers are more likely to buy by the carton, and at discount stores. Additionally, the sooner the smoker intended to quit, the higher the reported price/pack.

The table shows that older smokers experienced greater increases in cigarette prices than did younger smokers; non-Hispanic White smokers experienced greater increases than minority smokers; and heavy smokers experienced greater increases than lighter smokers.

**Monthly expenditures on smoking did not vary by household income. Smokers with household incomes of <$10,000/year spent nearly 10% of their net monthly income on smoking.**

Combining information on the average price paid/pack of cigarettes with the average amount smoked, it is possible to calculate how much smokers spent per month on average to support their smoking. Table 7.2 shows the changes between 1996 and 1999 in monthly expenditures on cigarettes across levels of household income and across light, moderate, and heavy smokers.

**In 1999, heavy smokers spent $160/month on smoking.**

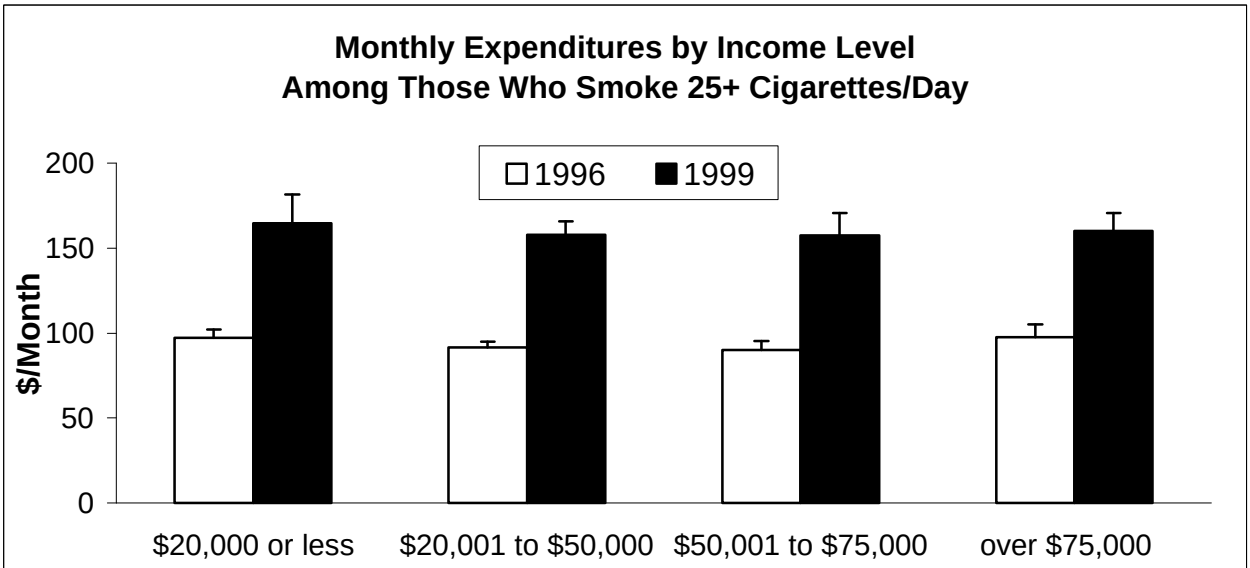
Table 7.2 shows that in 1996, moderate smokers spent about $54/month on smoking; by 1999, this group spent nearly $90/month on smoking—an increase by a factor of 61%. By 1999, the heaviest smokers spent nearly $160/month—over $5/day—on smoking.

**Table 7.2**
**Average Monthly Expenditures on Cigarettes**
**by Amount Smoked and Income Levels(Adjusted for Inflation)**

| | 1996 % | 1999 % | Factor Increase 1996-1999 % |
|---|---|---|---|
| Overall | $40.76±1.05 | $61.35±1.68 | 50.5% |
| Annual Household Income | | | |
| ≤$20,000 | 39.96±1.71 | 59.57±3.81 | 49.1 |
| $20,001-$50,000 | 39.96±1.51 | 63.04±3.02 | 57.8 |
| $50,001-$75,000 | 41.31±1.76 | 65.54±3.32 | 58.7 |
| $75,001+ | 43.04±3.53 | 59.50±4.41 | 38.2 |
| Unknown | 42.75±4.78 | 55.32±4.57 | 29.4 |
| Amount Smoked | | | |
| 1-14 cigarettes/day | 21.40±0.52 | 33.71±0.86 | 57.6 |
| 15-24 cigarettes/day | 54.22±0.66 | 87.18±1.02 | 60.8 |
| 25+ cigarettes/day | 95.36±2.65 | 158.9±06.48 | 66.6 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

Figure 7.2 shows that, among the heaviest smokers, expenditures on cigarettes did not vary by income level. Expenditures did not vary by income level among lighter smokers, either. Thus, the 1999 cigarette price increases disproportionately affected low-income smokers**.**




| | 1996 | 1999 |
|---|---|---|
| $20,000 or less | 97.3 | 164.8 |
| $20,001 to $50,000 | 91.6 | 157.8 |
| $50,001 to $75,000 | 90.1 | 157.4 |
| over $75,000 | 97.6 | 160.1 |

Source: CTS 1996, 1999

Figure 7.2

Price Elasticity

The extent to which the price of a product influences demand for that product—or how sensitive buyers are to the price—is called the price elasticity of demand. Price elasticity is defined and calculated as the percent change in demand that is due to a percentage change in price.

$$\text{Elasticity} = \frac{\%\text{ change in demand}}{\%\text{ change in price}}$$

Overall price elasticity of demand for cigarettes consists of two components: participation elasticity—the extent to which price influences whether or not people smoke; and conditional demand—the amount of cigarettes consumed by those who smoke.

An expert panel convened by the National Cancer Institute arrived at a consensus estimate of the adult overall price elasticity of demand for cigarettes of –0.4 (National Cancer Institute, 1993); estimates of the overall price elasticity of demand for cigarettes in California lie between –0.45 and –0.6 (Hu et al., 1995). Thus, for every 10% increase in cigarette prices, demand for cigarettes should fall by 4-6%. Most studies attribute approximately half of the change in demand to changes in smoking participation (increased quitting and reduced initiation) and half to reduced consumption among the remaining smokers (Becker et al., 1990; Lewit et al., 1997).

Expected and Actual Changes in Cigarette Consumption

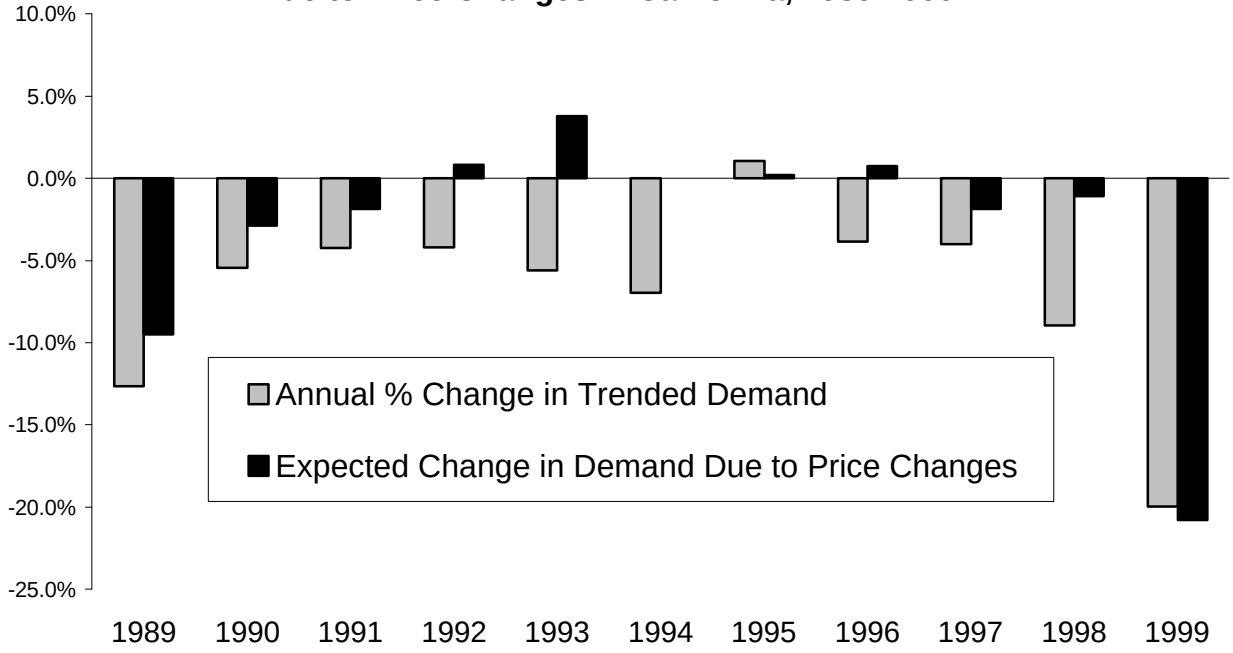
Because it describes the size and direction of the relationship between the price and demand for cigarettes, elasticity can be used to calculate the expected change in the consumption of cigarettes that would result from real changes in the price of cigarettes.

$$\text{Expected \% change in demand} = (\text{elasticity}) \times (\%\text{ change in price})$$

This technique was used in the 1989 *Surgeon General's Report* to estimate the impact on the consumption of cigarettes and on smoking prevalence of a proposed federal excise tax on cigarettes (U.S. Department of Health and Human Services, 1989). While it is not an empirical test or a calculation of the actual elasticity of demand for cigarettes, this is a useful and illustrative method of policy evaluation.

The dark bars in Figure 7.3 illustrate the expected annual percentage change in cigarette consumption in California due to actual changes in the average real price/pack from year to year, assuming a constant overall price elasticity of demand of –0.4. The lighter bars show the actual annual percentage changes in cigarette consumption in California.

Figure 7.3 shows that in every year except 1995, per capita cigarette consumption decreased. The figure also shows that throughout most of the California Tobacco Control Program, actual changes in cigarette consumption exceeded the changes that would be expected from price changes alone. The differences between the actual and expected levels of consumption may be attributable to the other components of the Tobacco Control Program (including restrictions on where people can smoke), as well as national secular trends toward reduced consumption.




Source: CA BOE, 1999; Tax Burden on Tobacco, 1999

Figure 7.3

**The decrease in per capita consumption following the 1999 price increases nearly matched the expected decrease.**

The changes in consumption following the 1999 price increases nearly matched the changes that were expected, based on the price change alone. A similar concordance between actual and expected changes in consumption occurred in 1989, after the implementation of the Proposition 99 $0.25/pack excise tax increase. It is possible that in years with relatively large price changes, the shock effect on consumption masks the effects of other program efforts or tobacco industry promotional activities.

## 2. Analysis of Tax Evasion Following Proposition 10 Excise Tax Increase

Due to the 1999 tobacco industry-driven price increases, smokers across the US experienced price increases of approximately $0.70/pack. At the same time, California smokers experienced an increase of $0.50/pack, due to the Proposition 10 excise tax increase, on top of the industry price increases. It has been suggested that, because of the $0.50/pack excise tax increase, the higher price of cigarettes in California would motivate smokers to buy their cigarettes from non-taxed or lower-taxed sources, such as the Internet, Indian Reservations, and out of state, to avoid the California excise tax (California Board of Equalization and Fitz, 1999; Congressional Record and Senate, May 05, 1998). If smokers evaded the state excise tax, rather than cut back or quit smoking altogether, the state would potentially lose substantial revenue without achieving the benefit of reduced smoking.

To ascertain whether evasion was a problem in California, the 1999 CTS asked all adult current smokers:

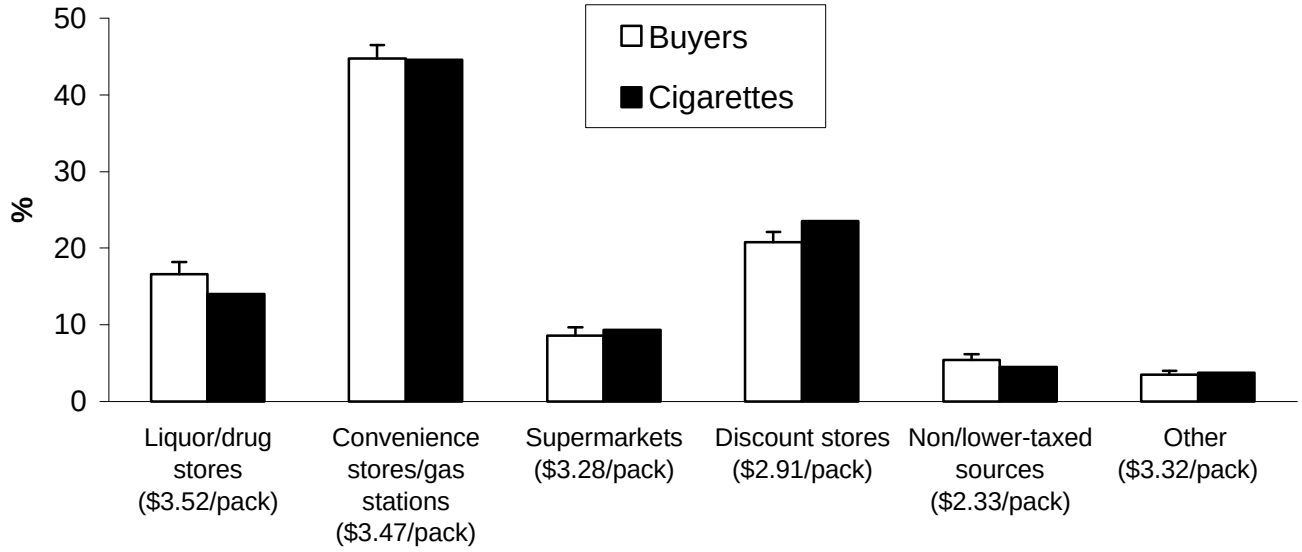
> *Do you usually buy your cigarettes in California, out of state, or over the Internet?*

Those who answered that they purchased their cigarettes in California were asked:

> *Where do you usually buy your cigarettes? Do you buy them ….*
> - *At convenience stores or gas stations*
> - *At supermarkets*
> - *At liquor stores or drug stores*
> - *At tobacco discount stores*
> - *At other discount stores such as Wal-Mart*
> - *On Indian reservations, or*
> - *In military commissaries?*

The black bars in Figure 7.4 represent the percent of cigarettes bought at each type of store, accounting for the average daily cigarette consumption of each respondent across every type of store. The white bars represent the percent of buyers who report that they usually buy their cigarettes from each type of store.

**Percent of Buyers and Cigarettes Purchased by Store Type**




| | Liquor/drug stores ($3.52/pack) | Convenience stores/gas stations ($3.47/pack) | Supermarkets ($3.28/pack) | Discount stores ($2.91/pack) | Non/lower-taxed sources ($2.33/pack) | Other ($3.32/pack) |
|---|---|---|---|---|---|---|
| Buyers | 16.6 | 44.7 | 8.6 | 20.8 | 5.4 | 3.5 |
| Cigarettes | 14.0 | 44.6 | 9.3 | 23.5 | 4.5 | 3.8 |

Source: CTS 1999

Figure 7.4

The prices listed below each type of store reflect the average price/pack that smokers who usually buy from each type of store reported paying, accounting for whether the respondent reported buying cigarettes by the pack or by the carton.

The white bars in Figure 7.4 show that, more than 7 months after the implementation of the new excise tax, only 5.4±0.8 % of California smokers avoided the tax either by usually purchasing cigarettes over the Internet (0.4±0.3%), or at military commissaries (1.9±0.5%), on Indian reservations (0.3±0.3%), or out of state (3.0±0.5%).

**Nearly 70% of California smokers usually purchased their cigarettes from the most convenient and most expensive sources.**

In fact, the vast majority of smokers purchased their cigarettes from the most convenient retail sources: convenience stores/gas stations (44.7±1.8%), or liquor/drug stores (16.6±1.6%), and supermarkets (8.6±1.0%). One out of five smokers (20.8±1.3%) purchased their cigarettes at discount stores, such as a tobacco discount store or a general discount store, like Wal-Mart.

The dark bars show that convenience stores/gas stations account for approximately the same fraction of all cigarettes purchased as buyers who reported purchasing from this source. Discount stores accounted for slightly more cigarettes than buyers (23.5% vs. 20.8%), as would be expected: discount stores sell cigarettes by the carton, and therefore are preferred by the heaviest smokers.

The CTS data show that despite the potential savings, tax evasion does not appear to pose a serious threat to the state's excise tax revenues or its tobacco control objectives. Indeed, a remarkably small fraction of California smokers go out of state, to military commissaries or buy their cigarettes from Internet sources or Indian reservations. Smokers have always had the ability to buy their cigarettes from Indian reservations or out of state, or from military commissaries if they were eligible. Thus, it is unlikely that even the 4.5% of cigarettes purchased from non-taxed or lower-taxed sources represents entirely new tax evasion, subsequent to the 1999 tax increase. Despite the threat that Internet cigarette vendors may provide smokers with an easy way to evade state excise taxes, California smokers were not using this method in 1999. It is possible that more smokers may explore this source in the future, but minimum purchase requirements (typically 5 cartons) present a disincentive for the majority of smokers, who do not buy by the carton, much less by multiple cartons. Since there are no earlier data for comparison, it is unknown whether smokers are more inclined to seek out lower or non-taxed sources of cigarettes in 1999 than they were earlier in the decade.

Although there are several alternatives available to California smokers to minimize the cost of smoking, nearly 70% of smokers reported that they buy their cigarettes from the most expensive sources—convenience stores, liquor/drug stores, and supermarkets. Cigarettes purchased at liquor stores were the most expensive ($3.52/pack), closely followed by convenience stores ($3.47/pack) and supermarkets ($3.28/pack). Discount stores offered relatively cheap cigarettes ($2.91/pack), reflecting their lower volume-based mark-up and the additional discount for buying by the carton. Smokers who reported that they purchased cigarettes from non-taxed or

lower-taxed sources paid the least ($2.33/pack), reflecting both a carton discount and the lack of California or lower excise taxes.

By not taking advantage of cheaper alternatives for purchasing cigarettes, perhaps California smokers were trying to regulate their behavior, limiting themselves to small quantities (buying by the pack, at more expensive sources) to avoid the temptation to consume more than they wanted to (Thaler & Shefrin, 1981; O'Donoghue & Rabin, 2000). O'Donoghue and Rabin (2000) use the example of buying pints versus quarts of ice cream—many people will buy ice cream by the pint, even though it is more expensive, in order to avoid temptation and limit their consumption. In an analogous way, smokers may subject themselves to the highest prices because they do not specifically plan to buy cigarettes, and therefore only do so when they feel an urge to smoke and their choices are limited. Alternatively, they may buy by the pack to avoid temptation, or may truly believe "this is my last pack" and therefore not care about relative price. Finally, many smokers may weigh the time and/or "hassle-costs" involved with seeking out the least expensive cigarette sources and decide that buying cigarettes from convenience stores is actually worth the extra monetary expense. As Table 7.1 shows, smokers who reported that they planned to quit in the next 6 months paid significantly more for cigarettes than those without relatively immediate plans to quit.

## 3. Adult Price Sensitivity

As evidence of Californians' sensitivity to the price of cigarettes, this section examines two related issues. First, it explores smokers' worries about the amount of money they spend on cigarettes. Second, it describes the choices smokers make in purchasing cigarettes: whether they buy premium or generic; whether they buy by the carton or pack.

In 1996 and 1999, the CTS asked current adult smokers the following question to determine whether the price of cigarettes was a cause of concern:

*Are you worried about how much money you spend on cigarettes?*

**The percent of smokers worried about how much they spent on cigarettes increased by a factor of 49.7% between 1996 and 1999.**

Table 7.3 presents a detailed analysis of answers to this question, by demographic group, and by amount smoked and quitting intentions.

Table 7.3 shows that smokers were significantly more worried about how much they spent on cigarettes in 1999 than they were in 1996. In both years, more female smokers than male smokers reported worry, but the increase in worry was greatest among male smokers. The 45-64 year old age group showed the greatest increase in the percent of smokers worried about how much they spend on cigarettes. In 1996 and 1999, there were no significant differences across race/ethnic groups in the percentage of smokers worried about how much they spent on cigarettes. Non-Hispanic White smokers experienced the greatest increase in worry over the 3-year period.

**Table 7.3**
**Percent of Smokers Worried About Money Spent on Cigarettes**

| | 1996 % | 1999 % | Factor Increase 1996-1999 % |
|---|---|---|---|
| Overall | 35.1±1.3 | 52.5±1.9 | 49.7 |
| Gender | | | |
| Female | 38.2±1.8 | 55.1±2.2 | 44.2 |
| Male | 32.8±1.7 | 50.7±2.5 | 54.9 |
| Age | | | |
| 18-24 | 32.3±3.6 | 47.9±4.9 | 48.4 |
| 25-44 | 37.4±1.7 | 53.5±2.6 | 43.0 |
| 45-64 | 34.1±2.0 | 56.3±3.1 | 64.9 |
| 65+ | 27.9±4.9 | 42.7±7.0 | 53.0 |
| Race/Ethnicity | | | |
| African American | 34.5±4.4 | 46.9±6.3 | 36.3 |
| Asian/PI | 38.4±8.1 | 52.7±7.3 | 37.3 |
| Hispanic | 36.9±2.7 | 52.3±4.5 | 41.9 |
| Non-Hispanic White | 33.8±1.6 | 53.2±2.1 | 57.6 |
| Annual Household Income | | | |
| ≤$20,000 | 44.0±2.6 | 59.9±4.2 | 36.1 |
| $20,001-$50,000 | 33.6±1.6 | 53.4±2.7 | 58.8 |
| $50,001-$75,000 | 32.6±3.4 | 51.2±3.9 | 57.2 |
| $75,001+ | 21.8±3.8 | 42.6±3.7 | 96.0 |
| Unknown | 34.8±4.0 | 49.3±5.8 | 41.7 |
| Quitting Intentions | | | |
| Never expect to quit | 17.7±3.1 | 34.4±4.5 | 94.1 |
| May quit, but not in next 6 months | 31.7±2.0 | 51.8±2.7 | 63.4 |
| Will quit in 1-6 months | 43.1±2.6 | 61.2±3.3 | 42.0 |
| Will quit next 30 days | 46.0±4.1 | 54.2±4.1 | 17.6 |
| Amount Smoked | | | |
| 1-14 cigs/day | 33.0±2.1 | 49.9±2.6 | 51.4 |
| 15-24 cigs/day | 39.7±2.0 | 63.4±3.3 | 58.7 |
| 25+ cigs/day | 39.8±3.3 | 63.2±5.0 | 58.7 |

Table entries are weighted percentages and 95% confidence limits.
Source CTS 1996, 1999

In both 1996 and 1999, worry was approximately inversely related with quitting intentions: the sooner the smoker intended to quit, the more likely they were to be worried about how much they spent on cigarettes. This trend makes sense: those who are worried about how much they spend may be motivated to quit smoking sooner. In fact, the data show a relative lack of worry among those who have no intention to quit smoking anytime in the future.

In both years, significantly fewer light smokers (1-14 cigarettes/day) were worried, compared to moderate (15-24 cigarettes/day) or heavy (25+ cigarettes/day) smokers.

Premium vs. Generic Cigarettes

In both 1996 and 1999, the vast majority (90.3±0.8% in 1996; 90.0±1.1% in 1999) of smokers smoked premium brand cigarettes, such as Marlboros, Camel, Benson & Hedges, or Winstons, as opposed to generic cigarettes. Similarly, the majority of smokers in both years (65.6±1.3% in 1996; 65.9±1.6% in 1999) bought their cigarettes by the pack. Therefore, although the majority of smokers were worried about how much they spend on cigarettes, this worry was not translated into cost-minimizing behavior changes.

The characteristics of those who were cost-minimizing are logical and very similar: heavier smokers, older smokers, and non-Hispanic White smokers were more likely to report that they usually buy generics, and buy by the carton.

## 4. Support for a Cigarette Excise Tax

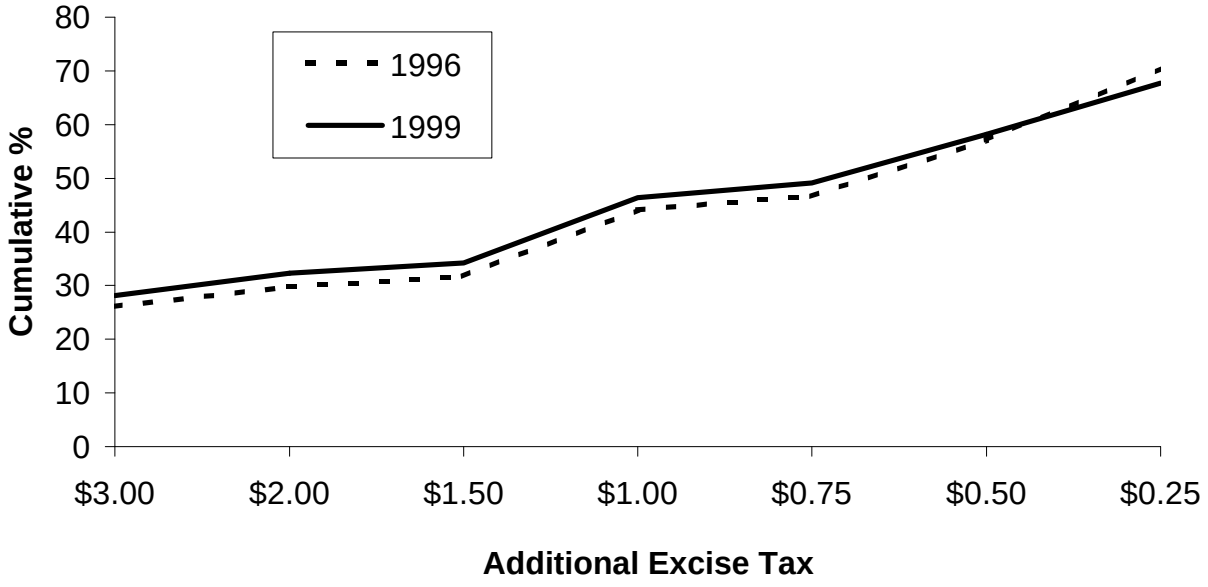
California has a strong history of utilizing the revenues from tobacco taxes for tobacco control and health care. The majority of the revenues from the 1989 cigarette excise tax increase were used to fund the California Tobacco Control Program and medical services in California. The revenues from a $0.02/pack excise tax increase in 1993 were dedicated to breast cancer care and research. All of the revenues from the Proposition 10 $0.50/pack increase in 1999 were designated to support early childhood development programs, including tobacco use prevention programs, such as reducing smoking during pregnancy and exposure of infants and young children to secondhand smoke. To gauge support for such taxes, in 1992, 1993, 1996, and 1999, the California Tobacco Survey asked adults:

> *How much additional tax on a pack of cigarettes would you be willing to support if all the money raised was used to fund programs aimed at preventing smoking among children and other health care programs?*

Answers could range between *no increase* and an increase of $3.

**The cigarette price increases of 1999 did not diminish Californian's overwhelming support for an additional cigarette excise tax.**

Figure 7.5 shows the cumulative level of overall support for additional excise taxes of increasing levels for both 1996 and 1999. Figure 7.5 shows that in 1999, approximately 70% of all respondents supported some additional tax on a pack of cigarettes, and there was slightly greater support for taxes of at least $0.50/pack in 1999 than there was in 1996.




Source: CTS 1996, 1999

Figure 7.5

Overall, nearly 70% of Californians supported an excise tax increase of at least $0.25/pack, and nearly 50% of Californians supported an excise tax increase of at least $1/pack—even after the recent implementation of the Proposition 10 $0.50/pack increase.

Table 7.4 provides detailed demographic analyses and a comparison of 1999 results with 1996. The table shows that there was virtually no change between 1996 and 1999 in the levels of support for an additional tax of at least $0.50/pack. Overall, support for a tax increase of ≥$0.50/pack increased by a factor of 2%. Younger Californians were more likely than older people to support an additional $0.50+/pack tax, and women were slightly more likely than men to support such a tax. There were few differences in support across racial/ethnic groups, but smokers were significantly less likely to support an additional tax than were non- or former-smokers. Among current smokers, those who reported they were worried about how much they spent on smoking showed no less support for an additional cigarette excise tax than did smokers who were not worried.

Among all adults, those in the highest income group were more likely to support an additional tax of ≥$0.50/pack than those in the lowest group, but between 1996 and 1999, there was an increase in support for such a tax among the lowest two income and a decrease in support among the highest two income groups. Among smokers, there were no significant differences in support for the tax by household income.

| Table 7.4<br>Support for a Cigarette Excise Tax of ≥ $0.50/pack | | | |
|---|---|---|---|
| | **1996 %** | **1999 %** | **Factor Change 1996-1999 %** |
| Overall | 57.1±1.2 | 58.2±1.3 | +2.0 |
| Gender | | | |
| Female | 58.0±1.8 | 60.3±1.8 | +4.0 |
| Male | 56.1±1.5 | 56.0±1.7 | -0.2 |
| Age | | | |
| 18-24 | 63.2±2.2 | 65.0±3.0 | +2.9 |
| 25-44 | 59.5±1.7 | 61.4±1.7 | +3.2 |
| 45-64 | 54.1±2.0 | 54.7±2.5 | +1.2 |
| 65+ | 48.6±4.2 | 48.2±3.4 | -0.9 |
| Race/Ethnicity | | | |
| African American | 51.3±4.6 | 49.7±4.5 | -3.1 |
| Asian/PI | 59.4±4.4 | 61.1±5.1 | +2.8 |
| Hispanic | 58.6±2.8 | 65.9±2.3 | +12.5 |
| Non-Hispanic White | 57.3±1.3 | 55.3±1.3 | -3.5 |
| Smoking Status | | | |
| Current Smoker (all) | 33.0±1.6 | 29.3±1.5 | -11.2 |
| Current Smoker (worried about money spent on cigarettes) | 34.3±2.5 | 29.0±2.1 | -15.4 |
| Former Smoker | 58.3±2.4 | 57.7±2.6 | -1.0 |
| Never Smoker | 64.5±1.9 | 67.7±1.7 | +5.0 |
| Amount Smoked | | | |
| 1-14 cigs/day | 38.1±2.8 | 32.8±2.0 | -14.0 |
| 15-24 cigs/day | 26.7±1.7 | 20.6±1.9 | -22.6 |
| 25+ cigs/day | 19.5±3.0 | 15.4±4.0 | -21.0 |
| Annual Household Income | | | |
| <$20,000 | 52.4±2.7 | 56.4±3.0 | +7.7 |
| $20,001-50,000 | 55.0±1.9 | 58.1±2.3 | +5.6 |
| $50,001-75,000 | 62.9±2.5 | 59.7±2.5 | -5.0 |
| $75,000+ | 65.9±2.4 | 62.4±2.5 | -5.3 |
| Unknown | 52.4±3.4 | 51.6±4.2 | -1.5 |
| Current Smokers' Household Income | | | |
| <$20,000 | 32.4±2.8 | 32.3±3.6 | -0.2 |
| $20,001-50,000 | 32.0±1.9 | 27.4±2.4 | -14.5 |
| $50,001-75,000 | 35.8±4.5 | 28.1±3.5 | -21.5 |
| $75,000+ | 36.6±4.1 | 31.4±3.7 | -14.1 |
| Unknown | 30.0±5.0 | 25.9±5.2 | -13.7 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

## 5. Adolescent Price Issues

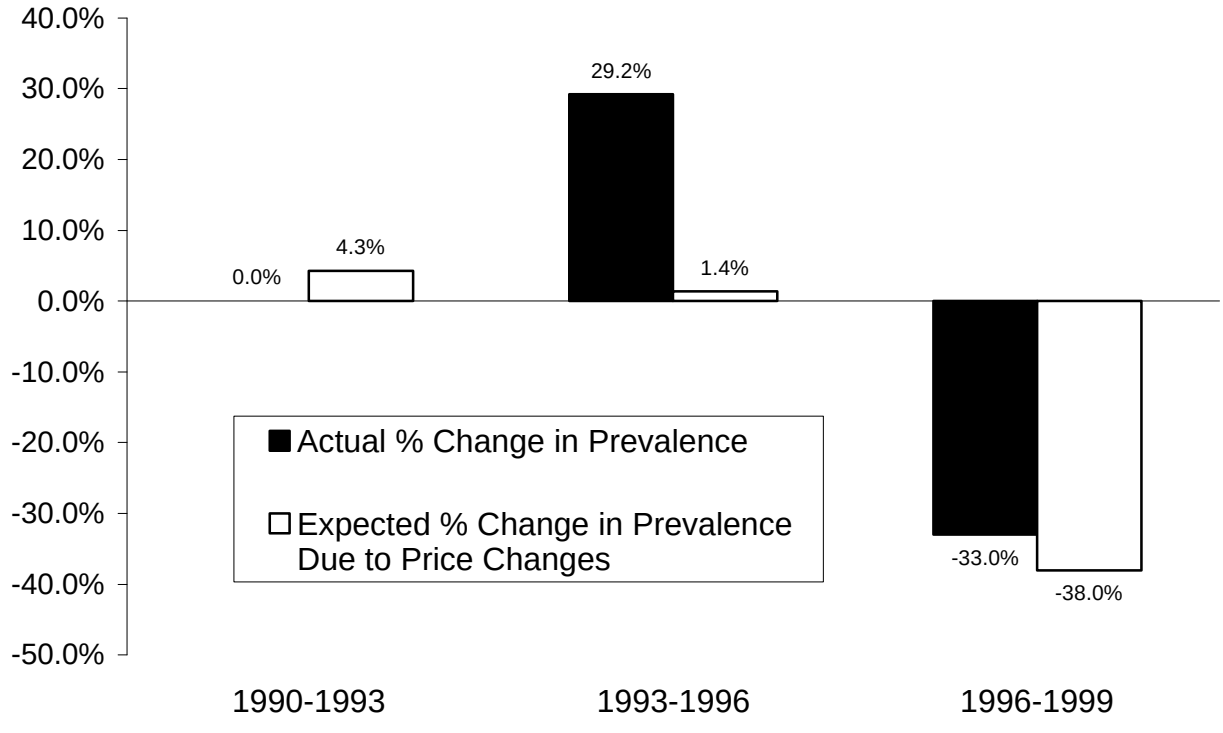
Price Elasticity

Several studies have found that overall price elasticity of demand for cigarettes among adolescents is between two and three times higher than the price elasticity of demand for adults, with overall elasticity estimates of –1.3 or more (Lewit et al., 1981; Chaloupka & Grossman, 1996). In other words, teens may be much more sensitive than adults to cigarette prices. These studies estimate that participation elasticity accounts for nearly 80% of the overall elasticity. Thus, participation elasticities for adolescents are estimated at about –0.8 or more.

The Board of Equalization consumption data do not specifically measure overall per capita cigarette consumption by adolescents. However, in exactly the same way as expected changes in consumption were calculated for adults, it is possible to use the adolescent participation elasticity to calculate the expected changes in smoking prevalence among California adolescents that might result from a price increase.

Expected % change in prevalence = (adolescent participation elasticity) x (% change in price)

Figure 7.6 illustrates these results, using CTS data on standardized adolescent smoking prevalence from 1990, 1993, 1996, and 1999, and a conservative adolescent smoking participation elasticity estimate of –0.6 to calculate the expected changes in smoking prevalence between 1993, 1996, and 1999.




Source: CTS 1993, 1996, 1999; Tax Burden on Tobacco, 1999

Figure 7.6

Between 1990 and 1993, the real price/pack of cigarettes decreased by $0.17/pack, or 7.2%. Over this 3-year period, a smoking participation elasticity of –0.6 produces an expected increase in smoking prevalence of 4.3%. The actual change in prevalence between 1990 and 1993 was nil.

Between 1993 and 1996, the real price/pack of cigarettes decreased by $0.05/pack, or 2.3%. Using –0.6 participation elasticity produces an expected increase in prevalence of 1.4%. During this period, however, adolescent smoking prevalence increased by a factor of 29.2%.

Between 1996 and 1999, the real price/pack of cigarettes increased by $1.36/pack, or 63.3%. Based on this price change and a participation elasticity of –0.6, adolescent smoking prevalence was expected to decrease by 38.0%; the actual decrease was 33.0%.

Figure 7.6 shows that the elasticity-based predictions were fairly close to the actual changes between 1990 and 1993, and between 1996 and 1999. Between 1993 and 1996, however, adolescent smoking was expected to remain fairly constant, but increased significantly. This finding shows that factors other than price, such as tobacco industry advertising and promotional practices, play a role as well in adolescent smoking participation. The increase in participation seen in 1996 may have been larger or occurred earlier in the decade, as it did in the rest of the United States (Johnston et al., 2000), without the California Tobacco Control Program.

Expenditures on Cigarettes

To explore the extent to which cigarette prices matter to adolescents, it is important to understand what fraction of their disposable income they spend on cigarettes. Responses of adolescents who had smoked in the last 30 days, and whose usual method of obtaining cigarettes was to buy them—either themselves or through others—were used to construct Table 7.5.

Two questions were used to calculate the average number of cigarettes smoked/day for these adolescents:

- *Think about the last 30 days. On how many of these days did you smoke?*
  and
- *On the days that you did smoke, what was the average number of cigarettes that you smoked?*

Adolescents were also asked about their discretionary spending money:

*About how much money do you have each week to spend on yourself any way you want to?*

The average number of cigarettes smoked/day was multiplied by the amount that they said they usually paid for a pack of cigarettes to obtain their weekly expenditures on cigarettes, and this was divided by the amount of money/week that they have to spend on themselves to obtain the fraction of discretionary income spent on cigarettes.

**Table 7.5**
**Average Amount Smoked, Discretionary Income, and Percent of Discretionary Income Spent on Cigarettes, 1999 (usual source = buy myself or others buy for me)**

| Smoking Status | Average Cigarettes/Day | Weekly Expenditures on Cigarettes | Weekly Discretionary Income | Percent of Discretionary Income Spent on Cigarettes* |
|---|---|---|---|---|
| Current Experimenter | 1.0±0.5 | $1.29±0.7 | $37.69±11.4 | 4.0±1.6% |
| Current Established Smoker | 6.4±1.1 | $7.99±1.3 | $56.74±12.0 | 15.9±4.3% |

*Manual calculations of this ratio do not produce exactly the same result as those generated with statistical software that accounts for sample weights.
Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

**Adolescent established smokers spent approximately 16% of their weekly discretionary income on cigarettes.**

Table 7.5 shows that current experimenters who have ever bought cigarettes spent approximately 4.0% of their weekly discretionary income on cigarettes. Current established smokers spent a greater proportion (15.9%) of their weekly discretionary income on cigarettes. Each group may have spent less if they were given some of the cigarettes they smoked in the past month, or possibly spent slightly more if they gave some cigarettes away. Regardless, even after the cigarette price increases of 1999, smoking accounts for only a small fraction of experimenters' discretionary income, and is still a fairly modest fraction of the discretionary income of established smokers.

Generosity

Earlier research showed, and Chapter 9 confirms, that the majority of adolescent smokers do not experience the price of cigarettes because they get their cigarettes from friends (Emery et al., 1999). Given the substantial price increases in 1999, it was expected that adolescents might begin to hesitate to share their increasingly expensive cigarettes. Thus, the 1999 CTS asked all adolescent ever-smokers who had given away cigarettes:

*Have you ever refused to give or hesitated to give someone a cigarette when they asked for one because of how much cigarettes cost?*

Table 7.6 presents the results of the analyses of the answers to this question from adolescents who usually buy cigarettes (either themselves or have others buy for them).

**Table 7.6**
**Percent of Adolescent Cigarette Buyers**
**Who Refused or Hesitated to Give Away Cigarettes Because of Cost, 1999**

| | Refused % | Hesitated % | Both Refused and Hesitated % | Neither Refused nor Hesitated % |
|---|---|---|---|---|
| Overall | 14.3±3.6 | 9.5±2.8 | 13.6±4.3 | 62.7±5.8 |
| Smoking Status | | | | |
| Experimenter | 10.5±5.3 | 5.6±3.7 | 7.4±6.0 | 76.5±7.6 |
| Established Smoker | 17.0±5.8 | 12.2±4.6 | 18.0±5.8 | 52.9±6.7 |
| Weekly Disposable Income | | | | |
| $1-20 | 17.4±6.2 | 11.4±5.0 | 9.3±7.4 | 61.9±8.6 |
| > $20 | 13.0±4.4 | 7.5±4.0 | 16.5±6.4 | 63.0±7.1 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

**Price was not a deterrent to giving away cigarettes for the majority of adolescent cigarette buyers.**

Table 7.6 shows that the majority (62.7±5.8%) of adolescent cigarette buyers neither hesitate nor refuse to give away cigarettes because of the cost. Experimenters were significantly less likely to refuse and/or hesitate to give away cigarettes they had bought than were established smokers. There were no significant differences in response across demographic groups or by the amount of money that teens have to spend on themselves each week (weekly discretionary income).

Since most adolescents do not buy their own cigarettes, but rather get them from others, it would be expected that those adolescents who buy cigarettes must be bearing a considerable burden in supplying cigarettes to their friends. However, as shown above, only about a third hesitate and/or refuse to share their cigarettes. To assess the potential burden on those who buy cigarettes, a generosity ratio was calculated as the proportion of cigarettes purchased by adolescents that are given away to other adolescents. The analyses of those who usually were given cigarettes were restricted to those who reported that the person who usually gave them cigarettes was under 18 years of age; buyers included those who reported that they usually bought their own cigarettes or usually had others buy cigarettes for them.

$$\text{Generosity} = \frac{\text{consumption of those who were given cigarettes by other teens}}{\text{(consumption of buyers + consumption of those given cigarettes by other teens)}}$$

If adolescents who bought cigarettes themselves or through an intermediary supplied all the cigarettes for those who were given cigarettes by another adolescent, then adolescent buyers purchased slightly under 5 (4.8±0.8) packs of cigarettes/month, and gave away approximately ¼ pack/month (0.24±0.1 packs/month). In other words, adolescent buyers gave away approximately 6.6% of the cigarettes they purchased, or slightly over 1 cigarette (1.3) from each

pack. At an average price of $4/pack, this amounts to an expenditure of little more than $1/month to supply cigarettes to their friends. Even among those with the most restrictive levels of discretionary income, there is not much financial disincentive to offering cigarettes to non-buyers.

Brand Smoked

The extra cost of premium cigarettes does not appear to deter adolescents from overwhelmingly preferring premium cigarettes to generics. The 1996 and 1999 CTS asked adolescent ever-smokers:

| *What brand of cigarettes do you usually smoke?* |
|---|

Nearly all adolescent ever smokers reported that they usually smoked premium brand cigarettes (96.7±1.1% in 1996 and 97.9±1.0% in 1999).

## 6. Summary

Cigarette prices in California increased by $1.36/pack, or 63%, between 1996 and 1999. Most of this increase came in 1999, when smokers in California experienced an increase of approximately $1.20/pack, resulting from the Proposition 10 $0.50/pack excise tax increase and two tobacco industry price increases in response to the provisions of the Multi-state Master Settlement Agreement (Meier, 1998). The new tax passed by a narrow margin, and the anti-tobacco climate in California, fostered by the California Tobacco Control Program, may have made the difference in countering the massive tobacco industry campaign to defeat the measure.

The average price/pack varied by smoking status, with lighter smokers paying a higher price/pack on average than heavier smokers. This makes sense, since heavier smokers were more likely to buy by the carton and to buy generic cigarettes, both ways to save money on cigarettes.

Using conservative estimates of the overall price elasticity of demand for cigarettes in California, it was shown that actual consumption levels decreased about as much as would have been predicted by a substantial price change—both in 1989, from the $0.25/pack Proposition 99 excise tax increase, and in 1999 from the $1.20/pack increase due to the Proposition 10 $0.50/pack excise tax and the tobacco industry price hikes after the Multi-state Master Settlement Agreement.

Further, it was shown that there was minimal new tax evasion following the implementation of the $0.50/pack excise in January of 1999. Only 5.4% of adult smokers reported that they usually buy from non-taxed or lower-taxed sources, such as Indian reservations, military commissaries, out-of-state stores, or the Internet. The majority of adult smokers bought their cigarettes by the pack from convenience stores, liquor stores, or supermarkets—the most expensive sources of cigarettes.

Despite the fact that they continued to buy their cigarettes from the most expensive sources, the majority of adult California smokers in 1999 reported that they were worried about the amount of money they spent on cigarettes. This contrasts with earlier years, when most adult smokers did not worry about how much they were spending on cigarettes.

Even accounting for buying by the pack vs. the carton and generic vs. premium cigarettes, heavy smokers spent a substantial sum on smoking in 1999. On average, in 1999 light smokers (<15 cigarettes/day) spent approximately $34/month; moderate smokers (15-24 cigarettes/day) spent approximately $87/month; and heavy smokers (25+ cigarettes/day) spent approximately $159/month on smoking. These expenditures did not vary by income level.

Even after the implementation of the Proposition 10 $0.50/pack excise tax increase in 1999, a majority of Californians continued to support an additional cigarette excise tax of at least $0.50/pack. While the overall levels of support for such a tax represented a slight but significant increase from 1996, support decreased significantly among current smokers.

As with adult smoking, the actual decrease in adolescent smoking was nearly identical to the expected decrease, based on the price increase and adolescent price elasticity. Despite the substantial increases in cigarette prices, few adolescents reported that they had refused and/or hesitated to give away cigarettes because of the cost. Given that, on average, adolescents who buy cigarettes give away only 1 cigarette out of each pack that they purchase, it is not surprising that for most adolescents who buy cigarettes, cost was not a reason to hesitate and/or refuse to give them away. Nearly all adolescents who smoke reported that they smoke premium cigarettes, reflecting no change from previous years. Among adolescents who had ever bought cigarettes, it was estimated that smoking accounted for approximately 4% of the disposable income of experimenters, and 15% of the disposable income of established smokers.

## CHAPTER 7: KEY FINDINGS

1. In 1999, California smokers experienced an increase of approximately $1.20/pack, resulting from the $0.50/pack excise tax increase due to the passage of Proposition 10 and from two tobacco industry price increases in response to the provisions of the Multi-state Master Settlement agreement.

2. In all survey years, younger smokers and lighter smokers reported paying significantly more per pack than older smokers and heavier smokers.

3. Per capita cigarette consumption in California decreased by a factor of 20% following the 1999 price increases; this decrease was nearly identical to the expected decrease, based on the 52% average real price change between 1998 and 1999.

4. On average, smokers paid approximately $61/month to support their habit in 1999, an increase by a factor of 50% from 1996. Light smokers (1-14 cigarettes/day) spent approximately $34/month; moderate smokers (15-24 cigarettes/day) spent about $87/month; and heavy smokers (25+ cigarettes/day) spent nearly $160/month on smoking in 1999.

5. Monthly expenditures on smoking did not vary by household income, even after controlling for the amount smoked.

6. Only 5.4±0.8% of California smokers avoided the new excise tax by usually purchasing cigarettes over the Internet (0.4±0.3%) at military commissaries (1.9±0.5%) on Indian reservations (0.3±0.3%), or out of state (3.5±0.5%).

7. Nearly 70% of California smokers reported that they usually buy their cigarettes from the most expensive sources—convenience stores, liquor/drug stores, and supermarkets.

8. Overall, over half (52.5±1.9%) of California smokers in 1999 reported that they were worried about how much money they spend on cigarettes, an increase of nearly 50% from 1996 (35.1±1.3%).

9. Even after the Proposition 10 $0.50/pack excise tax increase, approximately 70% of all respondents in 1999 supported an excise tax increase of at least $0.25/pack—and nearly 60% (58.2±1.3%) supported an increase of another $0.50/pack.

10. Based on the price change alone, it was expected that adolescent smoking prevalence would decrease by a factor of 38% between 1996 and 1999; the actual decrease was 36%.

11. Despite the substantial increase in cigarette prices, the majority of adolescent cigarette buyers neither hesitated nor refused to give away cigarettes because of the cost.

12. Adolescent established smokers spent approximately $8/week on cigarettes in 1999, which amounted to approximately 16% of their discretionary income.

13. Nearly all adolescent ever-smokers smoked premium brand cigarettes.

## CHAPTER 7: GLOSSARY

### Adolescents

*Current established smoker* – has smoked a cigarette on at least one day in the past month and has smoked at least 100 cigarettes in his or her lifetime.

*Current experimenter* – has smoked a cigarette on at least one day in the past month, but has not yet smoked 100 cigarettes in his or her lifetime.

*Current smoker* – has smoked a cigarette on at least one day in the past month.

*Established smoker* – has smoked at least 100 cigarettes in his or her lifetime.

*Ever smoker* – has smoked a cigarette (excludes *puffers*).

*Experimenter* – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

*Puffer* – someone who has not smoked a cigarette, but admits to puffing on one.

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Never smoker* – has smoked fewer than 100 cigarettes in his or her lifetime.

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# Chapter 8

# MEDIA INFLUENCES ON SMOKING

# CHAPTER 8: MEDIA INFLUENCES ON SMOKING

## Introduction

Throughout the 20th century, tobacco industry advertising and promotional activities have been major social and economic forces. During the 1990s, evidence accumulated showing that many of these activities were specifically targeted to encourage children and adolescents to take up smoking (Pierce et al. 1991; King, et al., 1998; Gilpin et al., 1997; Pierce et al., 1998). This research, together with tobacco industry documents that detailed the industry's strategies to attract children and adolescents, informed the massive number of lawsuits against the tobacco industry and led to a proliferation of local ordinances banning tobacco advertising.

In 1998, the tobacco industry reached a settlement agreement with 46 states, which had initiated lawsuits to recover some of the social costs of smoking. The Multi-state Master Settlement Agreement (MSA) included several provisions banning and/or limiting cigarette advertising, which became effective in 1999.

It is difficult to tell yet whether the tobacco industry actually stopped targeting youth in response to the MSA, or whether the restrictions effectively reduced adolescents' exposure to tobacco industry advertising and promotions. Recent research showed that after the MSA, the volume of cigarette advertisements in magazines with significant youth readership actually increased (American Legacy Foundation, 2000). In addition, there is evidence that in-store cigarette advertising and promotions also increased significantly after the MSA (Wakefield, et al, 2000). Therefore, there is certainly a perception of an on-going problem, which was not solved by the MSA.

Although the MSA included provisions to develop a substantial national anti-smoking media campaign, there were no MSA-related anti-smoking advertisements in the field in 1999. Thus, the main source of Californians' exposure to anti-smoking media remained the California Tobacco Control Program's anti-smoking media campaign, which has been in place to some degree since the TCP began in 1990.

The California Tobacco Surveys (CTS) provide data that show whether Californians' exposure and receptivity to tobacco industry advertisements and promotions, and exposure to anti-tobacco messages, have changed over time. Section 1 of this chapter analyzes Californians' exposure to cigarette advertising over time. Section 2 explores evidence of adolescents' and adults' receptivity to cigarette advertising and promotions. Section 3 analyzes Californians' exposure to anti-tobacco messages. Section 4 shows adults' attitudes regarding regulation of tobacco industry advertising and promotions. Section 5 provides a summary of the chapter.

## 1. Exposure to Cigarette Advertisements on Televised Sporting Events

Since 1996, several large cities and other municipalities in California have banned tobacco advertising at local sporting events. The impact of these ordinances extended beyond reducing the exposure of the home game audience to tobacco advertising. These ordinances also reduced the exposure of the entire television audience to tobacco advertising. In addition, the Master Settlement Agreement (MSA) specifically limited tobacco companies to sponsoring one sporting or cultural event per brand in the US each year. The MSA did not limit sponsorship of events outside the US. With global satellite coverage of nearly every major (and many minor) sporting and entertainment events, it was unclear whether the MSA provisions would further limit exposure to this type of advertising.

The CTS cannot disentangle the specific effects of local ordinances banning tobacco advertising at sporting events versus the MSA restrictions, but the surveys do provide evidence about changes over time in Californians' exposure to tobacco advertising on televised sporting events.

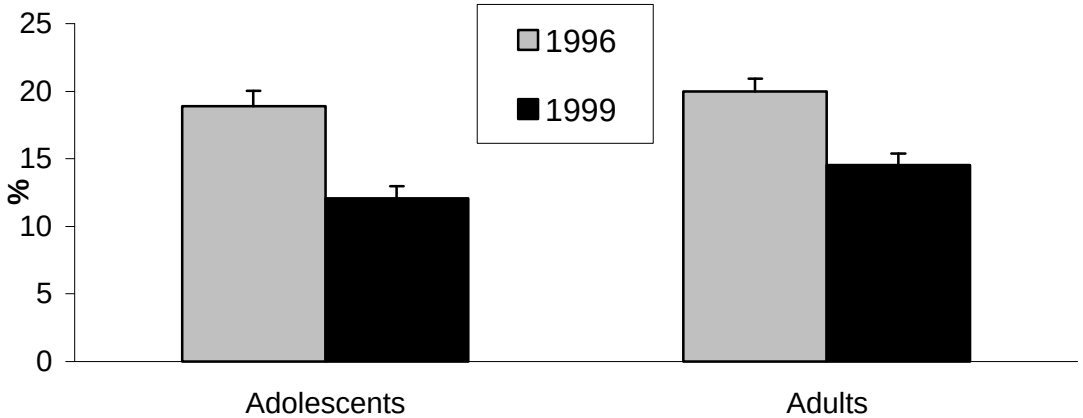
The 1996 and 1999 CTS asked all adults and adolescents the following question:

*In the last year, how often have you seen a sports event on television in which you saw a logo of a tobacco product?*

**Between 1996 and 1999, exposure to tobacco logos on televised sporting events decreased by a factor of 36.5% among California adolescents.**

Figure 8.1 shows that among both adolescents and adults, the percent that replied they saw a logo on a sports event on television "very often" in the past year decreased significantly between 1996 and 1999. Among adolescents, the percent decreased by

**Adolescents and Adults Who Reported They Saw a Tobacco Brand Logo on a Televised Sporting or Cultural Event "Very Often" in the Last Year**




| | 1996 | 1999 |
|---|---|---|
| Adolescents | 18.9 | 12.0 |
| Adults | 20.0 | 14.6 |

Source: CTS 1996, 1999

Figure 8.1

a factor of 36.5%; among adults, the percent that saw a logo on a televised sports event very often decreased by a factor of 27.2%. These data suggest that the local ordinances, along with the provision of the MSA that deals with event sponsorship, may have resulted in a decrease in exposure to tobacco industry advertising via this medium.

Appendix Tables A8.1 and A8.2 present detailed analyses of answers to this question by demographic group and smoking status for adolescents and adults, respectively.

## 2. Receptivity to Cigarette Advertising and Promotions

Favorite Ad

In general terms, evidence exists that developing a positive attitude toward an advertisement—liking the ad—is a precursor to product trial (MacKenzie, et al. 1986). Having a favorite cigarette ad significantly increases the probability that a committed never smoker will eventually progress toward smoking (Pierce, et al., 1998).

The 1993, 1996 and 1999 adolescent CTS and the 1996 and 1999 adult CTS asked all respondents the following question:

*What is the name of the cigarette brand of your favorite advertisement?*

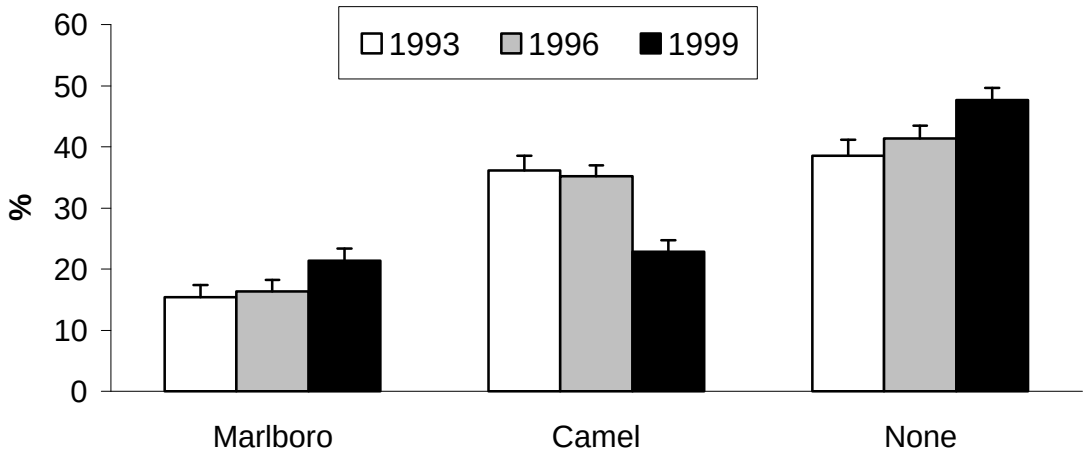
Respondents could provide the name of any brand to answer this question, but Marlboro and Camel accounted for the overwhelming majority of the responses. Thus, only the results for Marlboro, Camel and no favorite ad are reported.

Adolescent committed never smokers are an interesting group to examine since they have the least risk of becoming smokers in the future. Thus, it is unlikely that their ability to name a favorite ad is related to any particular interest in smoking that could have preceded (and therefore conditioned) their exposure to the ad. Further, earlier research showed that among this group of never smokers, those who had a favorite ad were about two-thirds more likely than those without a favorite ad to progress toward smoking (Pierce et al., 1998).

**Between 1996 and 1999, the decrease in committed never smokers' preference for Camel as their favorite ad was more than half made up by their increased preference for Marlboro.**

Figure 8.2 shows that between 1996 and 1999, the percent of adolescent committed never smokers that did not name a favorite ad increased significantly (from 41.4±2.0% to 47.7±2.0%), while the percent that named Camel as their favorite ad decreased significantly (from 35.3±1.8% to 22.9±1.9%). However, the percent that named Marlboro increased significantly over the same period (from 16.3±1.9% to 21.4±2.0%). While most important for committed never smokers, this pattern was present in other groups of

adolescents as well. Thus, it appears that the increases in the percent that named Marlboro at least partly accounted for the substantial decrease in the percent that named Camel.

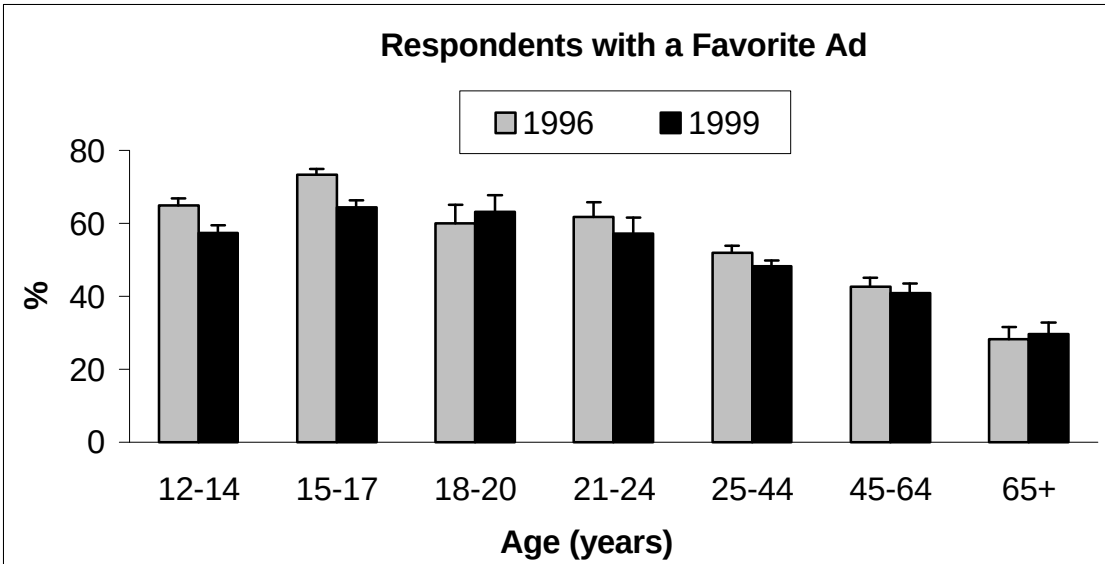



| | 1993 | 1996 | 1999 |
|---|---|---|---|
| Marlboro | 15.4 | 16.3 | 21.4 |
| Camel | 36.1 | 35.3 | 22.9 |
| None | 38.6 | 41.4 | 47.7 |

Source: CTS 1993, 1996, 1999

Figure 8.2

Figure 8.3 presents the percent of all respondents that named a favorite ad, by age group, in 1996 and 1999. The figure shows that in both 1996 and 1999, 15-17 year olds were the most likely age group to name a favorite ad. The figure also shows that the




| | 12-14 | 15-17 | 18-20 | 21-24 | 25-44 | 45-64 | 65+ |
|---|---|---|---|---|---|---|---|
| 1996 | 64.9 | 73.3 | 60.0 | 61.8 | 51.9 | 42.6 | 28.3 |
| 1999 | 57.4 | 64.4 | 63.2 | 57.2 | 48.3 | 40.9 | 29.7 |

Source: CTS 1996, 1999

Figure 8.3

decreases in the percent that could name a favorite ad were greatest among adolescents. Slightly more 18-20 year olds could name a favorite ad in 1999, compared to 1996. There were slight but insignificant decreases in the percent of 21-64 year olds with a favorite ad, and virtually no change in the percent of 65+ year olds with a favorite ad.

Appendix Tables A8.3 and A8.4 present adolescents' and adults' responses to the favorite ad question, analyzed by demographics and smoking status.

Cigarette Brand Promotional Items

The tobacco industry spends a substantial proportion of its advertising and promotional budget on promotional items, such as t-shirts, baseball caps, duffel bags, key-chains, or bottle-openers emblazoned with cigarette brand logos. Tobacco promotional items also can include "gear" such as a leather jacket or other apparel, which is sometimes less obviously branded, and available only through cigarette brand merchandise catalogues by coupon exchange.

Consumer behavior theory indicates that promotional items are important incentives, which help maximize the probability that a potential consumer will purchase a given brand (Ray, 1982). Thus, possession of such an item strongly indicates a positive feeling toward the brand.

A number of studies have linked the effectiveness of tobacco industry promotional activities with increases in adolescent smoking behavior (Pollay & Lavack, 1993; Evans et al., 1995; Gilpin et al., 1997; Pierce et al., 1998). Research has shown that adolescent committed never smokers who are willing to use a cigarette brand promotional item, or already have one, are nearly 3 times as likely as those who have no item, and are unwilling to use one to progress toward smoking (Pierce, et al. 1998).

To assess adolescents' and adults' attitudes about, and actual use of, cigarette brand promotional items, the 1996 and 1999 CTS asked all respondents the following question:

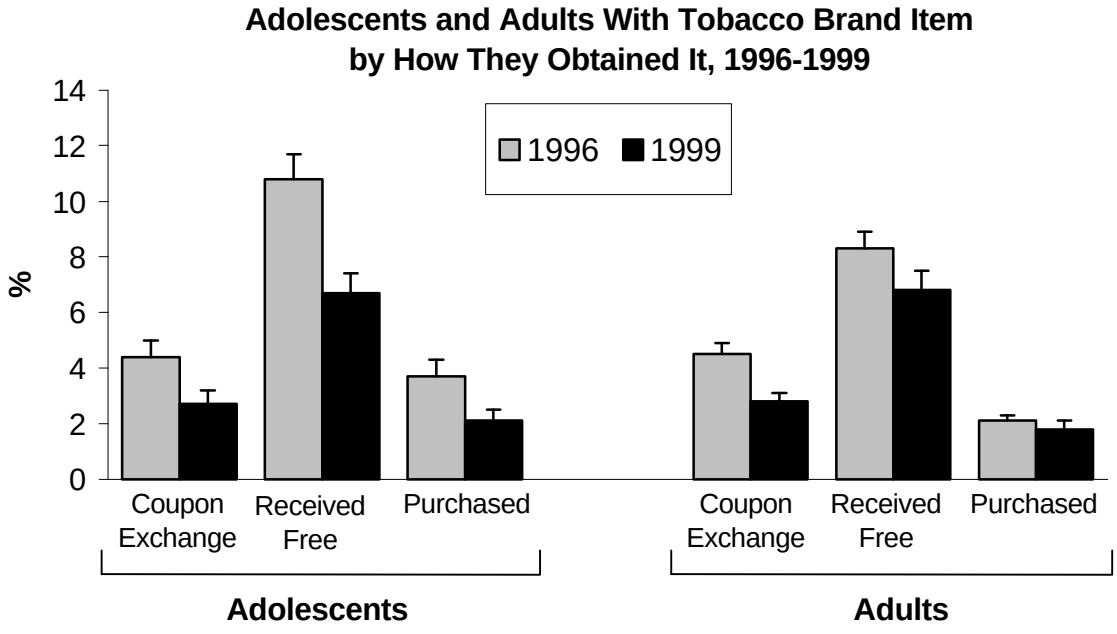
*Some tobacco companies offer promotional items, such as clothing and bags, which have the company brand name or logo on them and which the public can buy or receive for free. In the past 12 months have you . . .*

- *Exchanged coupons for an item with a tobacco brand name or logo on it?*
- *Received as a gift or for free, any item with a tobacco brand name or logo on it?*
- *Purchased any item with a tobacco brand name or logo on it?*

**Proportionally between 1996 and 1999, the decrease in the percent of adolescents that received a free tobacco promotional item was greater than for adults.**

Altogether between 1996 and 1999, possession of a promotional item from one of these sources decreased from 13.7±1.1% to 9.0±0.9% for adolescents, a factor decline of 34.5%. Adult rates also decreased, from 10.5±0.6% in 1996 to 8.5±0.7% in 1999, a factor decrease of 18.8%.

Figure 8.4 shows fewer adolescents and adults received tobacco brand promotional items in 1999, compared to 1996. In 1996, significantly more adolescents than adults either received such items for free or purchased them; approximately the same percent of adults and adolescents exchanged coupons for promotional items. By 1999, the percentages of adolescents and adults in each category were approximately equal. Between 1996 and 1999, the percent of adolescents that received a promotional item for free decreased by a factor of 40%, whereas the percent of adults that received a free promotional item decreased by a factor of 18%. This proportionally greater decrease among adolescents suggests that perhaps MSA provisions limiting the distribution of promotional items to adolescents were at least partly effective.




| | Adolescents | | | Adults | | |
|---|---|---|---|---|---|---|
| | Coupon Exchange | Received Free | Purchased | Coupon Exchange | Received Free | Purchased |
| 1996 | 4.4 | 10.8 | 3.7 | 4.5 | 8.3 | 2.1 |
| 1999 | 2.7 | 6.7 | 2.1 | 2.8 | 6.8 | 1.8 |

Source: CTS 1996, 1999

Figure 8.4

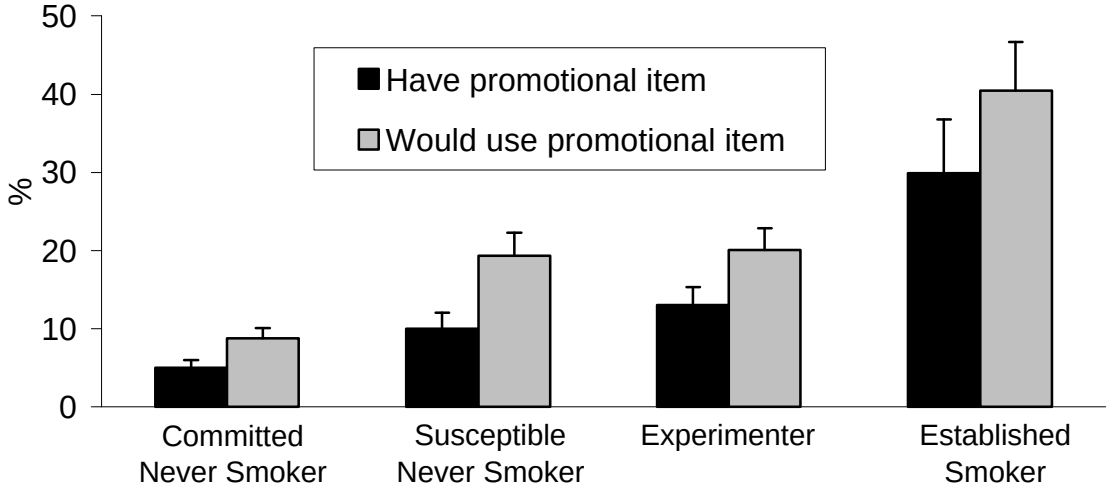
Appendix Tables A8.5 and A8.6 present the percent of adolescents and adults, respectively, that reported they received a tobacco brand promotional item (either as a gift, from coupon exchange, or by purchasing it grouped together) by demographic groups and smoking status.

Willingness to Use a Promotional Item

To specifically assess willingness to use tobacco brand promotional items, the following question was asked of adolescents in 1996 and 1999, and of adults in 1999 only:

*Do you think you would use a tobacco industry promotional item?*

In 1996, 23.7±1.2% of adolescents were willing to use a tobacco brand promotional item, compared to 14.9±1.1% of adolescents in 1999—a factor decrease of 37.2%. Aside from the decrease in ownership of promotional items, the patterns in the percent of adolescents who had a promotional item and who were willing to use one were very similar between 1996 and 1999. Thus, for simplicity, Figure 8.5 uses only 1999 data to illustrate the relationship between having a promotional item, being willing to use a promotional item, and smoking experience among adolescents.




| | Have promotional item | Would use promotional item |
|---|---|---|
| Committed Never Smoker | 5.0 | 8.7 |
| Susceptible Never Smoker | 10.0 | 19.3 |
| Experimenter | 13.1 | 20.1 |
| Established Smoker | 29.9 | 40.5 |

Source: CTS 1999

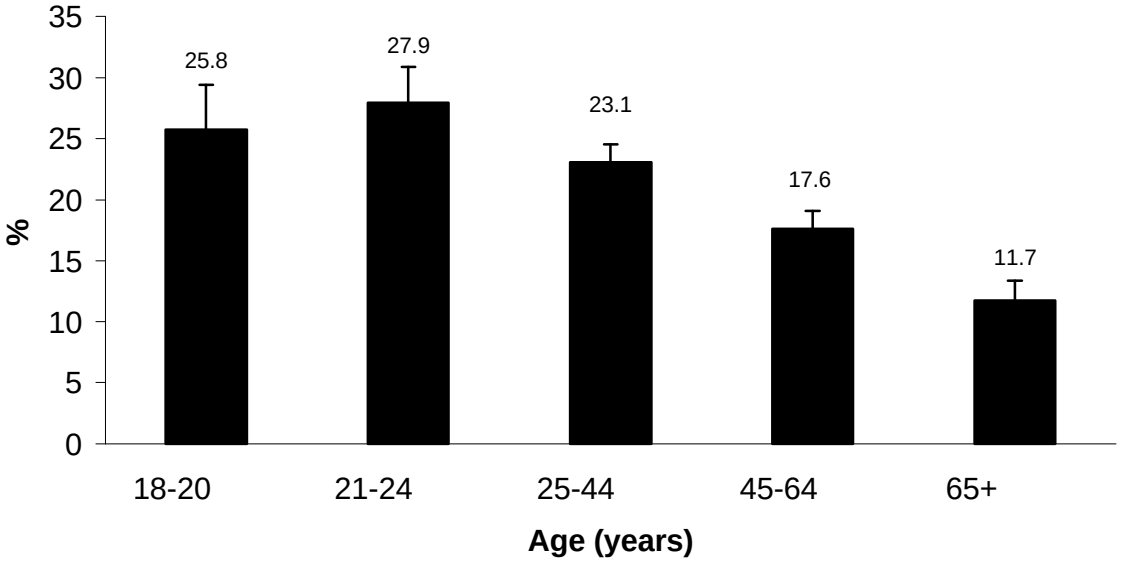
Figure 8.5

**There appears to be latent demand for tobacco brand promotional items among adolescents across levels of smoking experience: more adolescents are willing to use than actually have an item.**

Significantly fewer committed never smokers reported having or being willing to use an item, compared to susceptible never smokers. In turn, significantly fewer susceptible never smokers than experimenters, and significantly fewer experimenters than established smokers, had or were willing to use a tobacco branded item. The figure also suggests that among never smokers and experimenters, there

appears to be unsatisfied demand for tobacco brand promotional items: significantly more committed and susceptible never smokers and experimenters were willing to use an item than actually had one.

Figure 8.6 shows a clear age trend in willingness to use a tobacco brand promotional item among adults. Young adults (ages 18-24) were significantly more likely to be willing to use a tobacco promotional item than were adults over 25 years old. Comparing the willingness of young adults to use a promotional item with the willingness of adolescents shows that in 1999 significantly more young adults (25.8 ±3.7% of 18-20 year olds and 27.9±2.9% of 21-24 year olds) were willing to use a tobacco brand promotional item, compared to adolescents (11.7±1.4% of 12-14 year olds and 18.1±1.5% of 15-17 year olds) (see Appendix Tables A8.7 and A8.8). This trend may reflect a shift in the tobacco industry's marketing strategy after the MSA, more aggressively targeting the young adult market by sponsoring bar nights and other entertainment specifically appealing to this age group.




Source: CTS 1999

Figure 8.6

Appendix Tables A8.7 and A8.8 present responses to this question across demographic groups and smoking status for adolescents and adults, respectively.

Adults' Willingness to Give Children/Adolescents Tobacco Brand Promotional Items

The 1999 CTS also explored adults' willingness to give a child or teenager a tobacco brand promotional item with the following two questions:

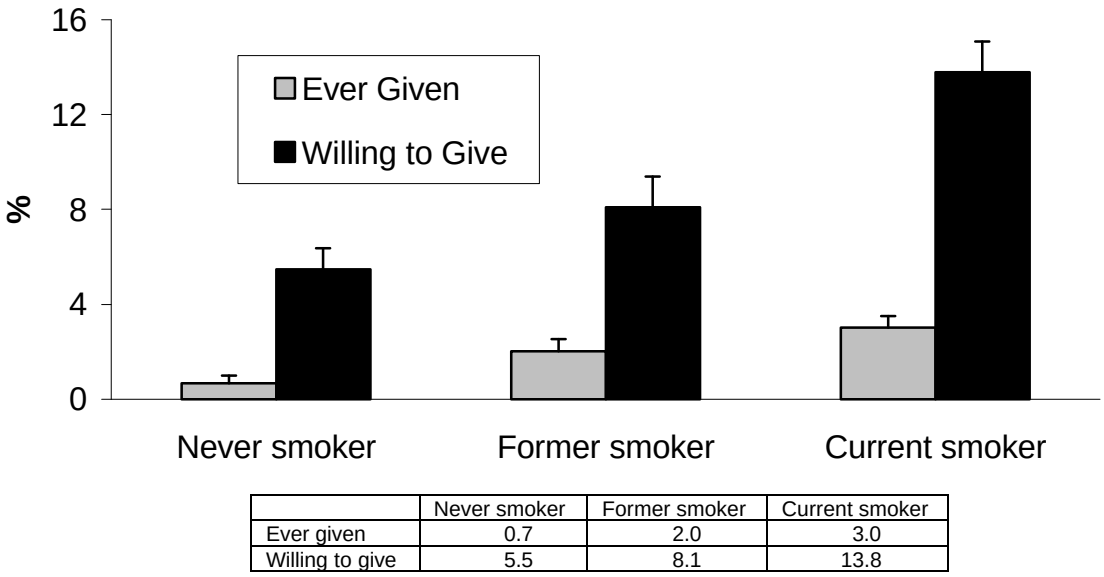
- *Have you ever given a tobacco promotional item to a child or teenager?*

- *Would you ever give a tobacco promotional item to a child or teenager if he or she wanted it?*

**Very few adults either had given or were willing to give a tobacco brand promotional item to a child or teenager.**

Overall, only 1.2±0.2% of adults responded that they had ever given a tobacco promotional item to a child or teenager. Significantly more adults (7.6±0.6%) reported that they would give such an item to a child or teenager if he or she wanted it. This pattern was consistent across demographic groups.

Figure 8.7 shows that having given or being willing to give a tobacco brand promotional item to a child or teenager was associated with adult smoking status. Current smokers had higher rates than former smokers, who in turn showed higher rates than never smokers. In each category of smoking status, very few adults reported that they had actually given a child or teenager a tobacco brand promotional item, but significantly more reported they were willing to give a child or teen such an item.




| | Never smoker | Former smoker | Current smoker |
|---|---|---|---|
| Ever given | 0.7 | 2.0 | 3.0 |
| Willing to give | 5.5 | 8.1 | 13.8 |

Source: CTS 1999

Figure 8.7

### 3. Anti-Tobacco Media Exposure

Between 1996 and 1999, there were important developments in the California Tobacco Control Program, which may have affected Californian's exposure to anti-tobacco media messages. In fiscal years 1994-1995 and 1995-1996, funding for the California Tobacco Control Program (TCP)—which develops and runs anti-tobacco advertisements on

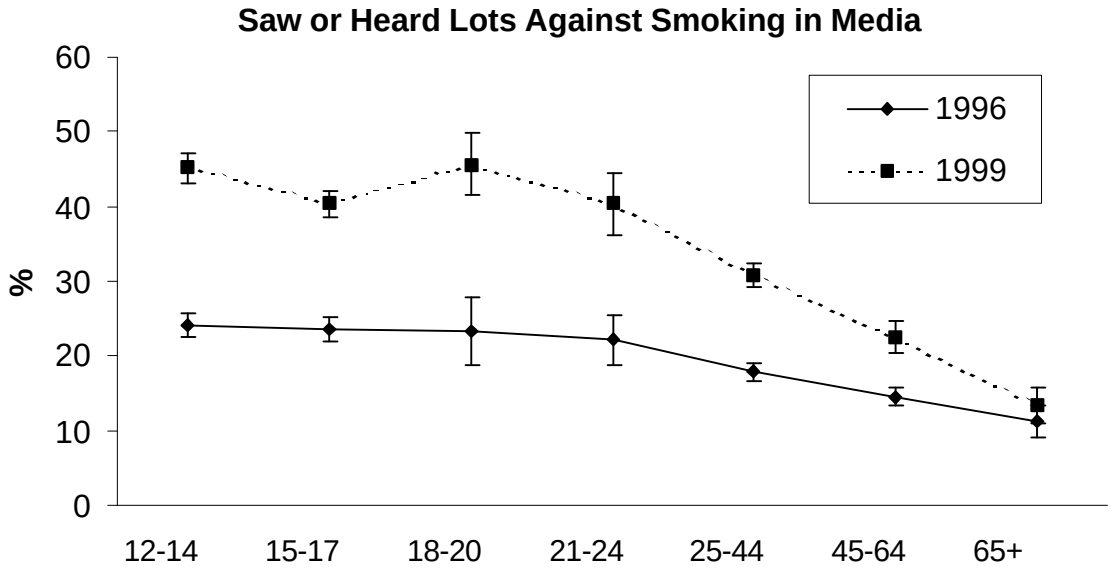
billboards, radio and television—was reduced to 50% of the level specified by Proposition 99 (TEROC 1997). In addition, two of the TCP's anti-smoking television ads that exposed tobacco industry tactics were kept off the air. In 1997, funding levels were returned to full allocation levels, and a new wave of anti-tobacco ads were developed (TEROC 1997). Between 1997 and 1999, the budget for the TCP media campaign however, decreased slightly and only 1 new anti-tobacco advertisement was introduced.

In both 1996 and 1999, the California Tobacco Surveys included the following questions as an indication of exposure to anti-tobacco media messages:

- *In the last month, have you seen anything on TV against smoking?*
- *In the last month, have you heard anything on the radio against smoking?*
- *In the last month, have you seen a billboard with a message against smoking?*

To assess overall exposure to the anti-tobacco media, responses to these questions were grouped together, so that if a respondent answered "a lot" to any of the three questions, they were categorized as having "lots" of exposure to anti-smoking media.

Figure 8.8 shows that in 1999, significantly more Californians between 12-64 years old reported that they were exposed to lots of anti-tobacco messages over the TV, radio, or on billboards, compared to 1996. There was no significant difference in the exposure of older adults (65+ years old) to anti smoking media between 1996 and 1999.




| | Age | | | | | | |
|---|---|---|---|---|---|---|---|
| | 12-14 | 15-17 | 18-20 | 21-24 | 25-44 | 45-64 | 65+ |
| 1996 | 24.1 | 23.5 | 23.4 | 22.2 | 17.9 | 14.6 | 11.3 |
| 1999 | 45.2 | 40.3 | 45.7 | 40.4 | 30.8 | 22.4 | 13.4 |

Source: CTS 1996, 1999

Figure 8.8

**Both the increased funding for the Tobacco Control Program's media campaign starting in 1997 and the extensive news coverage of tobacco industry litigation probably contributed to the increased self-reported exposure to anti-tobacco media in 1999.**

Some of the increase in exposure to anti-smoking media between 1996 and 1999 likely reflected the change in the TCP's media budget and activities beginning in 1996, compared to earlier when the budget was cut. The data in the first row of Table 8.1 are for an 18-month period, but nonetheless represent a lower budget than subsequently. However, the real expenditures (adjusted for inflation) for anti-tobacco media by the California Tobacco Control Program changed very little between 1997 and 1998, and actually decreased slightly in 1999. Therefore, it is also possible that some of the increase in media exposure reflected the growing news coverage of tobacco industry litigation and regulation.

**Table 8.1**
**California Tobacco Control Program Anti-tobacco Media Expenditures**
**($ Millions, Adjusted to 1999$)**

| | Outdoor Media (billboards, etc.) $ Millions | General Public Media* (Adults/Teens) $ Millions | Media* Aimed at Teens, 12-17 Years $ Millions | Total $ Millions |
|---|---|---|---|---|
| 1995-1996** | 2.10 | 9.44 | 0.81 | 12.35 |
| 1997 | 2.35 | 8.64 | 4.42 | 15.41 |
| 1998 | 2.59 | 9.20 | 3.74 | 15.53 |
| 1999 | 2.12 | 10.06 | 1.84 | 14.03 |

*TV, radio, and miscellaneous

**18-month period

Source: California Department of Health Services Media Plans: 1997, 1998, 1999.

### 4. Attitudes About Tobacco Advertising Regulation

To assess adults' attitudes about further regulation of tobacco industry advertising and promotional strategies, the 1999 CTS asked all adults the following three questions:

- *Do you think schools should prohibit students from wearing clothing or bringing gear with tobacco brand logos to school?*
- *Should the tobacco industry be permitted to offer items such as clothing or camping equipment in exchange for coupons on cigarette packs?*
- *Do you think that advertising of tobacco products should be allowed or banned?*

Table 8.2 presents the percent of respondents that answered affirmatively to the above questions, by demographic groups and smoking status.

**Table 8.2**
**Adult Attitudes about Regulating Tobacco Industry Advertising and Promotional Activities in 1999**

| | Schools Should Prohibit Wearing Clothes or Bringing Gear with Tobacco Logos to School<br>% Agree | Industry Should Not be Permitted to Offer Items for Coupons on Cigarette Packs<br>% Agree | Advertising of Tobacco Products Should be Banned<br>% Agree |
|---|---|---|---|
| Overall | 68.9 (±1.0) | 58.0 (±1.0) | 63.2 (±0.9) |
| Gender | | | |
| Male | 63.4 (±1.5) | 51.2 (±1.6) | 56.2 (±1.5) |
| Female | 74.2 (±1.3) | 64.6 (±1.5) | 70.0 (±1.2) |
| Age | | | |
| 18-24 | 64.1 (±2.2) | 51.7 (±3.0) | 55.7 (±2.8) |
| 25-44 | 69.4 (±1.5) | 55.4 (±1.6) | 62.3 (±1.3) |
| 45-64 | 70.8 (±2.0) | 59.4 (±1.7) | 66.4 (±1.6) |
| 65+ | 68.3 (±2.6) | 69.9 (±2.8) | 67.4 (±3.5) |
| Race/Ethnicity | | | |
| African American | 72.0 (±4.4 | 59.3 (±5.8) | 64.1 (±5.0) |
| Asian/PI | 68.5 (±4.1) | 58.0 (±3.9) | 68.1 (±4.1) |
| Hispanic | 76.9 (±2.0) | 68.2 (±2.3) | 76.8 (±2.0) |
| Non-Hispanic White | 64.9 (±1.3) | 52.9 (±1.4) | 55.3 (±1.3) |
| Education | | | |
| <12 | 75.8 (±3.2) | 67.2 (±3.3) | 80.6 (±2.4) |
| 12 | 70.3 (±2.0) | 60.3 (±1.9) | 64.0 (±1.6) |
| 13-15 | 66.8 (±2.1) | 54.0 (±2.0) | 57.3 (±2.1) |
| 16+ | 64.6 (±1.7) | 53.1 (±1.8) | 55.6 (±1.8) |
| Smoking Status | | | |
| Never smoker | 72.3 (±1.3) | 62.5 (±1.6) | 67.1 (±1.4) |
| Former smoker | 67.6 (±2.5) | 60.5 (±2.2) | 63.2 (±2.2) |
| Current smoker | 60.2 (±1.6) | 40.7 (±1.8) | 51.1 (±1.5) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

**In 1999, nearly two-thirds of Californians thought that all advertising of tobacco products should be banned.**

Table 8.2 shows that in 1999, the majority of adults in California thought that schools should prohibit students from wearing clothes with tobacco brand logos or bringing gear with such logos to school. The majority of California adults in 1999 also thought that

the tobacco industry should not be permitted to offer promotional items in exchange for coupons from cigarette packs. Further, the majority if California adults also thought that all advertising of tobacco products should be banned.

Men were significantly less likely than women to answer positively to the above questions. Young adults (18-24 years old) were significantly less likely than adults over 25 years old to respond that they thought schools should prohibit students from wearing clothes or bringing gear to school with tobacco brand logos on them. Similarly, 18-24 year olds were significantly less likely than adults over 45 years old to respond that they thought the tobacco industry should not be permitted to offer items for coupons or that advertising of tobacco products should be banned. Non-Hispanic White adults were significantly less likely than adults of other race/ethnic groups to agree to the questions about regulation. As education levels increased, support for regulating tobacco advertising and promotional activities decreased. Current smokers were significantly less likely than never or former smokers to advocate further regulation of tobacco industry advertising and promotional activities.

**5. Summary**

The chapter showed that between 1996 and 1999, Californians' exposure to tobacco advertising on televised sporting events decreased.

Several measures indicated that Californians—and adolescents in particular—were less receptive to tobacco industry advertising and promotional activities in 1999 than in 1996. For example, significantly more adolescents had no favorite cigarette advertisement and significantly fewer named Camel as the brand of their favorite ad in 1999, compared to 1996 or 1993. However, significantly more adolescents named Marlboro as the brand of their favorite advertisement in 1999. The percent of California adults with no favorite cigarette advertisement changed very little between 1996 and 1999.

The CTS data showed that significantly fewer adults and adolescents obtained tobacco brand promotional items, either for free, by coupon exchange or by purchasing the items in 1999, compared to 1996. Significantly fewer adolescents were willing to use a tobacco brand promotional item in 1999, compared to 1996. The 1999 CTS data confirmed the relationship between having or being willing to use a tobacco brand promotional item and adolescent smoking status. The data also showed that significantly more never smokers and experimenters were willing to use such an item, compared to the number that actually had an item. Among adults in 1999, willingness to use a tobacco brand promotional item was inversely related to age: 27.9±2.9% of 21-24 year olds were willing to use an item, compared to 23.1±1.5% of 25-44 year olds and only 11.7±1.6% of 65+ year olds.

In 1999, very few adults reported that they had ever given a child or teenager a tobacco brand promotional item, but significantly more adults reported that they would be willing to give a child or teenager such an item if he or she wanted it. Willingness to

give a child or teenager a tobacco brand promotional item was related to adult smoking status: current smokers were significantly more willing to give a child or teenager a promotional item than were former or never smokers.

For all but the oldest adults, Californians reported significantly more exposure to anti-smoking media in 1999 than in 1996. This finding probably reflects restored program media budgets and the publicity surrounding the Master Settlement Agreement.

A majority of adults supported further regulation of tobacco industry advertising and promotional activities.

## CHAPTER 8: KEY FINDINGS

1. Exposure to tobacco advertising, in the form of seeing logos on televised sporting events, decreased significantly among both adolescents (by a factor of 36.5%) and adults (by a factor of 27.2%) between 1996 and 1999.

2. The percentage of adolescent committed never smokers that named Camel as the brand of their favorite advertisement decreased significantly between 1996 and 1999. However, the percent that named Marlboro as the brand of their favorite ad increased significantly.

3. Among all respondents, having a favorite brand of cigarette advertisements was inversely related to age: around 60% of respondents under age 25 had a favorite ad, while less than half of adults between 25 and 64 years old, and fewer than 30% of those 65 years and older had a favorite ad.

4. Fewer adolescents (by a factor of 34.5%) and adults (by a factor of 18.8%) received tobacco promotional items in 1999, compared to 1996. In 1999, 9.0±0.9% of adolescents received a promotional item.

5. Significantly fewer adolescents (14.9±1.1%) were willing to use a tobacco brand promotional item in 1999, compared to 1996 (23.7±1.2%).

6. In both 1996 and 1999, significantly more adolescents were willing to use a tobacco brand promotional item than actually had such an item, suggesting that there may be some unsatisfied demand for these items across all levels of smoking experience.

7. In 1999, significantly more young adults (18-24 years old) than adolescents were willing to use a tobacco brand promotional item.

8. Overall, only 1.2±0.2% of adults reported that they had ever given a tobacco promotional item to a child or teenager. Significantly more—but still very few—adults (7.6±0.6%) reported that they would be willing to give a child or teenager such an item if they wanted it.

9. In 1999, considerably more Californians between 12-64 years old reported that they were exposed to lots of anti-tobacco messages over the TV, radio, or on billboards, compared to 1996. Some of this increase may reflect the volume of news coverage of the tobacco industry litigation and regulation during 1997-1999.

10. In 1999, 68.9±1.0% of adults reported that they thought schools should prohibit students from wearing clothes with tobacco logos or bringing gear with tobacco logos to school. Nearly as many reported that they thought the industry should not be permitted to offer items in exchange for coupons on cigarette packs (58.0±1.0%) and that the advertising of tobacco products should be completely banned (63.2±0.9%).

## CHAPTER 8: APPENDIX

This appendix presents supporting tabular data for demographic and smoking status groups for the material covered in the main body of the chapter. The tables relevant to each section are shown under the corresponding chapter section and subsection heading.

### 1. Exposure to Cigarette Advertisements of Televised Sporting Events

**Table A8.1**
**Adolescent Reporting Seeing a Tobacco Logo on a Televised Sports Event Very Often in the Last Year**

| | 1996 % | 1999 % | Factor Decrease 1996-1999 % |
|---|---|---|---|
| Overall | 18.9 (±1.1) | 12.0 (±1.0) | -36.4 |
| Gender | | | |
| Male | 22.1 (±1.9) | 14.4 (±1.5) | -35.0 |
| Female | 15.4 (±1.3) | 9.5 (±1.5) | -38.2 |
| Age | | | |
| 12-14 | 17.9 (±1.6) | 10.2 (±1.1) | -43.0 |
| 15-17 | 19.9 (±1.6) | 13.9 (±1.4) | -30.1 |
| Race/Ethnicity | | | |
| African American | 16.6 (±3.6) | 13.4 (±4.3) | -18.8 |
| Asian/PI | 16.1 (±3.1) | 10.9 (±3.5) | -32.4 |
| Hispanic | 16.4 (±1.7) | 10.4 (±1.4) | -36.6 |
| Non-Hispanic White | 21.9 (±1.6) | 13.8 (±1.6) | -36.9 |
| School Performance | | | |
| Much better than average | 20.8 (±2.5) | 14.2 (±2.6) | -31.4 |
| Better than average | 18.9 (±1.8) | 11.8 (±1.7) | -37.5 |
| Average and below | 17.9 (±1.5) | 11.2 (±1.3) | -37.6 |
| Smoking Status | | | |
| Committed never smoker | 17.5 (±1.8) | 11.0 (±1.3) | -37.2 |
| Susceptible never smoker | 18.4 (±2.3) | 12.0 (±1.9) | -35.0 |
| Non-current experimenter | 20.3 (±2.3) | 14.4 (±3.0) | -29.0 |
| Current experimenter | 21.2 (±5.7) | 11.2 (±3.9) | -47.3 |
| Non-current established | 26.8 (±10.3) | 16.9 (±13.4) | -37.0 |
| Current established | 22.4 (±5.6) | 15.3 (±5.1) | -31.8 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996,1999

Appendix Table A8.1 shows that overall, the percent of adolescents that reported seeing a tobacco logo on a televised sports event very often in the last year decreased by a

factor of 36.4%, from 18.9±1.1% in 1996 to 12.0±1.0% in 1999. The decrease was slightly larger for females compared to males. Importantly, the factor decrease was quite large (43.0%) for 12-14 year olds.

In 1996, a significantly higher percentage of Non-Hispanic Whites reported seeing a tobacco logo on a televised sports event very often in the past year, compared to respondents of other race/ethnic groups. By 1999, there were no significant differences in exposure between the different race/ethnic groups. Exposure did not vary significantly by school performance or smoking status.

**Table A8.2**
**Adults Reporting Seeing a Tobacco Logo on a Televised Sports Event Very Often in the Last Year**

| | 1996 % | 1999 % | Factor Decrease 1996-1999 % |
|---|---|---|---|
| Overall | 20.0 (±0.9) | 14.6 (±0.8) | -27.2 |
| Gender | | | |
| Male | 26.0 (±1.3) | 18.1 (±1.3) | -30.7 |
| Female | 14.1 (±1.2) | 11.2 (±1.3) | -20.6 |
| Age | | | |
| 18-20 | 23.7 (±4.7) | 17.0 (±3.6) | -28.2 |
| 21-24 | 21.7 (±3.7) | 21.7 (±3.9) | 0.0 |
| 25-44 | 23.1 (±1.4) | 16.9 (±1.3) | -27.0 |
| 45-64 | 17.7 (±1.6) | 12.0 (±1.4) | -31.9 |
| 65+ | 11.0 (±2.4) | 7.3 (±1.5) | -33.3 |
| Race/Ethnicity | | | |
| African American | 14.5 (±3.2) | 11.6 (±3.5) | -19.4 |
| Asian/PI | 14.4 (±2.9) | 10.6 (±2.6) | -26.7 |
| Hispanic | 18.0 (±2.2) | 17.0 (±1.9) | -5.2 |
| Non-Hispanic White | 22.7 (±1.1) | 14.4 (±0.9) | -36.8 |
| Education | | | |
| <12 | 15.6 (±2.4) | 14.2 (±2.4) | -9.0 |
| 12 | 18.0 (±1.5) | 14.9 (±1.6) | -17.2 |
| 13-15 | 22.6 (±1.7) | 14.7 (±1.1) | -34.9 |
| 16+ | 22.8 (±1.5) | 14.4 (±1.3) | -36.9 |
| Smoking Status | | | |
| Never smoker | 19.9 (±1.5) | 14.5 (±1.1) | -27.1 |
| Former smoker | 20.0 (±1.6) | 14.9 (±1.8) | -25.4 |
| Current smoker | 20.3 (±1.1) | 14.2 (±1.1) | -29.9 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996,1999

Between 1996 and 1999, the percent of adults that reported seeing a tobacco logo on a televised sports event decreased by a factor of 27.2%, from 20.0±0.9% to 14.6±0.8%.

In both 1996 and 1999, females were significantly less likely than males to report seeing a tobacco logo on a televised sports event very often in the past year. In 1996, the percentage of Non-Hispanic Whites that reported such exposure was significantly higher than that of Hispanic respondents, which was in turn higher than the percentages in the other race/ethnic groups. By 1999, a significantly higher percentage of Hispanic respondents reported such exposure, compared to the other race/ethnic groups, but

otherwise there were no significant differences between race/ethnic groups. The factor decrease in exposure among Hispanics was only 5.2% between 1996 and 1999, compared to 19.4% for African Americans, 26.7% for Asian/PIs, and 36.8% for Non-Hispanic Whites.

In 1996, exposure was higher among more highly educated respondents, but by 1999 there were no significant differences across education levels. In both 1996 and 1999, there were no significant differences across smoking status in exposure.

## 2. Receptivity to Cigarette Advertising and Promotions

Favorite Ad

**Table A8.3**
**Adolescents' Named Brand of Favorite Advertisement**

| | Marlboro | | | Camel | | | None | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1993 % | 1996 % | 1999 % | 1993 % | 1996 % | 1999 % | 1993 % | 1996 % | 1999 % |
| Overall | 20.6 (±1.7) | 22.1 (±1.4) | 26.2 (±1.5) | 39.5 (±2.0) | 38.6 (±1.3) | 25.6 (±1.3) | 29.0 (±2.0) | 30.9 (±1.2) | 39.1 (±1.2) |
| Gender | | | | | | | | | |
| Male | 21.8 (±2.4) | 25.2 (±1.9) | 28.9 (±2.0) | 46.7 (±2.6) | 40.8 (±1.8) | 25.7 (±1.7) | 25.0 (±2.9) | 28.1 (±1.4) | 37.6 (±1.8) |
| Female | 19.4 (±2.0) | 18.6 (±2.0) | 23.1 (±1.9) | 32.3 (±2.8) | 36.1 (±2.3) | 25.4 (±1.8) | 32.9 (±2.8) | 34.1 (±2.1) | 40.8 (±1.8) |
| Age | | | | | | | | | |
| 12-14 | 18.2 (±2.2) | 17.8 (±1.7) | 24.2 (±2.2) | 41.0 (±2.6) | 38.3 (±1.9) | 25.2 (±2.0) | 31.0 (±2.4) | 35.1 (±1.9) | 42.6 (±2.1) |
| 15-17 | 23.3 (±2.7) | 26.3 (±2.0) | 28.1 (±2.0) | 37.8 (±2.9) | 39.0 (±2.0) | 25.9 (±2.0) | 26.7 (±2.6) | 26.7 (±1.7) | 35.6 (±2.0) |
| Race/Ethnicity | | | | | | | | | |
| African American | 7.1 (±3.1) | 6.8 (±2.7) | 14.3 (±3.9) | 35.8 (±7.5) | 33.1 (±4.0) | 26.0 (±5.8) | 34.0 (±8.1) | 35.7 (±4.5) | 38.8 (±5.2) |
| Asian/PI | 19.1 (±4.8) | 25.7 (±4.2) | 25.5 (±6.0) | 34.3 (±6.6) | 32.6 (±5.1) | 25.9 (±4.9) | 35.1(±7.5) | 32.7 (±4.6) | 37.9 (±5.1) |
| Hispanic | 25.2 (±3.5) | 26.5 (±2.6) | 30.2 (±2.4) | 36.8 (±4.2) | 34.7 (±2.8) | 21.0 (±2.1) | 29.7 (±3.8) | 32.9 (±2.5) | 42.2 (±2.4) |
| Non-Hisp White | 20.2 (±2.1) | 20.7 (±1.6) | 25.3 (±1.9) | 42.9 (±2.5) | 43.1 (±1.7) | 29.5 (±1.8) | 26.4 (±2.4) | 28.6 (±1.9) | 36.8 (±2.2) |
| School Performance | | | | | | | | | |
| Much better | 17.8 (±3.4) | 18.2 (±3.0) | 22.4 (±2.5) | 38.4 (±4.0) | 38.6 (±2.7) | 25.2 (±2.3) | 33.4 (±4.8) | 32.7 (±3.0) | 39.9 (±2.6) |
| Better than average | 17.8 (±2.7) | 19.8 (±1.9) | 24.6 (±2.2) | 40.4 (±3.6) | 42.0 (±2.6) | 27.3 (±2.1) | 30.1 (±3.2) | 30.4 (±2.2) | 39.3 (±2.3) |
| Average and below | 24.1 (±2.7) | 26.6 (±2.1) | 29.4 (±2.0) | 39.2 (±3.0) | 35.4 (±2.2) | 24.2 (±2.0) | 26.2 (±2.8) | 30.3 (±2.1) | 38.5 (±2.3) |
| Smoking status | | | | | | | | | |
| Committed never smoker | 15.4 (±2.0) | 16.3 (±1.9) | 21.4 (±2.0) | 36.1 (±2.4) | 35.3 (±1.8) | 22.9 (±1.9) | 38.6 (±2.6) | 41.4 (±2.0) | 47.7 (±2.0) |
| Susceptible never smoker | 24.4 (±4.9) | 20.7 (±3.1) | 28.1 (±3.9) | 39.5 (±5.2) | 42.2 (±3.2) | 27.8 (±3.3) | 25.6 (±4.9) | 28.4 (±3.1) | 34.1 (±3.1) |
| Non-current experimenter | 21.6 (±3.0) | 23.4 (±2.9) | 31.0 (±2.9) | 45.3 (±4.1) | 42.7 (±3.4) | 27.4 (±3.0) | 20.3 (±3.6) | 23.2 (±2.7) | 32.0 (±2.9) |
| Current experimenter | 33.7 (±7.3) | 43.4 (±5.8) | 38.0 (±6.9) | 41.3 (±9.2) | 34.7 (±5.6) | 30.8 (±7.1) | 14.1 (±5.2) | 13.5 (±3.5) | 16.9 (±4.9) |
| Non-current established | 31.8 (±18.0) | 36.3 (±11.6) | 34.0 (±14.0) | 35.9 (±17.4) | 35.7 (±10.2) | 38.5 (±15.5) | 21.3 (±11.2) | 17.0 (±9.8) | 22.3 (±15.2) |
| Current Established | 38.6 (±7.7) | 38.4 (±5.6) | 40.0 (±8.0) | 40.2 (±7.4) | 40.0 (±5.3) | 30.0 (±5.8) | 8.6 (±3.7) | 13.4 (±4.4) | 15.4 (±6.3) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1993,1996,1999

Appendix Table A8.3 shows that in 1993 and 1996, fewer girls than boys named Camel or Marlboro as the brand of their favorite ad, but by 1999, this gender gap was no longer statistically significant. Significantly fewer African-American adolescents named Marlboro as their favorite ad in each year, compared to teens of other racial/ethnic groups. Similarly, significantly more Hispanic adolescents named Marlboro in each year, compared to adolescents of other racial/ethnic groups. There were no significant differences between racial/ethnic groups and only minimal differences in favorite ads by school performance or smoking status, except that committed never smokers are significantly more likely to have no favorite tobacco ad.

**Table A8.4**
**Adults' Named Brand of Favorite Advertisement**

| | Marlboro | | Camel | | None | |
|---|---|---|---|---|---|---|
| | 1996 % | 1999 % | 1996 % | 1999 % | 1996 % | 1999 % |
| Overall | 21.4 (±1.1) | 24.2 (±1.2) | 18.3 (±0.9) | 13.0 (±0.8) | 52.3 (±1.4) | 54.5 (±1.1) |
| Gender | | | | | | |
| Male | 25.5 (±1.6) | 28.1 (±1.5) | 21.7 (±1.3) | 14.9 (±1.1) | 46.9 (±2.1) | 49.7 (±1.7) |
| Female | 17.4 (±1.1) | 20.4 (±1.4) | 15.0 (±1.0) | 11.1 (±1.1) | 57.7 (±1.4) | 59.2 (±1.4) |
| Age | | | | | | |
| 18-20 | 24.1 (±3.8) | 28.4 (±4.9) | 27.9 (±4.2) | 24.3 (±4.1) | 40.0 (±5.2) | 36.8 (±4.5) |
| 21-24 | 26.4 (±3.5) | 27.5 (±4.1) | 28.0 (±3.1) | 22.1 (±3.6) | 38.2 (±4.1) | 42.8 (±4.4) |
| 25-44 | 23.6 (±1.6) | 25.6 (±1.7) | 20.1 (±1.5) | 14.2 (±1.1) | 48.1 (±2.0) | 51.7 (±1.5) |
| 45-64 | 19.9 (±1.8) | 23.4 (±2.5) | 14.8 (±1.5) | 9.4 (±1.4) | 57.4 (±2.5) | 59.1 (±2.7) |
| 65+ | 12.3 (±2.1) | 17.1 (±2.9) | 8.8 (±2.3) | 5.6 (±1.4) | 71.7 (±3.3) | 70.3 (±3.1) |
| Race/Ethnicity | | | | | | |
| African American | 11.2 (±2.8) | 12.8 (±2.7) | 17.6 (±3.7) | 13.0 (±3.5) | 54.1 (±4.8) | 57.4 (±5.3) |
| Asian/PI | 27.2 (±4.3) | 29.4 (±5.8) | 14.4 (±3.3) | 12.2 (±4.0) | 49.3 (±5.1) | 50.3 (±5.8) |
| Hispanic | 24.8 (±2.5) | 27.7 (±2.5) | 15.1 (±1.9) | 9.9 (±1.4) | 54.6 (±2.8) | 57.8 (±2.4) |
| Non-Hispanic White | 20.4 (±1.1) | 22.9 (±1.2) | 20.5 (±1.1) | 14.7 (±0.9) | 51.4 (±1.5) | 53.3 (±1.1) |
| Education | | | | | | |
| <12 | 22.9 (±3.4) | 25.6 (±4.3) | 12.5 (±2.3) | 8.6 (±2.3) | 58.2 (±3.5) | 60.1 (±3.8) |
| 12 | 22.5 (±1.8) | 26.4 (±1.6) | 17.7 (±1.4) | 13.9 (±1.3) | 50.7 (±2.5) | 51.6 (±2.1) |
| 13-15 | 21.3 (±1.7) | 22.8 (±1.5) | 22.1 (±1.7) | 15.2 (±1.5) | 47.7 (±2.0) | 53.2 (±1.9) |
| 16+ | 19.3 (±1.7) | 22.4 (±1.9) | 19.9 (±1.7) | 13.3 (±1.5) | 53.7 (±1.9) | 54.5 (±2.0) |
| Smoking Status | | | | | | |
| Never smoker | 18.0 (±1.5) | 20.3 (±1.7) | 17.9 (±1.4) | 12.9 (±1.2) | 57.4 (±1.9) | 60.3 (±1.7) |
| Former smoker | 21.9 (±2.0) | 27.3 (±2.5) | 18.4 (±2.1) | 11.5 (±1.3) | 52.0 (±2.8) | 53.3 (±2.4) |
| Current smoker | 31.1 (±1.5) | 31.7 (±1.6) | 19.6 (±1.0) | 15.5 (±1.3) | 37.7 (±1.4) | 38.8 (±1.7) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996,1999

Appendix Table A8.4 indicates that in both 1996 and 1999, significantly fewer females named Marlboro or Camel as their favorite brand, and significantly more females reported no favorite brand. In both years, as age increased above the 21-24 year old age group, the percent that named Marlboro or Camel as a favorite ad decreased (and the percent that responded "none" increased).

In both years, significantly fewer African Americans named Marlboro as the brand of their favorite ad, but there were no significant differences between racial/ethnic groups in the percent that named Camel or "none" as the brand of their favorite ad. In 1999, significantly fewer adults with at least some college education named Marlboro as the brand of their favorite ad, compared to adults with no college education. In both 1996

and 1999, significantly fewer adults who had not graduated from high school named Camel as the brand of their favorite ad, compared to other adults.

In both 1996 and 1999, significantly fewer current smokers than former smokers, and in turn significantly fewer former than never smokers, reported "none" as the brand of their favorite ad. Correspondingly, significantly more current smokers named Marlboro as the brand of their favorite ad, compared to never smokers. There was no difference across smoking status in the percent that named Camel as the brand of their favorite ad.

Cigarette Brand Promotional Items

**Table A8.5**
**Adolescents with Tobacco Brand Promotional Items**
**(Exchanged Coupons, Received Free, or Purchased)**

| | 1996 % | 1999 % | Factor Decrease 1996-1999 % |
|---|---|---|---|
| Overall | 13.7 (±1.1) | 9.0 (±0.9) | -34.5 |
| Gender | | | |
| Male | 16.2 (±1.8) | 10.8 (±1.4) | -33.0 |
| Female | 11.0 (±1.3) | 6.9 (±1.1) | -36.6 |
| Age | | | |
| 12-14 | 11.5 (±1.4) | 8.1 (±1.1) | -30.1 |
| 15-17 | 15.8 (±1.6) | 9.9 (±1.3) | -37.6 |
| Race/Ethnicity | | | |
| African American | 11.9 (±3.8) | 7.9 (±3.1) | -33.3 |
| Asian/PI | 14.1 (±3.7) | 8.4 (±3.2) | -40.7 |
| Hispanic | 12.6 (±2.0) | 8.7 (±1.5) | -30.9 |
| Non-Hispanic White | 14.1 (±1.2) | 9.3 (±1.1) | -33.9 |
| School Performance | | | |
| Much better than average | 10.3 (±1.5) | 7.1 (±1.9) | -31.3 |
| Better than average | 13.4 (±1.8) | 8.3 (±1.6) | -37.8 |
| Average and below | 15.9 (±1.8) | 10.4 (±1.4) | -34.4 |
| Smoking Status | | | |
| Committed never smoker | 6.9 (±1.1) | 5.0 (±1.0) | -27.5 |
| Susceptible never smoker | 12.4 (±2.2) | 10.0 (±2.1) | -18.9 |
| Non-current experimenter | 18.0 (±3.1) | 12.2 (±)2.3 | -32.5 |
| Current experimenter | 20.8 (±4.6) | 16.8 (±5.9) | -19.3 |
| Non-current established | 37.5 (±13.1) | 30.0 (±17.0) | -20.0 |
| Current established | 41.7 (±6.3) | 29.9 (±7.7) | -28.3 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996,1999

Appendix Table A8.5 shows that overall, the percent of adolescents that reported they had either exchanged coupons for, received as a gift, or purchased a tobacco brand item decreased significantly, by a factor of 34.5% between 1999 and 1996. In both 1996 and 1999, boys were significantly more likely than girls to have tobacco brand merchandise. In 1996, older teens were slightly more likely to have an item, but this difference was not significant by 1999. In both years, there were no significant differences across race/ethnicity in the percent of adolescents who reported they had tobacco brand items. Possession of items was less prevalent in students with much better or better than average school performance.

Adults and Promotional Items

**Table A8.6**
**Adults with Tobacco Brand Promotional Items**
**(Exchanged Coupons, Received Free, or Purchased)**

| | 1996 % | 1999 % | Factor Change 1996-1999 % |
|---|---|---|---|
| Overall | 10.5 (±0.6) | 8.5 (±0.7) | -18.8 |
| Gender | | | |
| Male | 12.9 (±1.1) | 9.5 (±0.8) | -26.2 |
| Female | 8.2 (±0.7) | 7.6 (±1.1) | -7.4 |
| Age | | | |
| 18-20 | 15.4 (±2.8) | 11.7 (±3.1) | -23.6 |
| 21-24 | 16.3 (±3.0) | 11.9 (±2.5) | -27.0 |
| 25-44 | 13.1 (±1.0) | 9.9 (±1.0) | -25.0 |
| 45-64 | 7.7 (±1.1) | 7.7 (±1.6) | 0.7 |
| 65+ | 1.7 (±0.6) | 2.6 (±0.9) | 52.9 |
| Race/Ethnicity | | | |
| African American | 10.5 (±2.8) | 10.9 (±2.5) | 3.5 |
| Asian/PI | 8.2 (±1.9) | 6.5 (±3.8) | -20.4 |
| Hispanic | 11.0 (±1.8) | 9.3 (±1.5) | -15.3 |
| Non-Hispanic White | 10.6 (±0.7) | 8.0 (±0.6) | -24.1 |
| Education | | | |
| <12 | 10.5 (±1.8) | 9.9 (±2.3) | -6.2 |
| 12 | 13.9 (±1.2) | 11.5 (±1.3) | -17.1 |
| 13-15 | 11.6 (±1.2) | 8.9 (±1.2) | -23.1 |
| 16+ | 6.3 (±0.8) | 4.3 (±0.8) | -31.7 |
| Smoking Status | | | |
| Never smoker | 5.9 (±0.9) | 5.1 (±1.1) | -13.1 |
| Former smoker | 7.5 (±1.0) | 6.5 (±1.0) | -12.4 |
| Current smoker | 28.5 (±1.5) | 21.9 (±1.5) | -23.2 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996,1999

Appendix Table A8.6 shows that in 1999, overall significantly fewer adults reported that they received a promotional item, either by exchanging coupons, for free as a gift, or by purchasing an item themselves, compared to 1996. In both 1996 and 1999, men were significantly more likely than women to have tobacco brand merchandise.

The table shows an interesting age effect: in both 1996 and 1999, younger adults (18-24 years old) were slightly less likely to have a promotional item than those in the 25-44 year old age group, and significantly less likely than 45-64 year olds—who in turn were significantly less likely than adults over 65 years old to have a promotional item. While

the factor change between 1996 and 1999 in the percent of adults between 18 and 44 years of age was negative and significant, there was a slight but insignificant increase in the percent of 45-64 year olds and a significant increase in the percent of 65+ year olds with a promotional item.

There were no significant differences across race/ethnicity in the percent of adults with a promotional item in either year. The percent of African Americans with an item increased slightly between 1996 and 1999, while the percent of adults in the other race/ethnic groups decreased; however, the decrease was significant only in Non-Hispanic Whites. In 1996, individuals with a college degree were significantly less likely than were others to report that they had a promotional item in both 1996 and 1999.

Very few adult never smokers reported having a promotional item in either 1996 or 1999; former smokers were about one-third as likely to have a promotional item as were current smokers.

Willingness to Use a Promotional Item

**Table A8.7**
**Adolescent Willingness to Use a Tobacco Brand Promotional Item**

| | 1996 % | 1999 % | Factor Decrease 1996-1999 % |
|---|---|---|---|
| Overall | 23.7 (±1.2) | 14.9 (±1.1) | -37.2 |
| Gender | | | |
| Male | 28.8 (±1.8) | 19.7 (±1.7) | -31.6 |
| Female | 18.1 (±1.7) | 9.6 (±1.3) | -46.6 |
| Age | | | |
| 12-14 | 19.4 (±1.6) | 11.7 (±1.4) | -39.5 |
| 15-17 | 28.0 (±1.6) | 18.1 (±1.5) | -35.3 |
| Race/Ethnicity | | | |
| African-American | 18.4 (±4.0) | 11.6 (±3.2) | -37.1 |
| Asian/PI | 23.0 (±5.1) | 14.3 (±3.6) | -38.0 |
| Hispanic | 25.4 (±2.9) | 17.6 (±2.3) | -30.9 |
| Non-Hispanic White | 23.5 (±1.6) | 13.0 (±1.3) | -44.8 |
| School Performance | | | |
| Much better than average | 16.6 (±2.2) | 11.6 (±1.9) | -30.1 |
| Better than average | 23.2 (±2.0) | 13.1 (±1.7) | -43.7 |
| Average and below | 28.2 (±1.9) | 18.1 (±2.0) | -36.0 |
| Smoking Status | | | |
| Committed never smoker | 12.7 (±1.4) | 8.7 (±1.3) | -31.3 |
| Susceptible never smoker | 27.5 (±2.9) | 19.3 (±3.0) | -29.7 |
| Non-current experimenter | 28.5 (±2.4) | 18.9 (±3.2) | -33.5 |
| Current experimenter | 38.7 (±4.8) | 24.8 (±6.5) | -35.8 |
| Non-current established | 46.8 (±10.6) | 28.6 (±14.2) | -38.9 |
| Current established | 54.1 (±6.5) | 43.6 (±6.7) | -19.3 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996,1999

Appendix Table A8.7 shows that among adolescents, significantly fewer girls than boys were willing to use a tobacco brand promotional item in either 1996 or 1999. Also in both years, a significantly lower percentage of younger adolescents (12-14 years old) were willing to use a promotional item, compared to older adolescents (15-17 years old).

In 1996, there were no significant differences across race/ethnicity in the percentage of adolescents willing to use a tobacco brand promotional item. By 1999, significantly more Hispanic teens than African Americans or Non-Hispanic Whites were willing to use a tobacco brand promotional item. In both years, willingness to use an item was

directly related to smoking experience, and inversely related to self-perceived school performance.

**Table A8.8**
**Adult Willingness to Use a Tobacco Brand Promotional Item, 1999**

| | 1999 % |
|---|---|
| Overall | 20.5 (±0.9) |
| Gender | |
| Male | 26.5 (±1.3) |
| Female | 14.8 (±1.0) |
| Age | |
| 18-20 | 25.8 (±3.7) |
| 21-24 | 27.9 (±2.9) |
| 25-44 | 23.1 (±1.5) |
| 5-64 | 17.6 (±1.5) |
| 65+ | 11.7 (±1.6) |
| Race/Ethnicity | |
| African American | 21.0 (±4.3) |
| Asian/PI | 16.0 (±2.5) |
| Hispanic | 15.4 (±1.4) |
| Non-Hispanic White | 23.7 (±1.2) |
| Education | |
| <12 | 15.5 (±2.0) |
| 12 | 23.9 (±1.5) |
| 13-15 | 23.8 (±1.4) |
| 16+ | 17.8 (±1.4) |
| Smoking Status | |
| Never smoker | 13.2 (±1.1) |
| Former smoker | 20.6 (±1.8) |
| Current smoker | 43.3 (±1.7) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996,1999

Appendix Table A8.8 shows that in 1999, significantly fewer women than men were willing to use a tobacco brand promotional item. The table also showed that willingness to use a promotional item decreased with age. Significantly more Non-Hispanic White adults were willing to use an item, compared to Asian/PI or Hispanic adults. Significantly more adults with 12-15 years of education were willing to use a tobacco brand promotional item, compared to those with fewer than 12 years or 16+ years of education. Not surprisingly, willingness to use was associated with smoking status, with significantly fewer never smokers than former smokers, and significantly fewer former smokers than current smokers, willing to use such an item.

## CHAPTER 8: GLOSSARY

### Adolescents

*Committed never smoker* – a *never smoker* who does not expect to try a cigarette soon and who answers definitely not to whether he or she would accept a cigarette offered by a friend and to a question about whether he or she will smoke in the next year.

*Current established smoker* – has smoked a cigarette on at least one day in the past month and has smoked at least 100 cigarettes in his or her lifetime.

*Current experimenter* – has smoked a cigarette on at least one day in the past month, but has not yet smoked 100 cigarettes in his or her lifetime.

*Established smoker* – has smoked at least 100 cigarettes in his or her lifetime.

*Experimenter* – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

*Former established smoker* – an *established smoker* who has not smoked a cigarette on any days of the past month.

*Non-current established smoker* – see *former established smoker*.

*Non-current experimenter* – has not smoked a cigarette on any days in the past month, and has not smoked at least 100 cigarettes in his or her lifetime.

*Puffer* – someone who has not smoked a cigarette, but admits to puffing on one.

*Susceptible never smoker* – a *never smoker* who either expects to try a cigarette soon or who does **not** answer definitely not to whether he or she would accept a cigarette offered by a friend or to a question about whether he or she will smoke in the next year.

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Never smoker* – has smoked fewer than 100 cigarettes in his or her lifetime.

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# Chapter 9

# ACCESS TO AND EASE OF PURCHASE OF CIGARETTES

# CHAPTER 9: ACCESS TO AND EASE OF PURCHASE OF CIGARETTES

## Introduction

Adolescents can get their cigarettes from two very different types of sources: commercial and social. So far, public policy has emphasized restrictions on commercial sources of cigarettes. Limiting the ability of minors to purchase cigarettes or other tobacco products is a seemingly practical and politically popular measure aimed at curbing teens smoking. By California law, the minimum age for the purchase of cigarettes or smokeless tobacco is 18 years old. In 1994, California enacted the Stop Tobacco Access to Kids Enforcement (STAKE) Act, which strengthened the state's ban on the sale of tobacco products to minors. Later, the Department of Health Services initiated "sting" inspections of retail establishments that sold cigarettes, and increased the fines for noncompliance with the STAKE Act. Each of these strategies aimed to reduce teen smoking by making it difficult for adolescents to purchase cigarettes.

Analyses of the 1996 California Tobacco Surveys (CTS) showed that California's strong legislative record against tobacco sales to minors actually affected very few adolescents. The vast majority of teen smokers in 1996 did not buy cigarettes, but rather got them from friends. Teen smokers did not begin to purchase cigarettes until they were nearly daily smokers (Emery, et al., 1999).

Since 1996, two things have changed, which may have affected the ease with which adolescents can get cigarettes from both sources. First, as Chapter 4 showed, fewer adolescents smoke; thus, there should be fewer social sources of cigarettes. Second, both the state's Tobacco Control Program and the tobacco industry itself have instituted media campaigns, which focussed public attention on the law limiting adolescents' commercial access to tobacco, with the goal of increasing compliance. In addition, grass-roots approaches to reducing commercial access continued the activities they began in the late 1980s.

The 1999 California Tobacco Survey allows exploration of several aspects of adolescent access to cigarettes. Section 1 of this chapter examines adolescents' perceptions of the ease of obtaining cigarettes; Section 2 looks at trends in never smokers getting offered cigarettes; Section 3 analyzes the ways in which adolescents obtain the cigarettes they smoke. Section 4 examines where adolescents buy cigarettes, and Section 5 reports on adults' attitudes about laws aimed at reducing teens' access to cigarettes. Section 6 summarizes the findings from this chapter.

## 1. Adolescent Never Smokers' Perceptions of the Ease of Obtaining Cigarettes

The perception of how easy it is to get cigarettes may influence never smokers' willingness to experiment. If it takes some effort to get cigarettes, some adolescents may be less open to trying. To assess adolescents' perceptions about how easy it is to obtain cigarettes, the 1990, 1993, 1996 and 1999 CTS asked:

| *Do you think it would be easy or hard for you to get cigarettes if you wanted some?* |
|---|

**Between 1996 and 1999, the percent of never smokers who thought cigarettes were easy to get decreased by a factor of 16%.**

Only adolescents who had never smoked—not even a puff—were consistently asked the above question in each survey. Figure 9.1 shows that the percentage of never smokers who thought cigarettes were easy to get did not change significantly between 1990 and 1996, but decreased significantly in between 1996 and 1999, from 57.2±1.5% to 48.0±1.5% (by a factor of 16.1%).

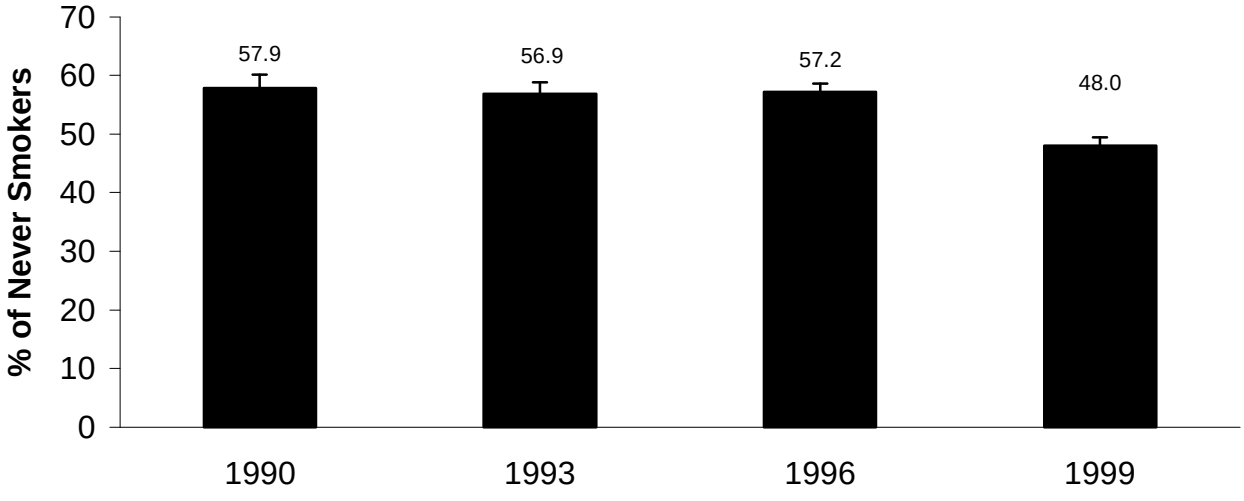



Figure 9.1

Source: CTS 1990, 1993, 1996, 1999

In 1996 and 1999, all respondents were asked specifically about getting a <u>few</u> or a <u>pack</u> of cigarettes:

*Do you think it would be easy, somewhat difficult, or hard to buy: (a pack of cigarettes; a few cigarettes ([not a carton or pack]).*

Cigarettes must be purchased by the pack; in fact it is illegal for stores to sell single cigarettes. Thus, responses about the ease of getting a <u>few</u> cigarettes largely reflect adolescents' perceptions of the ease of obtaining cigarettes from social sources. In contrast, answers about the ease of getting a <u>pack</u> of cigarettes mostly indicate adolescents' perceptions about buying cigarettes.

Table 9.1 presents adolescent's answers to these questions, by age, sex, and race/ethnicity for both years. The table shows that between 1996 and 1999, adolescents' perceptions that it is easy to obtain cigarettes, either a <u>few</u> at a time or by the <u>pack</u>, decreased significantly across all demographic groups. However, the decrease in perceived ease of obtaining a <u>few</u> cigarettes (social sources) was smaller than the decrease in the perception that it is easy to buy a <u>pack</u> of cigarettes (commercial sources).

In 1999, the CTS data included census tract information, which made it possible to compare responses from rural and urban areas. Table 9.1 shows that there is very little difference between the perceptions of rural and urban youth on the ease of access to cigarettes.

Because the legal purchase age for cigarettes is 18 years, it might be expected that younger adolescents would think it is harder to buy a pack of cigarettes than do older adolescents. Indeed, the data show that in both 1996 and 1999 younger adolescents were less likely than older adolescents to report that they thought it was easy to buy a pack of cigarettes, and the decrease in the perceived ease of buying a pack of cigarettes was greatest among the youngest adolescents. Between 1996 and 1999, the perception that it is easy to buy a pack of cigarettes decreased by over a factor of 50% among adolescents between 12-15 years of age. There was not much difference between boys' and girls' responses to this question in either year, or in the percentage decrease for boys and girls over the 3-year interval between surveys.

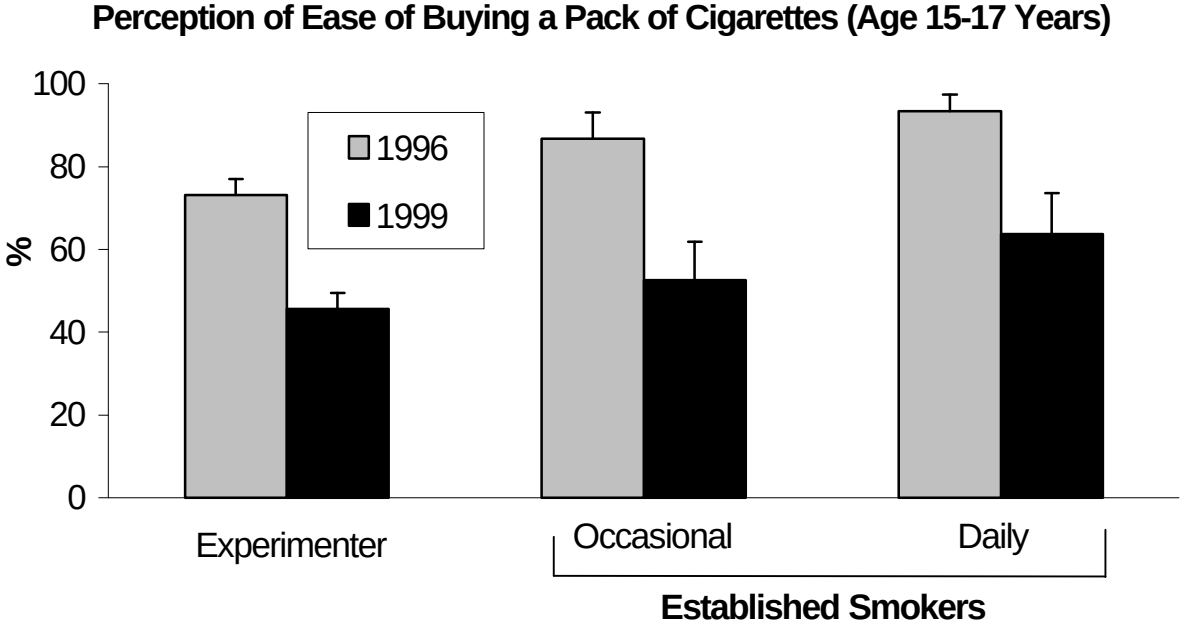
**Table 9.1**
**Adolescents' Perceptions about the Ease of Buying Cigarettes by Demographic Characteristics**

| | % Who Think it's Easy to Get a Few Cigarettes (Primarily Social Sources) | | | % Who Think it's Easy to Buy a Pack (Primarily Commercial Sources) | | |
|---|---|---|---|---|---|---|
| | 1996 % | 1999 % | Factor Decrease 1996-99 % | 1996 % | 1999 % | Factor Decrease 1996-99 % |
| Overall | 69.1±1.2 | 47.4±1.3 | -31.4 | 51.5±1.4 | 26.7±1.3 | -48.2 |
| Age | | | | | | |
| 12-13 | 46.2±2.3 | 28.8±2.1 | -37.7 | 24.7±2.3 | 9.5±1.3 | -61.4 |
| 14-15 | 74.9±2.4 | 51.6±2.7 | -31.1 | 55.4±2.1 | 24.6±2.5 | -55.6 |
| 16-17 | 86.4±1.8 | 63.0±2.7 | -27.1 | 74.8±2.3 | 47.3±2.6 | -36.7 |
| Sex | | | | | | |
| Male | 69.5±1.6 | 44.8±2.0 | -35.5 | 50.6±1.9 | 25.4±1.8 | -49.9 |
| Female | 68.8±1.8 | 49.9±1.7 | -27.5 | 52.4±1.9 | 28.0±2.0 | -46.6 |
| Race/Ethnicity | | | | | | |
| African American | 69.1±4.3 | 51.3±5.8 | -25.7 | 55.3±4.9 | 28.2±4.9 | -49.0 |
| Asian/PI | 64.0±3.1 | 42.8±4.3 | -33.1 | 43.1±4.6 | 26.8±4.7 | -37.9 |
| Hispanic | 64.6±2.6 | 46.1±2.4 | -28.7 | 46.2±2.8 | 24.9±2.2 | -46.0 |
| Non-Hispanic White | 73.5±1.6 | 49.3±2.1 | -33.0 | 56.5±1.9 | 28.1±1.8 | -50.3 |
| Rural/Urban | | | | | | |
| Rural | | 46.7±4.4 | | | 27.1±3.0 | |
| Urban | | 47.5±1.4 | | | 26.7±1.4 | |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

**Compared to 1996, fewer current smokers reported it was easy to buy a pack of cigarettes in 1999.**

Once adolescents have started smoking and are in the process of developing a nicotine addiction, they will need to buy more than just a few cigarettes. At this point, they are more likely to attempt to purchase a pack of cigarettes. Figure 9.2 shows that significantly fewer 15-17 year old experimenters (current and non-current), established occasional and established daily smokers thought that it was easy to buy a pack of cigarettes in 1999 than in 1996. Perceptions were associated with smoking experience: in 1996, significantly fewer experimenters than either occasional or daily established smokers thought it was easy to buy a pack of cigarettes. In 1999, significantly fewer experimenters than daily established smokers thought it was easy to buy a pack of cigarettes but there was no significant difference in the perceptions of experimenters and occasional established smokers. It is important that even established smokers, both occasional and daily, thought it was more difficult to buy a pack of cigarettes in 1999 than in 1996. The decrease in perceptions that it is easy to buy cigarettes may play a role in preventing progression from experimentation to daily smoking.




| Smoking Experience | 1996 | 1999 |
|---|---|---|
| Experimenter | 73.2 | 45.7 |
| Occasional | 86.8 | 52.5 |
| Daily | 93.4 | 63.7 |

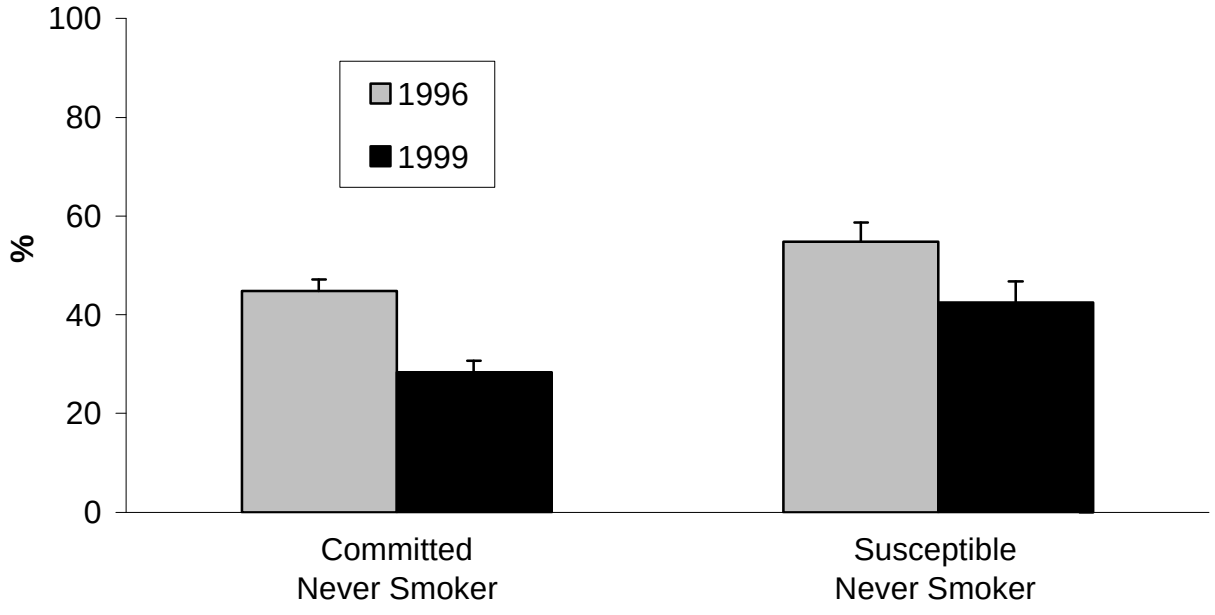
Source: CTS 1996, 1999

Figure 9.2

Figure 9.3 illustrates the changes in perceptions of 12-14 year olds about the ease of getting a few cigarettes for committed never smokers and susceptible never smokers. Perceptions about the ease of getting a few cigarettes may be most relevant to these adolescents, who have not yet begun to smoke or are in the early stages of smoking uptake. The figure shows that perceptions of the ease of obtaining cigarettes are associated with the level of commitment not to smoke.

**In both 1996 and 1999, susceptible never smokers were more likely than committed never smokers to think that it was easy to get a few cigarettes.**

In both 1996 and 1999, less than half of committed never smokers thought it was easy to get a few cigarettes. Between 1996 and 1999, the percent of committed never smokers that thought it was easy to get a few cigarettes decreased by a factor of 36.5%. In both years, significantly more susceptible than committed never smokers thought it was easy to get a few cigarettes. Between 1996 and 1999, the percent of susceptible never smokers that thought it was easy to get a few cigarettes decreased by a factor of 22.5%. Because the data are cross-sectional, it is impossible to determine whether perceptions about ease of getting a few cigarettes are influenced by the adolescents' level of commitment not to smoke or if these perceptions affect commitment.




| | 1996 | 1999 |
|---|---|---|
| Committed never smoker | 44.7 | 28.4 |
| Susceptible never smoker | 54.7 | 42.4 |

Source: CTS 1996, 1999

Figure 9.3

These changes in perceptions about the ease of obtaining cigarettes may be attributable to increased grass-roots efforts in many communities to reduce illegal sales of cigarettes to minors. In both Los Angeles and the San Francisco area, local lead agencies and community-based organizations have initiated merchant education programs and other activities designed to reduce adolescent access to cigarettes through commercial sources. For example, the Stop Tobacco Access for Minors Project (STAMP) in Solano County conducts its own compliance checks and produces merchant educational materials and training workshops, which have been adopted in several communities across the state (Kropp, 1999).

National regulation may also have played a role. In February of 1997, a new regulation issued by the Federal Drug Administration (FDA) went into effect making it illegal to sell cigarettes to youths under the age of 18, banning the placement of cigarette machines in most locations (which was already the case in California), and mandating photo ID checks for persons appearing to be under the age of 27 years. The FDA mounted a media campaign in support of the new regulation and made funds available to California and other states to enforce it. However, a Federal Court of Appeals invalidated this regulation in August 1998.

In addition, advertising campaigns—by both the Tobacco Control Program and the tobacco industry—which focused on making sure that merchants asked to see proof-of-age when selling cigarettes may have also influenced adolescents' perceptions about the ease of obtaining cigarettes. The California Tobacco Control Program media campaign encouraged individuals to call a toll-free number (1-800-5-ASK 4 ID) to report merchants who illegally sold cigarettes to minors. Results from the random compliance checks (or "sting" operations) that were conducted as part of the strengthened STAKE Act were widely publicized, and promoted the norm that selling cigarettes to minors is unacceptable. Around the same time, the tobacco industry implemented the "It's the Law" publicity campaign. Although it has been argued that such campaigns do not have much practical effect in limiting teen access to cigarettes or deterring adolescent smoking (DiFranza & Brown, 1992; DiFranza, et al, 1996; Glantz, 1996), the evidence from the California Tobacco Surveys suggests that at least they may have influenced adolescents' perceptions about the ease of obtaining cigarettes.

### 2. Never Smokers Offered Cigarettes

Chapter 4 showed that fewer adolescents smoked in 1999; the data presented above showed that fewer adolescents think it is easy to get cigarettes in 1999. However, despite the significant reduction in the number of adolescents who smoke and perceptions of ease of access from both commercial and social sources, there have only been modest changes in never smokers' opportunities to obtain cigarettes. As another measure of the availability of cigarettes from social sources, the 1990, 1996, and 1999 CTS asked all never smokers:

*Have you ever been offered a cigarette?*

**In 1999, nearly one quarter of 12-13 year old never smokers reported being offered a cigarette.**

Table 9.2 shows that approximately 40% of all never smokers reported that they had been offered cigarettes in 1990, 1996, and 1999. The table shows few statistically significant changes in the percent of never smokers who were offered

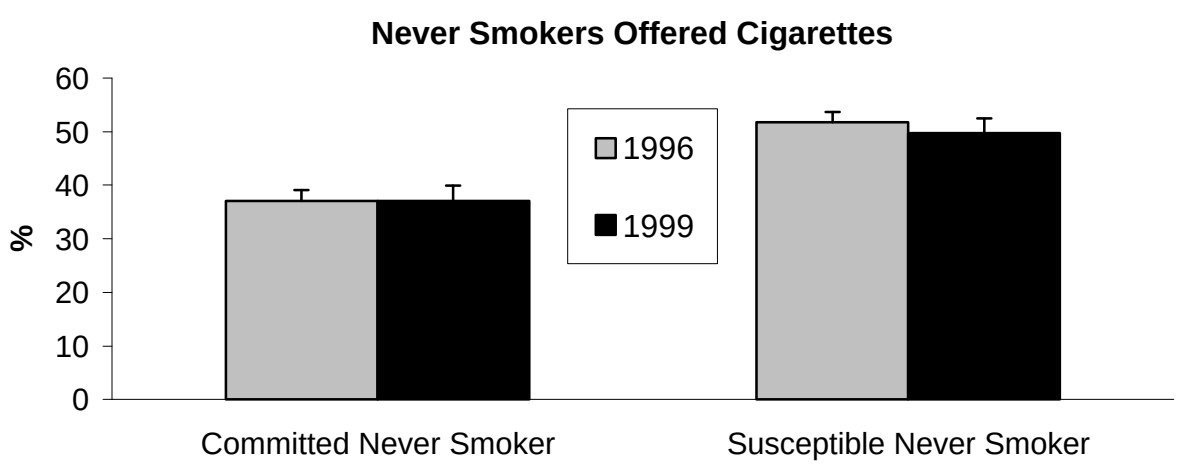
cigarettes between 1990 and 1999. Older adolescents were more likely in each year to report that they had been offered cigarettes, probably because smoking prevalence increases with age, and therefore, older adolescents are more likely to know smokers. Nearly a quarter of the youngest age group (12-13 years old) reported being offered cigarettes in each survey, which is a cause for concern. There were no significant differences between ethnic groups. Slightly more students whose school performance was average and below reported being offered cigarettes, compared to average and better than average students.

**Table 9.2**
**Percent of Never Smokers Offered Cigarettes**

| | 1990 % | 1996 % | 1999 % | Factor Change 1990-1999 % |
|---|---|---|---|---|
| Overall | 37.9±2.3 | 42.3±1.6 | 40.9±1.6 | 7.7 |
| Age | | | | |
| 12-13 | 24.0±3.8 | 24.8±1.9 | 23.2±2.4 | -3.4 |
| 14-15 | 42.1±3.8 | 49.2±2.7 | 45.5±2.9 | 8.0 |
| 16-17 | 55.1±4.8 | 61.0±2.9 | 62.1±3.3 | 12.7 |
| Gender | | | | |
| Female | 37.3±3.5 | 39.2±2.3 | 38.8±2.5 | 4.0 |
| Male | 38.6±2.9 | 45.2±2.2 | 42.8±2.0 | 10.8 |
| Race/Ethnicity | | | | |
| African American | 37.6±6.6 | 44.5±5.3 | 41.9±6.0 | 11.5 |
| Asian/PI | 28.0±7.5 | 33.0±4.6 | 32.7±4.9 | 16.6 |
| Hispanic | 41.3±4.8 | 46.7±3.1 | 45.5±2.8 | 10.1 |
| Non-Hispanic White | 37.1±2.2 | 41.1±2.0 | 39.0±2.6 | 5.1 |
| School Performance | | | | |
| Much Better than Average | 36.5±5.2 | 37.1±2.9 | 32.9±3.3 | -9.9 |
| Better than Average | 34.8±3.2 | 42.7±2.2 | 38.1±2.6 | 9.5 |
| Average and Below | 41.7±3.6 | 45.6±2.6 | 47.8±2.8 | 14.6 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1996, 1999

Figure 9.4 shows that in both 1996 and 1999, committed never smokers were significantly less likely than susceptible never smokers to be offered cigarettes. One component of the definition of susceptibility is responding other than "definitely not" to the question, "If one of your best friends were to offer you a cigarette, would you smoke it?" The cross-sectional CTS data are unable to show whether susceptibility precedes the offer of cigarettes, or if the offer leads to susceptibility. Moreover, it is impossible to determine from these data whether some susceptible never smokers actively seek out smokers to get an offer of a cigarette.




| | 1996 | 1999 |
|---|---|---|
| Committed Never Smoker | 37.0 | 37.0 |
| Susceptible Never Smoker | 51.8 | 49.7 |

Source: CTS 1996, 1999

Figure 9.4

### 3. How Do Adolescents Usually Get Cigarettes?

Public policy on reducing adolescents' access to cigarettes has focussed on effectively barring sales of cigarettes to minors. Whether this strategy actually limits adolescents' access to cigarettes is controversial; several studies have shown that such laws have minimal impact on adolescent smoking (Chaloupka & Grossman, 1996; Rigotti, et al., 1997). Evidence from the CTS suggests that, whether or not minimum purchase age laws reduce adolescents' ability to buy cigarettes, such laws do not affect the majority of adolescent smokers, because most adolescents do not buy their own cigarettes (Emery, et al., 1999).

Usual Source of Cigarettes

The 1996 and 1999 CTS asked adolescents who had ever smoked a cigarette:

*Which of the following best describes how you usually get most of the cigarettes that you smoke? Would you say . . .*

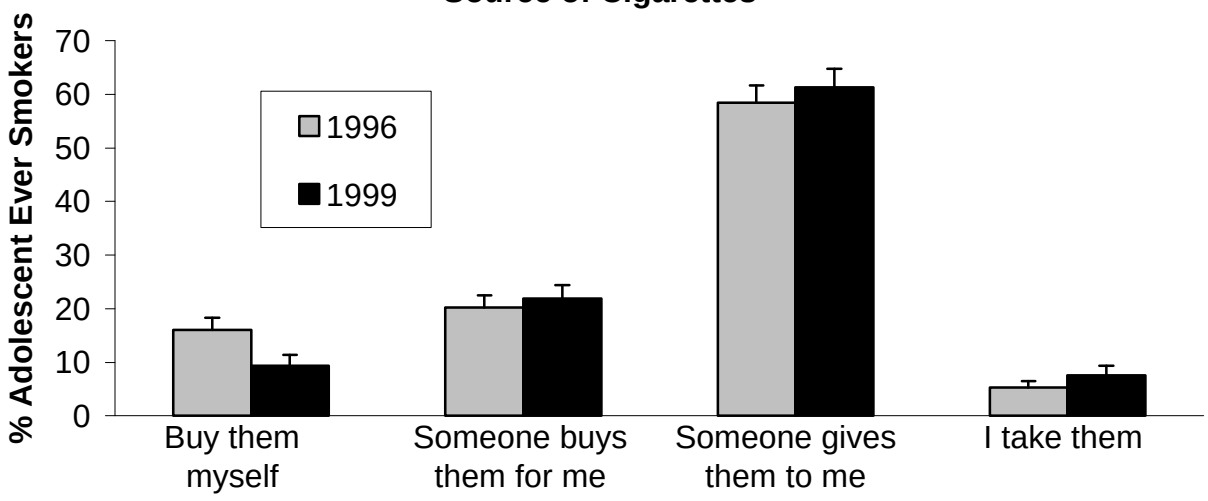
- *I buy them myself,*
- *Someone in my home buys them for me,*
- *Someone in my home gives them to me,*
- *I take them from someone in my home without permission,*
- *Other people buy them for me,*
- *Other people give them to me,*
- *I take them from other people without permission, or*
- *I take them from a store without permission?*

These responses were grouped into four categories:

- **Buy myself**, which included only the response: *I buy them myself*.
- **Someone buys for me**, which included the responses: *Someone in my home buys them for me* and *Other people buy them for me*.
- **Others give them to me**, which included the responses: *Someone in my home gives them to me* and *Other people give them to me*.
- **Take them**, which included the responses: *I take them from someone in my home without permission*, *I take them from other people without permission*, or *I take them from a store without permission*.

**In 1999, less than 10% of adolescent ever smokers usually bought their own cigarettes.**

Figure 9.5 shows that sources of cigarettes for those adolescents who have ever smoked remained relatively constant between 1996 and 1999. In 1999, most adolescents (61.3±3.4%) still obtained their cigarettes from friends or others, without paying for them. Another 21.9±2.5% also got their cigarettes from others, by having others buy their cigarettes for them. In 1999, significantly fewer ever smokers bought their own cigarettes than did in 1996, and this difference was made up for by the other categories in relatively equal and small increases.




| | 1996 | 1999 |
|---|---|---|
| Buy them myself | 16.1 | 9.3 |
| Someone buys them for me | 20.2 | 21.9 |
| Someone gives them to me | 58.4 | 61.3 |
| I take them | 5.3 | 7.5 |

Source: CTS 1996, 1999

Figure 9.5

Table 9.3 provides details of where adolescents get their cigarettes, by smoking status, age, gender, ethnicity, and rural/urban residence. This table shows that nearly three-quarters of experimenters were usually given the cigarettes they smoked in 1996 and 1999, while only

approximately 17% of established smokers were usually given cigarettes in either year. In both years, the majority of established smokers bought cigarettes, either themselves or through others. However, those who were occasional established smokers were significantly more likely to report that they were usually given cigarettes than were daily established smokers.

**Table 9.3**
**Usual Source of Cigarettes**

| | Buy myself | | Someone buys them for me | | Someone gives them to me | | I take them | |
|---|---|---|---|---|---|---|---|---|
| | 1996 % | 1999 % | 1996 % | 1999 % | 1996 % | 1999 % | 1996 % | 1999 % |
| Smoking Status | | | | | | | | |
| Experimenter | 7.3±1.7 | 3.7±1.4 | 11.6±2.0 | 13.1±2.1 | 74.3±3.1 | 74.4±3.6 | 6.8±1.7 | 8.8±2.1 |
| Established Smoker (all) | 38.9±5.5 | 28.0±7.2 | 42.7±4.7 | 51.3±6.4 | 17.2±4.6 | 17.5±5.8 | 1.2±1.1 | 3.2±2.5 |
| Established Smoker (Occasional) | 31.6±7.8 | 23.2±7.1 | 40.1±7.3 | 47.4±9.2 | 26.9±7.4 | 25.7±9.5 | 1.4±1.3 | 3.8±3.8 |
| Established Smoker (Daily) | 46.9±8.4 | 34.2±10.9 | 45.6±7.4 | 56.3±9.9 | 6.5±4.0 | 7.1±4.6 | 1.0±1.9 | 2.5±3.4 |
| Age | | | | | | | | |
| 12-13 | 2.7±3.0 | 0 | 12.7±7.6 | 10.0±7.1 | 66.6±9.5 | 68.8±12.4 | 18.1±7.0 | 21.2±10.4 |
| 14-15 | 9.9±3.2 | 5.9±3.1 | 18.9±3.5 | 19.2±3.6 | 66.9±5.4 | 64.8±5.4 | 4.3±1.9 | 10.1±4.1 |
| 16-17 | 22.8±3.4 | 12.7±3.0 | 22.6±3.3 | 25.4±4.0 | 51.1±4.0 | 57.9±4.1 | 3.5±1.3 | 4.0±1.6 |
| Sex | | | | | | | | |
| Male | 18.1±3.5 | 10.7±3.4 | 17.6±2.8 | 19.6±3.2 | 58.7±4.4 | 62.2±4.4 | 5.7±2.0 | 7.5±2.5 |
| Female | 13.7±2.8 | 7.8±2.3 | 23.3±3.4 | 24.4±4.1 | 58.2±4.6 | 60.3±4.3 | 4.8±1.9 | 7.5±2.3 |
| Race/ Ethnicity | | | | | | | | |
| African American | 20.7±10.5 | 16.9±12.2 | 12.9±7.5 | 14.1±9.8 | 54.1±12.3 | 65.0±14.4 | 12.3±7.8 | 3.9±5.6 |
| Asian/PI | 16.0±8.3 | 11.7±8.1 | 19.0±8.3 | 20.6±11.7 | 56.8±10.9 | 66.3±12.7 | 8.2±6.3 | 1.5±3.0 |
| Hispanic | 13.9±4.3 | 6.4±3.0 | 16.4±4.4 | 21.6±4.0 | 65.4±6.3 | 63.2±5.1 | 4.3±2.0 | 8.9±3.0 |
| Non-Hispanic White | 16.6±2.9 | 10.4±3.0 | 23.1±2.7 | 22.5±3.3 | 55.7±3.6 | 59.1±4.4 | 4.6±1.6 | 8.0±3.1 |
| Rural/Urban | | | | | | | | |
| Rural | | 6.9±3.8 | | 28.2±8.6 | | 57.6±7.4 | | 7.3±4.4 |
| Urban | | 9.6±2.3 | | 21.1±2.5 | | 61.8±3.7 | | 7.5±2.1 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

The table shows few significant changes between 1996 and 1999, but a couple of changes are of note. In particular, across all levels of smoking status, significantly fewer adolescents reported they usually bought their own cigarettes, while significantly more reported that they usually have someone buy their cigarettes for them. Established smokers (both daily and occasional) are the

most likely group to buy their own cigarettes, but in 1999 they were less likely to report that they usually bought their own cigarettes, compared to 1996. Among 16-17 year olds—those closest to the age of legal purchase—the percent that reported they usually bought their own cigarettes decreased from 22.8±3.4% in 1996 to 12.7±3.0. These changes in usual source of cigarettes may reflect the decreased perceptions that cigarettes are easy to get.

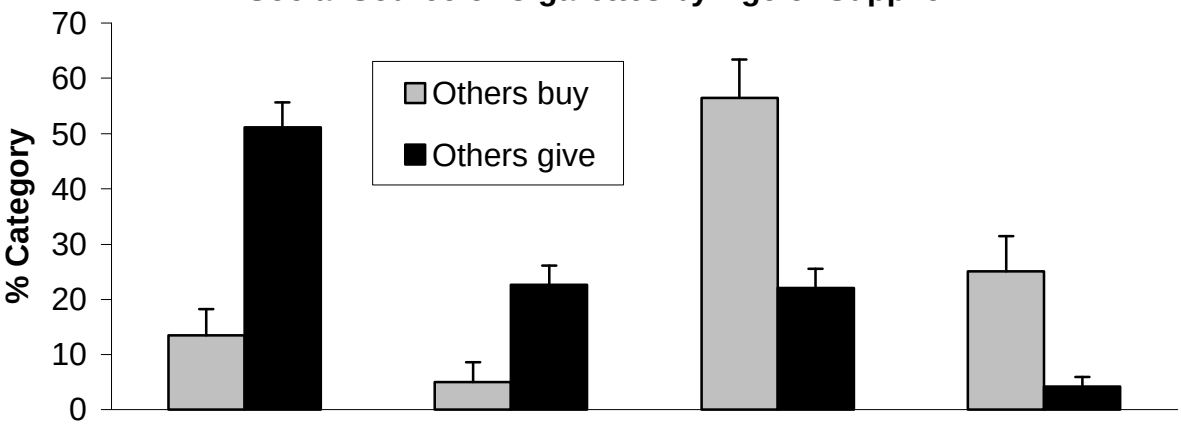
Who Buys for or Gives Cigarettes to Minors?

The data presented above show that the vast majority (83.2±4.6%) of adolescents get their cigarettes from others—whether or not they actually pay for them. If it were possible to substantially reduce these social exchanges of cigarettes, adolescents' access to cigarettes could be severely limited. By knowing more about these social sources of cigarettes, it may be possible to target media campaigns or public policy to reduce adolescents' access to cigarettes from such sources. For the first time, in 1999 the CTS was able to probe this issue further, and asked adolescents:

- *Who was the person who usually (bought/gave) you cigarettes?*
  and
- *How old is this person who usually (bought/gave) you cigarettes?*

**In 1999, 95% of those who are given cigarettes get them from individuals under 21 years of age.**

Figure 9.6 shows the age distribution of those who give cigarettes to and those who buy cigarettes for adolescent smokers. The black bars on the figure show that those who give cigarettes to adolescents tend to also be adolescents, or were in the 18-20 year old age group, but very few were 21+ years old. Over half (51.1±4.6%) are the same age as the recipient, and under 18—too young to legally buy cigarettes themselves. Another 22.6±3.5% are older than the recipient, but still under 18. And 22.1±3.5% are of legal age to buy cigarettes, but still under 21.




| | Others buy | Others give |
|---|---|---|
| <18, own age | 13.5 | 51.1 |
| <18, older | 5.0 | 22.6 |
| 18-20 | 56.5 | 22.1 |
| 21+ | 25.1 | 4.2 |

Source: CTS 1999

Figure 9.6

**In 1999, over 56% of those who have others buy cigarettes for them ask 18-20 year olds to make the purchase.**

In contrast, the gray bars show that those who buy cigarettes for other adolescents tend to be at least 18 years old, with 56.5±6.9% being between 18-20 and 25.1±4.2% being over 21 years old. Fewer than one in five (18.4±5.8%) individuals who buy cigarettes for adolescents are actually other adolescents, who are under the legal age to purchase.

Nearly three-quarters (73.8±3.1%) of the adolescents who reported they get their cigarettes from others were given these cigarettes. Over 90% of those who are given cigarettes report that these cigarettes come from friends (87.0±2.5%) and from a boyfriend/girlfriend (3.5±1.6%). Of those who have others buy cigarettes for them, the majority (65.7±6.1%) rely on friends to make the purchase.

These statistics suggest that until peer approval of smoking and sharing cigarettes is reduced, it will be difficult to significantly reduce adolescents' access to cigarettes. Alternatively, raising the purchase age to 21 years might reduce access by increasing the age gap between those who are legal to buy and those who get their cigarettes from others, either for free or by having others buy them.

Profile of Those Who Give Away Cigarettes

The 1999 CTS also asked ever smokers:

*Have you ever given cigarettes away to your friends or acquaintances?*

**Close to 95% of established smokers have given away cigarettes to friends or acquaintances in 1999.**

Table 9.4 shows that approximately half of all ever smokers reported that they had given away cigarettes. The profile of those who give away cigarettes closely mirrors the descriptions of the givers offered by the recipients from the previous section.

**Table 9.4**
**Percent of Ever Smokers**
**Who Have Ever Given Away Cigarettes, 1999**

| | |
|---|---|
| All Ever smokers | 47.7±3.4 |
| Gender | |
| Female | 46.7±4.8 |
| Male | 48.6±4.5 |
| Age | |
| 12-13 | 35.6±12.3 |
| 14-15 | 39.8±6.9 |
| 16-17 | 54.1±4.6 |
| Smoking Status | |
| Experimenter | 34.2±3.7 |
| Established Smoker | 93.9±3.0 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

The percentage of ever smokers who reported giving away cigarettes increased with age; significantly more 16-17 year olds gave away cigarettes, compared to the younger adolescents. This age effect is likely driven by smoking status. Nearly all established smokers reported that they had given away cigarettes.

### 4. Where Adolescents Buy Cigarettes

**In 1999, most adolescents who buy cigarettes get them from gas stations, liquor stores, or small grocery stores.**

The 1996 and 1999 CTS asked adolescents who reported they had ever bought cigarettes whether they *often*, *sometimes, or never* bought cigarettes from a list of types of stores. Table 9.5 shows that, although fewer adolescents were buying their own cigarettes in 1999, there were no significant changes in the types of stores where adolescents reported they often bought their cigarettes. The 1999 CTS included two new categories of stores (Tobacco Discount and Other Discount) that were not choices on earlier surveys.

**Table 9.5**
**Ever-Buyers Often Buy Cigarettes at:**

| | 1996 % | 1999 % |
|---|---|---|
| Type of Store | | |
| Supermarket | 6.3±2.0 | 5.9±2.9 |
| Small Grocery | 25.7±4.3 | 26.4±5.9 |
| Gas Station | 47.0±5.3 | 44.1±7.3 |
| Tobacco Discount Stores | | 6.3±2.7 |
| Other Discount Stores | | 2.2±2.8 |
| Liquor Stores | 44.4±5.1 | 41.3±7.3 |
| Drug Stores | 4.9±2.4 | 4.7±3.0 |
| Vending Machine | 6.3±2.5 | 2.2±2.3 |
| Other | 7.9±2.9 | 10.0±4.5 |

Table entries are weighted percentages and 95% confidence limits
Source: CTS 1996, 1999

Table 9.5 illustrates that gas stations, followed by liquor stores and small groceries were the most frequently reported type of stores where adolescents who buy cigarettes said they often made these purchases. These adolescent buying patterns are consistent with results of annual random compliance checks of retail stores conducted by the California Department of Health Services (DHS). Between 1995 and 1998, illegal sales rates declined from 37% to 13% in these surveys, but in 1999, the illegal sales rate rose again, to 16% (CDHS, 2000). The DHS found the highest rate of illegal sales (32%) in gas stations. The surveys also found relatively high illegal sales rates (19%), and a large increase since 1998 (39%) among small grocery stores.

Although there has been some concern that Internet cigarette vendors may represent an easy source of cigarettes for adolescents, **none** of the adolescents who reported buying their own

cigarettes in the 1999 CTS purchased them from Internet sources. Most Internet vendors require at least some nominal proof of age, a minimum purchase of at least a carton (and generally 5 cartons) of cigarettes, and a credit card to place the order—all of which are likely to be significant barriers for adolescent smokers.

### 5. Adult Attitudes about Teen Access

The 1996 and 1999 CTS asked all adults the following questions about minimum purchase age laws:

- *Do you think the laws banning the sale of tobacco products to minors have been adequately enforced?*
- *Do you think that store owners should need a license to sell tobacco?*

**Adults were over twice as likely in 1999 to think minimum purchase age laws were adequately enforced compared to 1990.**

Table 9.6 shows that in 1990, 1996, and 1999, a minority of adults thought that current levels of enforcement of the minimum purchase age laws were adequate, but that over time considerably more adults thought enforcement was adequate. Between 1990 and 1999, the percentage of adults who reported that they thought enforcement was adequate increased by a factor of 126%.

This table also shows wide support for tobacco-sales licensing—nearly three-quarters of adults in 1999 thought that store owners should be licensed to sell tobacco.

**Table 9.6**
**Adult Attitudes About Minimum Purchase Age Enforcement and Retail Licensing**

| | % Who Think Enforcement Adequate | | | % Who Think License Should Be Required To Sell Tobacco | |
|---|---|---|---|---|---|
| | 1990 % | 1996 % | 1999 % | 1996 % | 1999 % |
| Total | 15.2±0.8 | 22.4±1.0 | 34.3±1.2 | 74.0±0.9 | 73.0±1.0 |
| Smoking status | | | | | |
| Never smoker | 13.6±1.2 | 20.5±1.6 | 32.5±1.7 | 78.6±1.2 | 78.5±1.4 |
| Former smoker | 13.9±1.1 | 19.3±1.6 | 29.4±1.8 | 72.6±1.7 | 67.9±2.2 |
| Current smoker | 20.8±1.0 | 32.2±1.5 | 46.6±1.7 | 61.9±1.5 | 63.1±1.6 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1990, 1996, 1999

Table 9.6 also shows that in each year, significantly more current smokers thought that enforcement was adequate, compared to never or former smokers. By 1999, nearly half (46.6±1.7%) of current smokers thought enforcement was adequate; a nearly identical percent of current smokers thought that enforcement was not adequate (46.9±1.6%). Similarly, support for tobacco sales licensing was significantly lower among current smokers. Publicity about the state's efforts to enforce the minimum purchase age, such as the 1-800- ASK 4 ID program, along with the tobacco industry's "It's the Law" campaign, may have contributed to the growing

perception that enforcement is adequate. Evidence from random compliance checks suggests that, in fact, enforcement has improved over time. Despite the slight increase in violations between 1998 and 1999, the illegal sales rate in 1999 was less than half that of 1995 (16% in 1999, vs. 37% in 1995) (CDHS, 2000).

## 6. Summary

This chapter showed that there were significant decreases in adolescents' perceptions about the ease of obtaining cigarettes between 1996 and 1999. Perceptions about the ease of obtaining cigarettes from commercial sources decreased the most. Nearly 50% fewer adolescents in 1999 thought that it was easy to buy a pack of cigarettes. Perceptions about the ease of obtaining cigarettes from social sources also decreased significantly: over 30% fewer thought that it was easy to buy a few cigarettes. These decreases in adolescents' perceptions that cigarettes are easy to get may be due to a combination of grass-roots activism as well as anti-tobacco and tobacco industry advertising that emphasized minimum purchase age laws and their increased enforcement.

The percent of adolescents who reported they buy their own cigarettes decreased significantly from 16.1±2.2% in 1996 to 9.3±2.1% in 1999. This decrease may reflect the decreased perception that it is easy to buy a pack of cigarettes. As in 1996, established smokers in 1999 were much more likely to buy cigarettes, either themselves or through others, than were experimenters.

Over 80% of adolescent ever smokers reported that they usually get their cigarettes from social sources, and nearly three-quarters of these adolescents were given cigarettes and therefore did not pay for them. Adolescents who got cigarettes from others usually got them from other teens, over 70% of whom were under 18 years of age; another 22% of suppliers were under 21. Raising the age of legal purchase to 21 years may increase the gap between adolescents and suppliers, thus decreasing access from social sources.

Of those who did buy their own cigarettes, most said that they bought from small stores, such as gas stations (44.2±7.3%), liquor stores (41.3±7.3%), or small groceries (26.4±5.9%). These findings were nearly identical to earlier years', and suggest that the larger supermarket chains and discount stores have successfully implemented fairly strict policies about selling cigarettes to minors. Smaller stores may be more independent and thus less able as a group to consistently enforce policies against selling tobacco to minors.

Adults' opinions about the enforcement of laws banning the sales of tobacco to minors suggested that, like adolescents, fewer adults in 1999 thought that cigarettes are easy for adolescents to get, compared to 1996. Although still a minority, a growing percent of adults thought that laws banning the sales of cigarettes to minors were adequately enforced by 1999, compared to earlier years. Perhaps, like adolescents, adults were influenced by media campaigns that focussed on the access issue.

## CHAPTER 9: KEY FINDINGS

1. For the first time since the CTS began in 1990, never smokers' perceptions that it is easy to get cigarettes decreased significantly (by a factor of 16.1%) from 57.2±1.5% in 1996 to 48.0±1.5% in 1999.

2. Overall, the percent of adolescents who thought it was easy to buy a pack of cigarettes decreased significantly (by a factor of 48.2%) from 51.5±1.4% in 1996 to 26.7±1.3% in 1999.

3. Overall, the percent of adolescents who thought it was easy to get a few cigarettes decreased significantly (by a factor of 31.4%) from 69.1±1.2 in 1996 to 47.4±1.3% in 1999.

4. Consistently, from 1990 to 1999, approximately 40% of never smokers reported that they had been offered cigarettes.

5. The majority of adolescents reported that they usually get their cigarettes from others—61.3±3.4% were given these cigarettes and 21.9±2.5% had others buy cigarettes for them in 1999.

6. Significantly fewer adolescent ever smokers reported that they usually bought their own cigarettes in 1999 (9.3±2.1%) than in 1996 (16.1±2.2%).

7. Over 70% of adolescents who are given cigarettes get them from other underage adolescents, and another 22% get them from friends under the age of 21 years.

8. Most adolescents who buy cigarettes usually get them from gas stations, liquor stores, or small grocery stores—a pattern that has remained consistent since 1996.

9. Social sources of cigarettes are an important factor in adolescents' access to cigarettes.

10. In 1999, approximately one-third (34.3±1.2%) of adults believed that minimum purchase age laws are adequately enforced; this level is over twice as high as in 1990, when only 15.2±0.8% of adults believed that these laws were adequately enforced.

## CHAPTER 9: GLOSSARY

### Adolescents

*Committed never smoker* – a *never smoker* who does not expect to try a cigarette soon and who answers definitely not to whether he or she would accept a cigarette offered by a friend and to a question about whether he or she will smoke in the next year.

*Current established smoker* – has smoked a cigarette on at least one day in the past month and has smoked at least 100 cigarettes in his or her lifetime.

*Current smoker* – has smoked a cigarette on at least one day in the past month.

*Daily smoker* – answers 25 or more days to the question about how many days in the last month he or she smoked.

*Established smoker* – has smoked at least 100 cigarettes in his or her lifetime.

*Experimenter* – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

*Never smoker* – has never smoked or even puffed on a cigarette.

*Occasional smoker* – answers less than 25 days to the question about how many days in the last month he or she smoked.

*Puffer* – someone who has not smoked a cigarettes, but admits to puffing on one.

*Susceptible never smoker* – a *never smoker* who either expects to try a cigarette soon or who does **not** answer definitely not to whether he or she would accept a cigarette offered by a friend or to a question about whether he or she will smoke in the next year.

### Adults

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Never smoker* – has smoked fewer than 100 cigarettes in his or her lifetime.

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# Chapter 10

# SCHOOL SMOKING: POLICIES AND COMPLIANCE

# CHAPTER 10: SCHOOL SMOKING: POLICIES AND COMPLIANCE

## Introduction

School smoking prevention efforts have the potential to influence adolescent smoking in several ways. The implementation and enforcement of smokefree school policies limits the opportunity for teens to smoke. A study from Australia indicates that many adolescents start smoking regularly at school (Hill & Borland, 1991). Further, the existence and enforcement of these policies promote norms against smoking as an acceptable behavior for everyone, including teachers who are important role models for adolescents. Finally, anti-smoking curricula can provide vital information on the health dangers and the addictive nature of cigarettes.

Since 1952, the California State Education Code has banned all student smoking on the grounds of junior high and middle schools (Pentz et al., 1989). In 1991, AB-99 required that all schools become tobacco-free by July 1, 1996 in order to qualify for anti-tobacco program funding. Legislation passed in 1994 moved the implementation date of the AB-99 school policies ahead by a year, to July 1, 1995. This chapter examines the extent to which students believe that their peers and teachers comply with the school smoking ban and the degree of enforcement students themselves advocate.

For decades, schools have played a central role in educational efforts aimed at smoking prevention (Glynn, 1989; USDHHS, 1989; Hansen, 1992; USDHHS, 1994). It is recognized that such programs have the most chance of success in the setting of comprehensive community-based tobacco control programs (USDHH, 2000). Since 1995, the state of California has required school-based anti-tobacco education for grades 4-8. The Tobacco Use Prevention Education (TUPE) program, an integral component of the California Tobacco Control Program, provides entitlement funds for tobacco education in grades 4-8, and competitive grants for tobacco education in grades 9-12 (Fishbein et al., 1998). Thus, by 1999, nearly all adolescents should have been exposed to a smoking prevention lesson in school. In this chapter, students' recall and opinions of such classes are described.

Section 1 analyzes trends in student compliance with school smoking regulations. Section 2 examines trends in perception of teachers' smoking. Section 3 explores students' exposure to anti-smoking curricula. Section 4 summarizes the chapter.

## 1. Smokefree School Policies

Obeying the Rule Not to Smoke

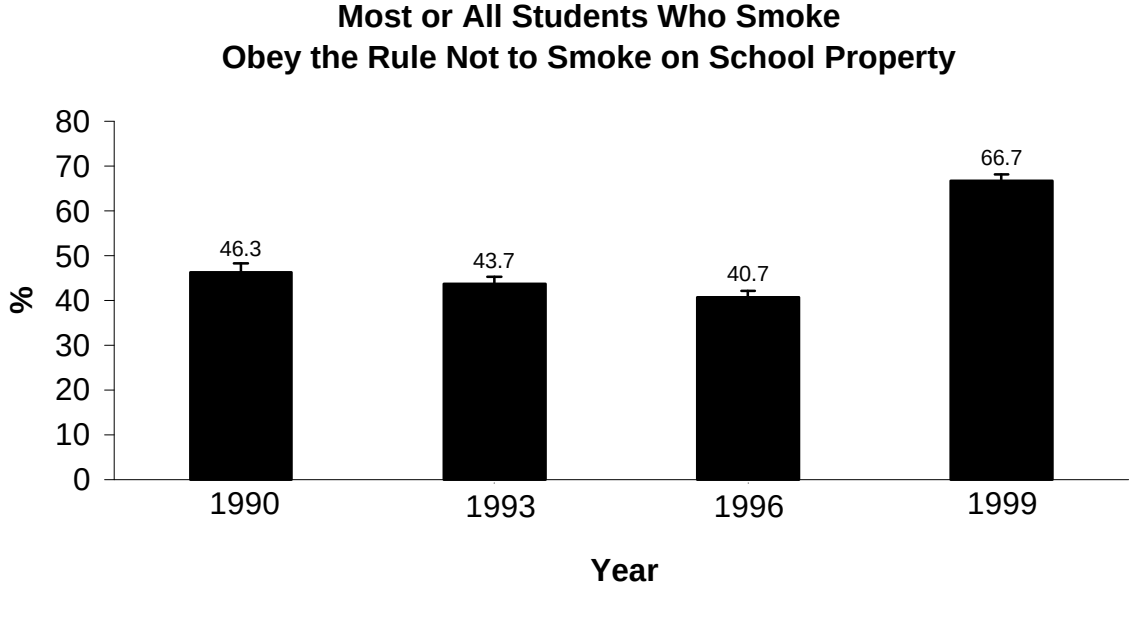
If tobacco use policies are not consistently enforced in schools, they can convey a mixed message to students (Bowen et al., 1995). However, Pentz, et al. (1989) showed that, when consistently enforced and coupled with cessation education, school smoking policies are associated with decreased smoking prevalence among adolescents. To assess compliance

with smokefree policies at schools, the 1990, 1993, 1996 and 1999 California Tobacco Surveys (CTS) asked adolescents the following question:

*How many students who smoke obey the rule not to smoke on school property?*

**Compliance with school smoking policies increased 64% between 1996 and 1999.**

Figure 10.1 shows that after a slight but steady decline through 1996, the percentage of adolescents who perceive that most or all students obey the rule not to smoke on school property increased significantly by 1999 when two-thirds of students perceived that the school smoking ban was generally obeyed. This represents a turnaround by a factor of 63.9% since 1996. The lower level in 1996 was attributed to the possible increased awareness of the rule and that it was being violated in high schools since the policy was relatively new. It appears that by 1999, the rule had gained much wider acceptance.




Source: CTS 1990, 1993, 1996, 1999

Figure 10.1

Table 10.1 shows the perception that most or all students obey the rule for demographic subgroups. Students age 12-13 years reported significantly higher compliance than older students. This finding would be expected for two reasons: fewer 12-13 year olds smoke, and a smoking ban in junior high and middle schools has been in place for over 40 years (Pentz et al., 1989). Younger students also showed the greatest factor increase between 1996 and 1999.

**Table 10.1**
**How Many Students Who Smoke**
**Obey the Rule Not to Smoke on School Property?**

| Demographics | Responding "Most" or "All" | | | | Factor Increase 1996-1999 % |
|---|---|---|---|---|---|
| | 1990 % | 1993 % | 1996 % | 1999 % | |
| All Students | 46.3 (±2.0) | 43.7 (±1.6) | 40.7 (±1.4) | 66.7 (±1.5) | 63.9 |
| Gender | | | | | |
| Boys | 48.5 (±2.9) | 46.0 (±2.2) | 40.5 (±1.9) | 67.0 (±2.0) | 65.4 |
| Girls | 44.2 (±2.7) | 41.4 (±2.9) | 40.9 (±2.0) | 66.4 (±2.2) | 62.3 |
| Age | | | | | |
| 12-13 | 56.9 (±3.9) | 53.5 (±2.2) | 46.1 (±2.4) | 80.0 (±2.4) | 73.5 |
| 14-15 | 41.9 (±3.5) | 39.0 (±3.0) | 37.7 (±2.6) | 62.0 (±2.6) | 64.4 |
| 16-17 | 39.3 (±3.6) | 37.0 (±3.6) | 38.3 (±2.5) | 57.7 (±2.8) | 50.7 |
| Race/Ethnicity | | | | | |
| African American | 49.2 (±8.8) | 42.5 (±7.7) | 38.3 (±5.0) | 65.2 (±5.4) | 70.2 |
| Asian/PI | 42.1 (±6.6) | 38.0 (±5.9) | 34.5 (±4.3) | 61.4 (±4.8) | 78.0 |
| Hispanic | 42.8 (±3.5) | 38.5 (±3.8) | 39.6 (±2.9) | 63.0 (±2.5) | 59.5 |
| Non-Hispanic White | 48.9 (±2.6) | 47.9 (±2.3) | 43.3 (±2.0) | 72.5 (±2.0) | 67.8 |
| School Performance | | | | | |
| Much above average | 49.2 (±5.2) | 50.9 (±4.0) | 42.9 (±2.3) | 71.3 (±3.6) | 66.2 |
| Above average | 48.1 (±2.9) | 44.9 (±3.2) | 43.0 (±2.4) | 71.3 (±2.2) | 66.2 |
| Average or below | 43.6 (±2.7) | 39.6 (±2.7) | 37.1 (±2.1) | 60.4 (±2.2) | 62.5 |

Table entries are weighted percentagesand 95% confidence limits.
Source: CTS 1990, 1993, 1996, 1999

While a significantly higher percentage of Non-Hispanic White than minority students reported that *most* or *all* student smokers obeyed the school smoking in 1999, all ethnic groups showed impressive increases in perceived compliance with the school smoking ban since 1996. In all years, students with average or below average school performance were significantly less likely to think the no-smoking rule was obeyed by most or all smoking students, but all groups showed substantial increases in this perception.

How Many Students Witnessed Smoking in School?

In earlier years of the CTS, students were asked separate questions about whether they had seen students or teachers smoking at school. The 1996 and 1999 CTS were slightly modified to ask students the following single question to ascertain the level of compliance to the new law:

*Have you seen anyone smoke in school in the last two weeks?*

**In 1999, 25% fewer adolescents had witnessed someone smoking at school in the past two weeks compared to 1996.**

In 1996, over one-third (36.0±1.5%) of students had seen anyone smoking at school, but this had declined to just over one-quarter (26.3±1.7%) by 1999, which is consistent with the increased perception that the rule is obeyed. Answers to this question varied widely, depending on the student's age and whether they attended private or public school. In both years, significantly more of the oldest teens observed someone smoking at school. In 1999, only 11.4±4.1% of private and religious school students reported they had seen smoking at school, while 28.3±1.7% of public school students answered "yes" to this question, which is a significant difference. The decrease in witnessing someone smoking was apparent in all demographic groups.

**Table 10.2**
**Students Who Have Seen Anyone Smoking at School**

| Demographic Groups | 1996 % | 1999 % | Factor Decrease 1996-1999 % |
|---|---|---|---|
| All Students | 36.0 (±1.5) | 26.3 (±1.7) | -26.9 |
| Gender | | | |
| Boys | 37.0 (±2.1) | 27.3 (±2.5) | -26.2 |
| Girls | 34.9 (±2.1) | 25.2 (±1.8) | -27.8 |
| Age | | | |
| 12-13 year olds | 12.3 (±2.0) | 7.5 (±1.7) | -39.0 |
| 14-15 year olds | 44.2 (±2.4) | 33.2 (±2.8) | -24.9 |
| 16-17 year olds | 51.1 (±2.3) | 38.3 (±2.6) | -25.0 |
| Race/Ethnicity | | | |
| African American | 35.1 (±5.2) | 27.1 (±6.2) | -22.8 |
| Asian/PI | 41.7 (±4.1) | 31.0 (±5.7) | -25.7 |
| Hispanic | 32.2 (±2.9) | 24.4 (±2.4) | -24.2 |
| Non-Hispanic White | 37.0 (±1.8) | 26.7 (±2.0) | -27.8 |
| School Performance | | | |
| Much better than average | 35.5 (±3.3) | 26.5 (±3.2) | -25.4 |
| Above average | 36.1 (±2.6) | 24.2 (±2.4) | -33.0 |
| Average or below | 36.3 (±2.1) | 28.2 (±3.1) | -22.3 |
| School | | | |
| Private/Religious School | 16.0 (±3.3) | 11.4 (±4.1) | -28.8 |
| Public School | 39.0 (±1.5) | 28.3 (±1.7) | -27.5 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

Trends in Student Preferences for Smokefree School Grounds 1993-1999

Adolescents often confront the strict enforcement of any type of restriction with resistance and noncompliance. To test students' reactions to smokefree policies, the 1993, 1996 and 1999 CTS asked adolescents the following question:

*Do you think that all smoking by anyone should be banned on school grounds at all times, including meetings and sporting events?*

**In 1999, the vast majority of students (89%) support a complete ban on smoking on school grounds.**

The word "ban" was deliberately used in this question to maximize the number of adolescents who would disagree and thereby provide a conservative estimate of student support for school smoking policies. Despite the wording, in 1999 an overwhelming majority, 89.2±0.8%, of students surveyed, supported the imposition of a policy prohibiting smoking at any time on school grounds, up from about 84% in both 1993 and 1996.

**Table 10.3**
**Students Who Preferred that Smoking be Banned on School Grounds**

| Demographic Groups | 1993 % | 1996 % | 1999 % | Factor Change 1993-1999 % |
|---|---|---|---|---|
| All Students | 84.8 (±1.3) | 84.4 (±1.1) | 89.2 (±0.8) | 5.2 |
| Gender | | | | |
| Boys | 84.3 (±2.1) | 84.1 (±1.7) | 89.1 (±1.1) | 5.7 |
| Girls | 85.4 (±2.0) | 84.8 (±1.3) | 89.3 (±1.5) | 4.6 |
| Age | | | | |
| 12-13 year olds | 90.9 (±2.0) | 90.4 (±1.5) | 92.2 (±1.4) | 1.4 |
| 14-15 year olds | 83.6 (±2.7) | 84.3 (±2.3) | 90.1 (±1.5) | 7.8 |
| 16-17 year olds | 79.0 (±2.7) | 78.3 (±2.6) | 84.9 (±2.0) | 7.5 |
| Race/Ethnicity | | | | |
| African American | 84.1 (±6.2) | 86.9 (±3.7) | 90.7 (±3.4) | 7.8 |
| Asian/PI | 86.0 (±5.4) | 88.8 (±2.5) | 88.2 (±3.2) | 2.6 |
| Hispanic | 86.7 (±2.6) | 82.3 (±2.1) | 86.2 (±1.7) | -0.6 |
| Non-Hispanic White | 83.5 (±1.6) | 84.2 (±1.6) | 91.7 (±1.0) | 9.8 |
| School Performance | | | | |
| Much above average | 88.7 (±2.8) | 89.2 (±1.9) | 90.0 (±2.1) | 1.5 |
| Above average | 84.7 (±2.1) | 86.0 (±1.6) | 90.6 (±1.6) | 7.0 |
| Average or below | 83.4 (±2.2) | 80.1 (±2.0) | 87.4 (±1.8) | 4.8 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1993, 1996, 1999

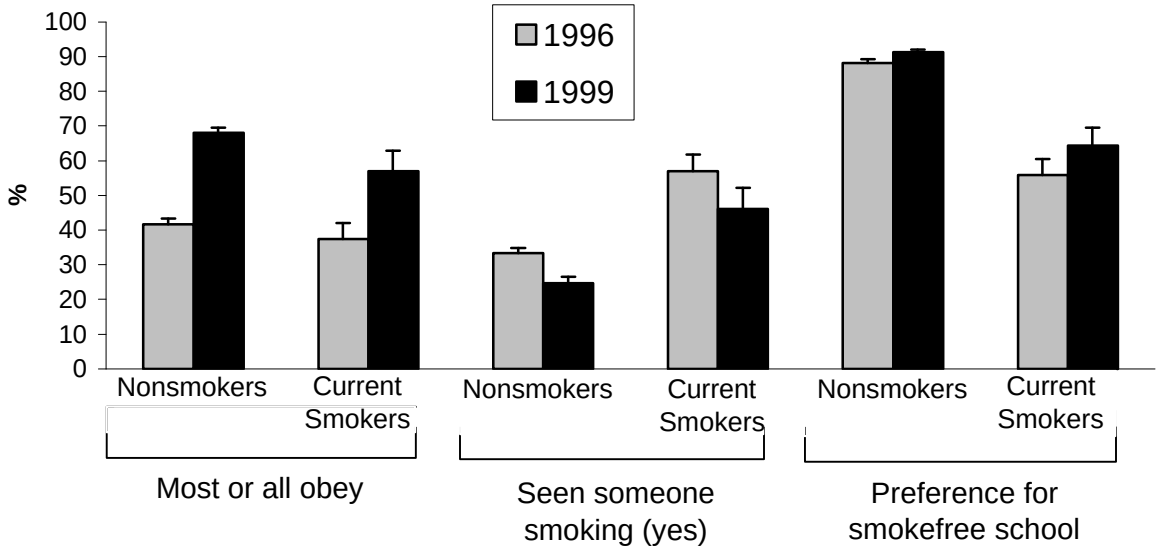
Table 10.3 shows preference for a smokefree school within different demographic subgroups of students. Although younger students were significantly more likely to prefer that smoking be banned on school grounds in all years, it was the older students who showed a greater shift in preference between 1993 and 1999. Non-Hispanic White students also showed a significantly increased preference for smoke-free schools over this time. In contrast to 1996, in 1999 this preference was equally high regardless of the level of school performance. In fact, by 1999 all demographic groups showed very high levels of preference for smokefree school campuses.

How do Adolescent Current Smokers View the School No-Smoking Policies?

**In 1999, almost two-thirds of current smokers support the smokefree school policy.**

Smokefree school policies will interfere with the ability of adolescent smokers to smoke during school hours. However, even current smokers (any smoking in the past 30 days) showed impressive changes in support for the smokefree policy between 1996 and 1999. Current smokers in 1999 were more likely (by a factor of 52.0%) to perceive that students who smoke (including presumably themselves) obey the rule. Also, they were less likely by a factor of 19.0% to have seen someone smoking on school property, and more likely to prefer that smoking be banned by a factor of 15.4%. The fact that even more current smokers agree with the school smoking ban is an important success for the TCP.

**School Policy Against Smoking by Current Smoking Status and Year**




| | Most or all obey | | Seen someone smoking (yes) | | Preference for smokefree school | |
|---|---|---|---|---|---|---|
| | Nonsmokers | Current Smokers | Nonsmokers | Current Smokers | Nonsmokers | Current Smokers |
| 1996 | 41.7 | 37.5 | 33.3 | 56.9 | 88.2 | 55.8 |
| 1999 | 68.1 | 57 | 24.7 | 46.1 | 91.2 | 64.4 |

Source: CTS 1996, 1999

Figure 10.2

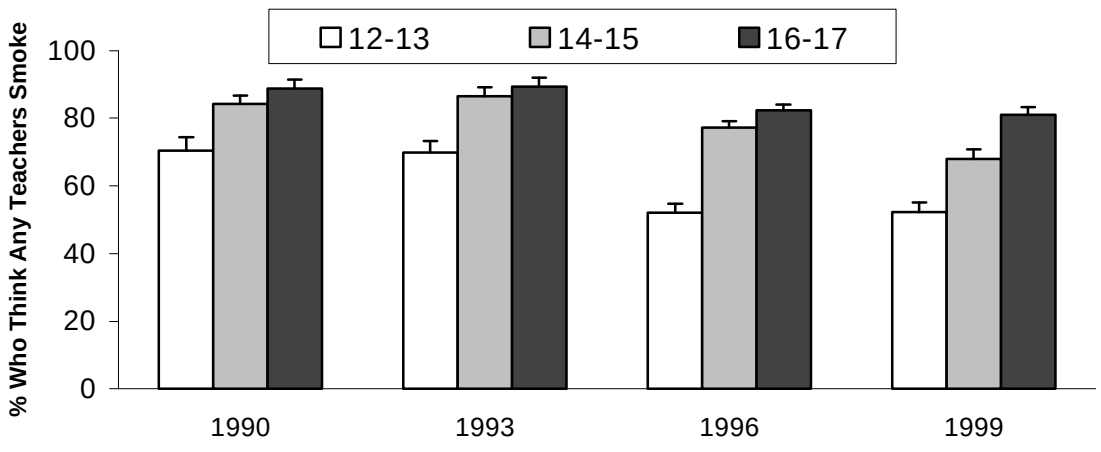
## 2. Trends in Perceptions of Teachers' Smoking

A teacher's influence on students extends far beyond the classroom knowledge they convey. Earlier research has established a link between teachers' smoking at school and adolescent smoking uptake (Allen et al., 1991, 1992). In the 1990, 1993, 1996 and 1999 California Tobacco Survey, all students were asked:

*How many of the teachers in your school smoke cigarettes?*

This question cannot accurately assess the prevalence of smoking among teachers. Adolescents typically overestimate both peer and adult smoking. Nevertheless, adolescents' perceptions and trends in these perceptions are important. In 1990, 81.0±1.7% of all adolescents perceived that any teachers smoke (i.e., they answered either *a few*, *some*, *most*, or *all*); this percentage remained about the same in 1993 (81.3±1.6%), declined significantly by 1996 (70.7+1.2%), and declined significantly again to 66.9±1.8% by 1999. The factor decrease from 1990 to 1999 was 17.4%.

Figure 10.3 illustrates that all age groups of students have significant declines in the perception that any teachers smoke. Younger students were least likely in each year to perceive that any teachers smoke. In 1990 and 1993, about 70% of 12-13 year olds perceived that *any* of their teachers smoke, and by 1996 and 1999, only about 52% of students in this age group perceived that *any* teachers smoke. This change represents a decrease by a factor of about 26% from 1990. Only the 14-15 year olds showed significant declines in their perceptions that any teachers smoke between 1996 and 1999. In 1996, 77.2±1.9% of this age group thought any teachers smoke, but in 1999 this perception had declined to 68.0±2.9%, a reduction by a factor of about 12%.




| | 1990 | 1993 | 1996 | 1999 |
|---|---|---|---|---|
| 12-13 | 70.4 | 69.8 | 52.1 | 52.2 |
| 14-15 | 84.3 | 86.5 | 77.2 | 68.0 |
| 16-17 | 88.8 | 89.3 | 82.3 | 81.1 |

Source: CTS 1990, 1993, 1996, 1999

Figure 10.3

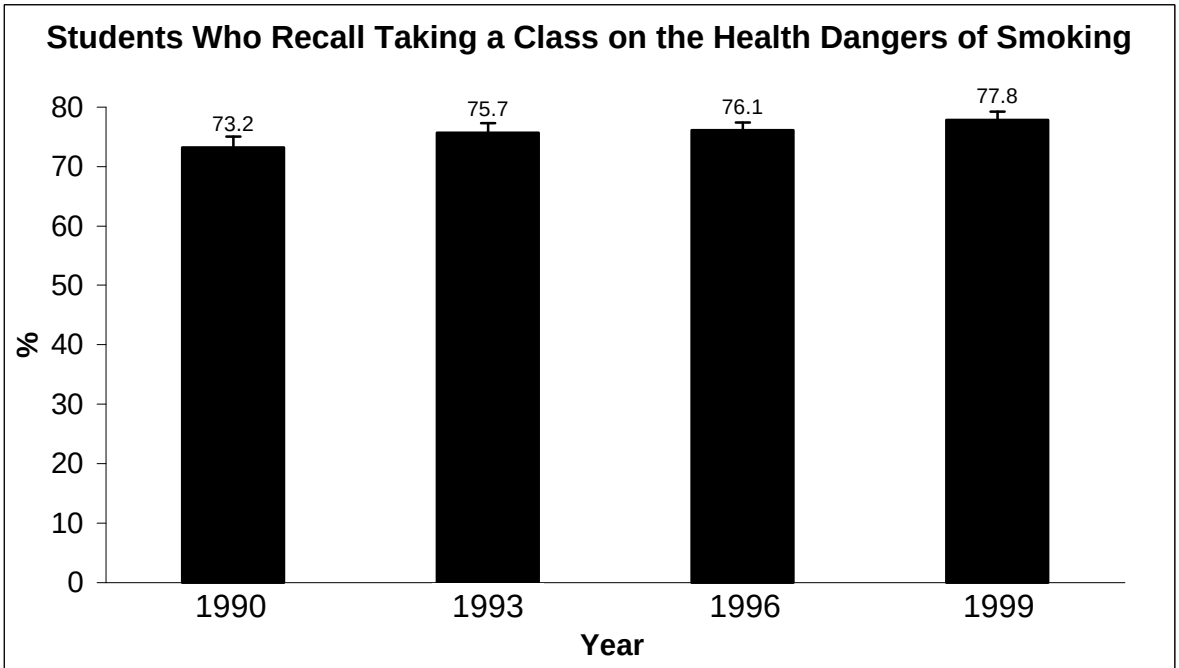
Although students may see teachers smoking outside of school or smell smoke on their breath or clothes, it is likely that teacher compliance to smokefree school policies has increased since AB-99 was implemented in 1995, so that fewer students are aware of their smoking. Compliance may be higher in middle schools or private schools because teachers are more aware of their role model standing, but older students may simply be more aware of teachers' behavior.

### 3. Trends in Health Education Classes at Schools 1990-1999

Seventeen-year-old students interviewed as part of the 1999 CTS were 13 years of age in 1995, when smoking prevention education should have become a part of their middle-school educational experience. Thus, nearly all students in 1999 should have had a class that discussed the health dangers of smoking. To assess the extent to which students recall having been exposed to such curriculum, the 1990, 1993, 1996 and 1999 CTS asked:

*Have you ever taken a class or course at school in which the health risks of smoking were discussed?*

The question was intentionally broad because it was judged unlikely that students receive information on smoking at every grade level. Figure 10.4 shows that the proportion of adolescents who could recall ever having such a class increased only slightly, by a factor of 6.3%, between 1990 and 1999.




Source: CTS 1990, 1993, 1996, 1999

Figure 10.4

While all students should now be reached, these classes may not make a sufficient impact to be remembered. It is of interest, therefore, to examine which demographic groups were

able to recall having a class on the health risks of smoking in recent years. Table 10.4 shows recall of a smoking prevention class by demographic groups in 1996 and 1999.

**Table 10.4**
**Students Who Recall Having a Class on the Health Risks of Smoking**

| Demographic Groups | 1996 % | 1999 % | Factor Change 1996-1999 % |
|---|---|---|---|
| All Students | 76.1 (±1.3) | 77.8 (±1.4) | 2.1 |
| Gender | | | |
| Boys | 75.2 (±1.9) | 76.8 (±2.1) | 2.1 |
| Girls | 77.0 (±1.6) | 79.0 (±1.7) | 2.6 |
| Age | | | |
| 12-13 year olds | 74.0 (±2.1) | 76.3 (±2.4) | 3.1 |
| 14-15 year olds | 76.0 (±2.1) | 77.1 (±2.3) | 1.4 |
| 16-17 year olds | 78.3 (±2.5) | 80.1 (±2.1) | 2.3 |
| Race/Ethnicity | | | |
| African American | 70.4 (±5.2) | 74.0 (±5.6) | 5.1 |
| Asian/PI | 78.6 (±3.7) | 77.9 (±4.5) | -0.9 |
| Hispanic | 69.9 (±3.0) | 74.0 (±2.7) | 5.9 |
| Non-Hispanic White | 80.3 (±1.5) | 82.2 (±1.5) | 2.4 |
| School Performance | | | |
| Much better than average | 79.9 (±2.4) | 79.8 (±3.0) | 0.1 |
| Above average | 78.8 (±1.7) | 81.4 (±1.9) | 3.3 |
| Average or below | 71.3 (±2.0) | 73.7 (±2.6) | 3.4 |
| School | | | |
| Private/Religious School | 75.0 (±3.6) | 77.4 (±3.7) | 3.2 |
| Public School | 76.4 (±1.4) | 78.1 (±1.5) | 2.2 |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1996, 1999

As students get older, they have had more opportunity to have had a class that discussed the health effects of smoking. Thus, it is not surprising that there was a significant age trend in recall of having such a class. While African American and Hispanic students in 1996 were less likely to recall having a class that covered this topic, it is encouraging that the gap in recall for minorities was closing by 1999. Students performing at average or below average in school were significantly less likely to recall having a class in both years. Both private and public school students were about equally likely to recall having a class covering the health effects of tobacco use.

Adolescent Perception of Health Class Effectiveness

Adolescent perception of the effectiveness of such classes in deterring smoking is another way to measure their impact. Respondents to the 1996 and 1999 CTS who reported having a class on the health effects of smoking were asked the following question:

> *Do you think that kids who took the health class on the effects of smoking are more against smoking, less against smoking, or had no change in attitude toward smoking as a result of taking this class?*

Of teens who recalled taking the health class in 1996, 56.9±1.6% responded that they thought kids who took the health class had *no change* in attitudes toward smoking, or that they were *less against* smoking than kids who did not take the class. In 1999, this percentage had declined significantly to 47.7±1.8%, suggesting that either the quality of classroom instruction in this regard had improved or that teens were more receptive to the messages of such classes.

In both years, the adolescents' smoking experience was associated with perception of class effectiveness. In 1996, 69.2±2.7% of adolescent ever smokers or puffers thought the class was ineffective compared to 50.3±2.0% of never smokers. In 1999, 61.7±3.1% of ever smokers or puffers and 42.4±2.0% of never smokers held this view. This association may reflect the fact that health classes reinforce the determination of never smokers. However, it is unclear whether experimentation took place before or after they attended the health class. If experimentation preceded the health class, it may or may not have discouraged further experimentation or smoking uptake. Since a majority of the ever smokers or puffers did not credit the class with influencing their peers against smoking, such classes likely had minimal personal impact as well. However, even adolescent experimenters who had such a class were more likely to think it was effective in 1999 than in 1996.

## 4. Summary

The results presented in this chapter suggest that compliance with smokefree school policies has increased markedly between 1996 and 1999. As a result, reported exposure to anyone smoking at school in the past two weeks has also declined substantially. All demographic groups of teens showed these encouraging trends. In 1999, more teens, including those who are current smokers, believed that smoking should be banned on school property for everyone. These important gains in eliminating smoking at school may be a factor in the downturn in adolescent smoking (Chapters 2 and 4).

The data also suggest that fewer teens perceived that their teachers were smoking in 1999 than in earlier years. This change in perception represents progress, as teachers are important role models for students. Either fewer teachers smoked in 1999 than in earlier years, or more teachers were respecting the smokefree policies in California schools so that students were less aware of their smoking. Either way, these results indicate that fewer students thought these important role models were smokers.

In addition, the results presented above showed that classes on the health effects of smoking may be improving. Slightly more students recalled taking such a class in 1999 than in 1996, and more students in 1999 thought that the class was effective in discouraging teens from smoking. Even adolescents who had experimented with cigarettes showed an increase in their perceptions that the class was effective.

## CHAPTER 10: KEY FINDINGS

1. Adolescents report that compliance with school no-smoking rules has increased dramatically since 1996. At that time 40.7±1.4% of students reported that most or all students who smoke obeyed the rule, and by 1999 66.7±1.5% gave this report, an increase by a factor of 63.9%.

2. Consequently, in 1999 the percentage of students who reported seeing someone smoking on school property within the last two weeks (36.0±1.5%) was lower by a factor of 26.9% compared to 1996 (26.3±1.7%).

3. By 1999, 89.2±0.8% of all students expressed a preference that smoking be banned on school grounds for everyone. Even 64.4±5.1% of current smokers expressed this preference, up from 55.8±4.6% in 1996, a factor increase of 15.4%.

4. The percentage of students who reported that any teachers smoked continued to decline. In 1990, 81.0±1.7% of students perceived that any teachers smoked, which declined to 70.7±1.2% in 1996 and further to 66.9±1.8% by 1999, a factor decrease of 17.4% since 1990.

5. By 1999, all students should have been exposed to smoking prevention curriculum in school, and 77.8±1.4% reported that they had been, up from 73.2±1.8% in 1990, a factor increase of 6.3%.

6. Of students who reported having a class on the health effects of smoking, the percentage who thought that the course was ineffective in making kids more against smoking decreased from 56.9±4.6% in 1996 to 47.7±1.8% in 1999, a factor decrease of 16.2%. This trend was present even in students who had ever smoked or puffed on a cigarette.

## CHAPTER 10: GLOSSARY

### Adolescents

*Current smoker* – has smoked a cigarette on at least one day in the past month.

*Ever smoker* – has smoked a cigarette (excludes *puffers*).

*Never smoker* – has never smoked or even puffed on a cigarette.

*Non-current smoker* – has not smoked a cigarette on any days in the past month.

*Nonsmoker – never smoker* or *non-current smoker.*

*Puffer* – someone who has not smoked a cigarette, but admits to puffing on one.

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# Chapter 11

# OTHER TOBACCO USE

# CHAPTER 11: OTHER TOBACCO USE

## Introduction

Aside from a few programs designed to deter adolescent use of smokeless tobacco (chewing tobacco and snuff), the California Tobacco Control Program (TCP) has mainly focused on discouraging cigarette smoking. Nevertheless, it is important to monitor the use of other tobacco products in the population. For instance, adult cigar use prevalence in 1996 doubled compared to the level observed in 1990. This increase in cigar use followed an advertising campaign that promoted cigar smoking as a trendy symbol of sophistication. Two magazines, *Smoke* and *Cigar Aficionado*, were introduced to promote this image.

One typical large cigar may be equivalent to smoking 10 cigarettes in terms of nicotine, tar and carbon monoxide (Rickert et al., 1985; Henningfield et al., 1996). Smoking one or more cigars per day appears to increase the risk of a number of smoking-related health problems (USDHHS, 1998). Because of this health danger, the US Congress recently passed a bill requiring health warnings on cigar packaging and wrappers (FTC, 2000).

Although nondaily cigar use accounted for the entire increase in cigar smoking in California from 1990 to 1996, the extent of cigar use (beyond use everyday or some days) was not probed in the 1996 CTS. The 1999 CTS included additional questions to address the level of cigar consumption.

Also, in recent years a novel tobacco product, bidis, has made its way into the US market, gaining considerable popularity among youth. Bidis or beedies are flavored (chocolate, vanilla, strawberry, cherry, mint, mango, etc.) hand-rolled "cigarettes" imported from India and other Asian countries. Wrapped in a leaf, tapered at both ends and tied with a colorful string, they look somewhat like a marijuana joint. Bidis are not filtered and produce about 3 times more carbon monoxide and nicotine and about 5 times more tar than a typical standard US cigarette (Rickert, 1999). To stay lit, bidis require the smoker to inhale more frequently than standard cigarettes. Furthermore, a paper-wrapped bundle of 20 bidis sells for about $2.00, considerably less than a package of standard US cigarettes.

Bidis may promote nicotine addiction among their generally youthful users, some of whom do not consider them to be tobacco products, since they are often sold in health food stores. New questions were included in the 1999 CTS to assess the prevalence and extent of bidi use among California adolescents.

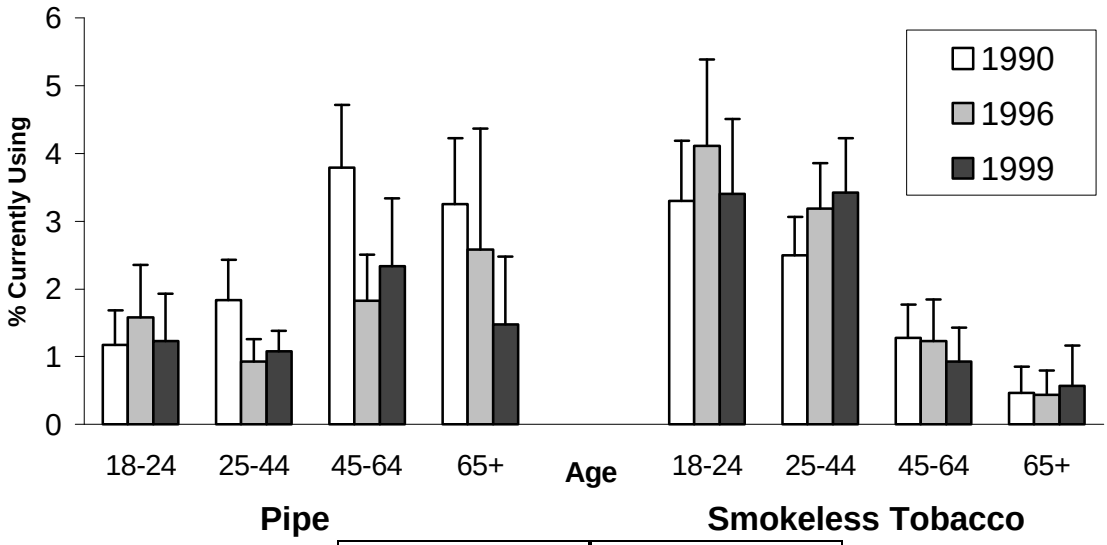
This chapter examines changes in the use of tobacco products other than cigarettes using data from the 1990, 1993, 1996 and 1999 California Tobacco Surveys (CTS). Section 1 presents data on changes in the use of pipes and smokeless tobacco in adults. Section 2

deals with adult cigar use, including level of consumption. Section 3 looks at the use of alternative tobacco products (smokeless tobacco, cigars and bidis) in adolescents. Section 4 summarizes the chapter.

## 1. Adult Use of Pipes and Smokeless Tobacco

The 1990, 1996 and 1999 California Tobacco Surveys (CTS) asked adult respondents who admitted to ever using other forms of tobacco than cigarettes, whether they now use a particular product everyday, some days or not at all. To determine prevalence, use *everyday* and *some days* are combined into the category of *current use*. Because very few women use pipes or smokeless tobacco, only trends for men are presented. It is important to note that even among men, use of pipes and smokeless tobacco is uncommon. Overall in 1990, 2.4±0.4% of adult men smoked pipes; this percentage decreased to 1.5±0.3% in 1996 and was unchanged at 1.5±0.4% in 1999. Adult male smokeless tobacco use was 2.6±0.5% in 1990, 2.5±0.4% in 1996 and 2.4±0.4% in 1999. Figure 11.1 shows the prevalence of current use of pipes and smokeless tobacco in 1990, 1996 and 1999 for men by age. (Further demographic breakdowns are presented in Table A11.1 at the end of this chapter).

**Prevalence of Pipe and Smokeless Tobacco Use by Age in Adult Men**




| Pipe | | | | Smokeless Tobacco | | | |
|---|---|---|---|---|---|---|---|
| | 1990 | 1996 | 1999 | | 1990 | 1996 | 1999 |
| 18-24 | 1.18 | 1.58 | 1.23 | 18-24 | 3.3 | 4.1 | 3.4 |
| 25-44 | 1.84 | 0.93 | 1.08 | 25-44 | 2.5 | 3.2 | 3.4 |
| 45-64 | 3.8 | 1.83 | 2.34 | 45-64 | 1.28 | 1.23 | 0.93 |
| 65+ | 3.3 | 2.6 | 1.48 | 65+ | 0.47 | 0.44 | 0.5 7 |

Source: CTS 1990, 1996, 1999

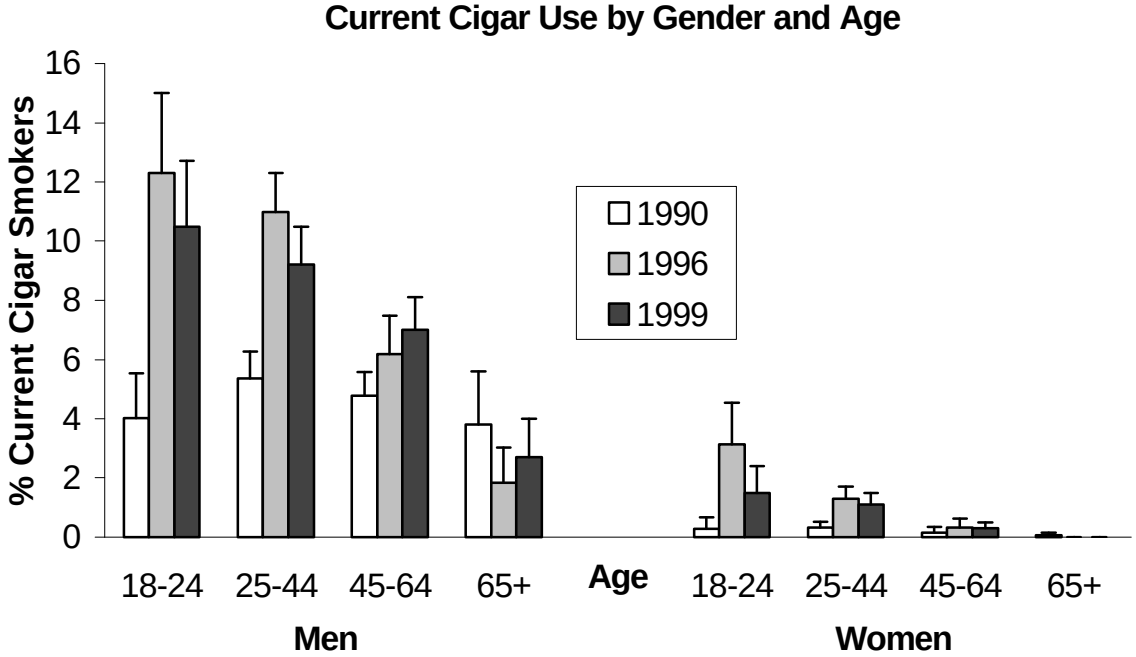
Figure 11.1

Among older men, pipe use appears to have declined from 1990 to 1999; the decline for those aged 65+ years was significant. Smokeless tobacco use by adult men did not change significantly for any age group between 1990 and 1996.

## 2. Adult Cigar Use

As with the questions on pipe smoking and smokeless tobacco use, the 1990, 1996, and 1999 California Tobacco Surveys (CTS) asked respondents who had ever used cigars whether they smoke cigars everyday, some days, or not at all. Again, *current use* was defined as use *everyday* or *some days*. In the entire population, *current use* increased significantly, from 2.5±0.7% in 1990 to 4.9±0.4% in 1996, but declined slightly to 4.4±0.3% in 1999. However, the population prevalence of every day use was only 0.2% in each of these years.

Figure 11.2 presents the prevalence of current cigar use by gender and age in 1990, 1996 and 1999. Details of the demographic distribution of cigar use in 1999 are available in Table A11.1 at the end of this chapter. Although use of cigars is much more prevalent among men than among women, in the youngest two age groups both genders showed significant increases (approximately tripled) in cigar use from 1990 to 1996 but no further increases by 1999. These same age groups of women appeared to show even




| | Men | | | | Women | | |
|---|---|---|---|---|---|---|---|
| **Age** | 1990 | 1996 | 1999 | **Age** | 1990 | 1996 | 1999 |
| 18-24 | 4.0 | 12.3 | 10.5 | 18-24 | 0.28 | 3.14 | 1.50 |
| 25-44 | 5.4 | 11.0 | 9.2 | 25-44 | 0.33 | 1.31 | 1.08 |
| 45-64 | 4.8 | 6.2 | 7.0 | 45-64 | 0.15 | 0.33 | 0.28 |
| 65+ | 3.8 | 1.83 | 2.7 | 65+ | 0.06 | 0 | 0 |

Source: CTS 1990, 1996, 1999

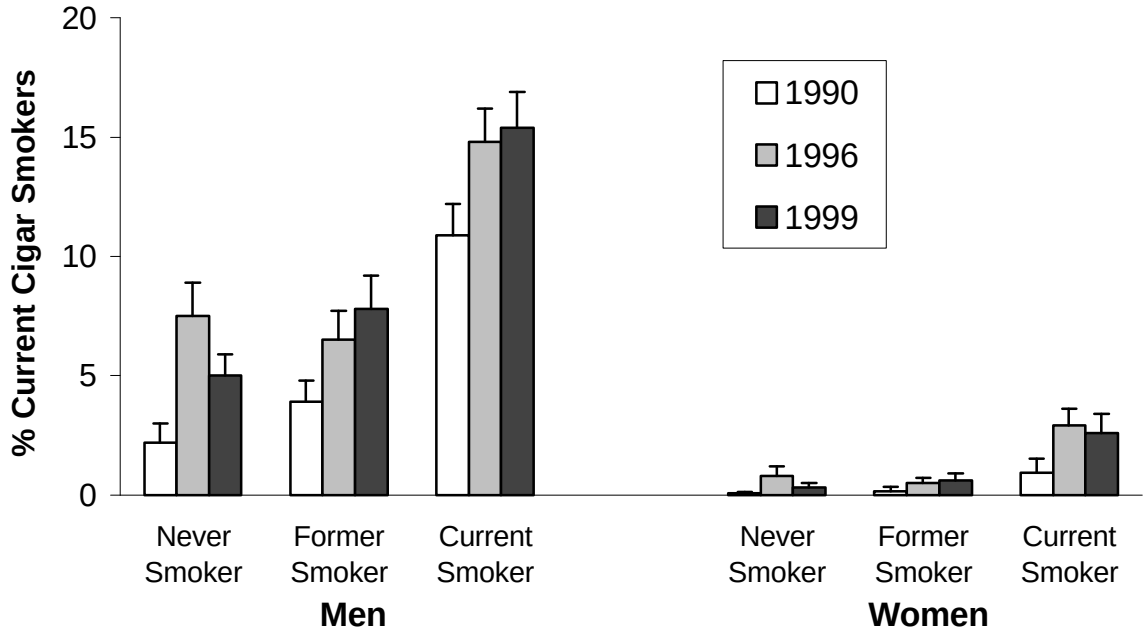
Figure 11.2

greater declines (percentage wise) than men from 1996 to 1999. These trends suggest that the cigar fad has peaked in California, and may now be beginning to decline.

Cigarette Smoking Status and Cigar Smoking

**From 1996 to 1999, cigar smoking declined in never smokers but not in current or former cigarette smokers.**

Cigar smoking is related to cigarette smoking status. In 1990, cigar use was significantly lower among men who never smoked cigarettes than among former cigarette smokers. Former cigarette smokers, in turn, showed lower rates of cigar use than current cigarette smokers did. In 1996, the difference in current cigar use between never and former cigarette smokers disappeared, but in 1999 never smokers again had lower rates of current cigar use than former smokers. The increase between 1990 and 1996 was significant in all smoking status groups for males, but not females, because of low usage rates. These trends are illustrated in Figure 11.3. In 1999, cigar use among never smokers declined significantly compared to 1996, but there was no decrease in cigar use among former and current cigarette smokers.




| | Men | | | | Women | | |
|---|---|---|---|---|---|---|---|
| **Status** | 1990 | 1996 | 1999 | **Status** | 1990 | 1996 | 1999 |
| Never Smoker | 2.2 | 7.5 | 5.0 | Never Smoker | 0.06 | 0.82 | 0.34 |
| Former Smoker | 3.9 | 6.5 | 7.8 | Former Smoker | 0.14 | 0.49 | 0.62 |
| Current Smoker | 10.9 | 14.8 | 15.4 | Current Smoker | 0.92 | 2.9 | 2.6 |

Source: CTS 1990, 1996,1999

Figure 11.3

As expected from the above findings, young men (either current or former cigarette smokers) had particularly high rates of current cigar use in 1996: 23.4±4.6% of current cigarette smokers and 16.4±9.2% for former smokers in the 18-24 year old age group currently smoked cigars. By 1999, these rates were 20.0±4.9% for current cigarette smokers and 13.0±6.2% for former smokers, indicating no further increase in the group most involved with the cigar fad.

Intensity of Cigar Consumption

The 1999 CTS asked several additional questions about cigar use to establish the extent of cigar consumption. These questions were:

- *On how many of the last 30 days did you smoke cigars?*
- *On the days you smoke/smoked cigars, about how many cigars do/did you smoke?*
- *Do you usually inhale the cigars you smoke/smoked?*

**Most cigar smokers only smoke one cigar on the few occasions each month when they smoke them.**

Table 11.1 shows the distribution of the responses to these questions for current cigar users by cigarette smoking status. While close to half of current cigarette smokers reported

**Table 11.1**
**Cigar Smoking Patterns Among Current Cigar Users (Answered Every Day or Some Days to Prevalence Question) by Cigarette Smoking Status**

| | | Cigarette Smoking Status | | |
|---|---|---|---|---|
| | **Overall %** | **Never %** | **Former %** | **Current %** |
| Days Smoked Cigars in Last Month | | | | |
| None | 43.3 (±5.5) | 48.3 (±10.2) | 36.1 (±10.5) | 44.4 (±5.6) |
| 1-2 | 33.2 (±3.7) | 35.2 (±9.5) | 31.7 (±9.9) | 32.6 (±4.3) |
| 3-5 | 10.4 (±2.3) | 7.6 (±5.4) | 12.2 (±6.2) | 11.3 (±2.7) |
| 6-29 | 8.3 (±2.7) | 7.4 (±4.5) | 9.7 (±5.7) | 8.1 (±3.5) |
| Every day | 4.8 (±2.0) | 1.5 (±1.9) | 10.4 (±5.4) | 3.6 (±1.8) |
| Cigars Smoked on Days When Smoked | | | | |
| < 1 | 1.7 (±1.0) | 1.9 (±2.1) | 1.6 (±1.9) | 1.6 (±1.2) |
| 1 | 84.8 (±2.9) | 94.3 (±3.4) | 78.8 (±8.4) | 81.8 (±3.8) |
| 2 | 8.3 (±2.5) | 2.1 (±2.5) | 12.9 (±7.2) | 9.8 (±2.6) |
| 3+ | 4.4 (±1.5) | 1.4 (±1.5) | 6.4 (±4.4) | 5.3 (±2.1) |
| Monthly Cigar Consumption | | | | |
| ≤5/last month | 16.8 (±3.7) | 10.3 (±5.5) | 26.4 (±8.5) | 15.3 (±3.7) |
| ≤10/last month | 12.0 (±3.1) | 6.3 (±4.0) | 19.0 (±7.5) | 11.6 (±3.2) |
| ≤30/last month | 6.5 (±2.3) | 1.9 (±2.0) | 14.5 (±6.4) | 4.7 (±1.9) |
| Usually Inhale Cigars | | | | |
| Yes | 28.3 (±4.5) | 10.8 (±6.6) | 20.5 (±8.6) | 45.7 (±5.0) |

Table entries are weighted percentages and 95% confidence limits.
Source: CTS 1999

smoking no cigars in the last month, only a third of former cigarette smokers did. Since they don't smoke cigarettes, nonsmokers (former and never) appear to smoke more days than cigarette smokers. Former cigarette smokers were the most likely to report daily cigar use, and daily prevalence is significantly higher than for current and never smokers. The vast majority (≥85%) of current cigar users smoked no more than 1 cigar on the days they used cigars. This was particularly the case for those who had never smoked cigarettes; for never smokers this percentage was significantly higher than in current and former smokers.

**In 1999, former cigarette smokers showed the highest intensity of cigar use.**

Multiplying the number of days cigars were smoked in the past month by the number of cigars smoked on the days when cigar smoking occurred gives an indication of monthly cigar consumption. Significantly higher percentages of former cigarette smokers smoked 5 or more, 10 or more and 30 or more cigars per month compared to either current smokers or never smokers. However, it is the current cigarette smokers that were the most likely to inhale the cigars they smoke. The percentages that usually inhaled cigars were significantly different among the cigarette smoking status groups.

### 3. Adolescent Use of Alternative Tobacco Products

Adolescent respondents to the CTS were asked the following questions about their use of alternative tobacco products:

- *Have you ever tried using chewing tobacco or snuff?*
- *Have you ever tried cigars, cigarillos, or little cigars?*
- *Have you ever smoked a bidi, a specially flavored cigarette from India?*

If the response to any of these questions was yes, the adolescent was then asked:

*On how many of the past 30 days did you ….. ?*

While the questions about smokeless tobacco were asked on the 1993, 1996 and 1999 CTS, the question on cigars was only asked in 1996 and 1999, and the question on bidis was only asked in 1999.

Smokeless Tobacco

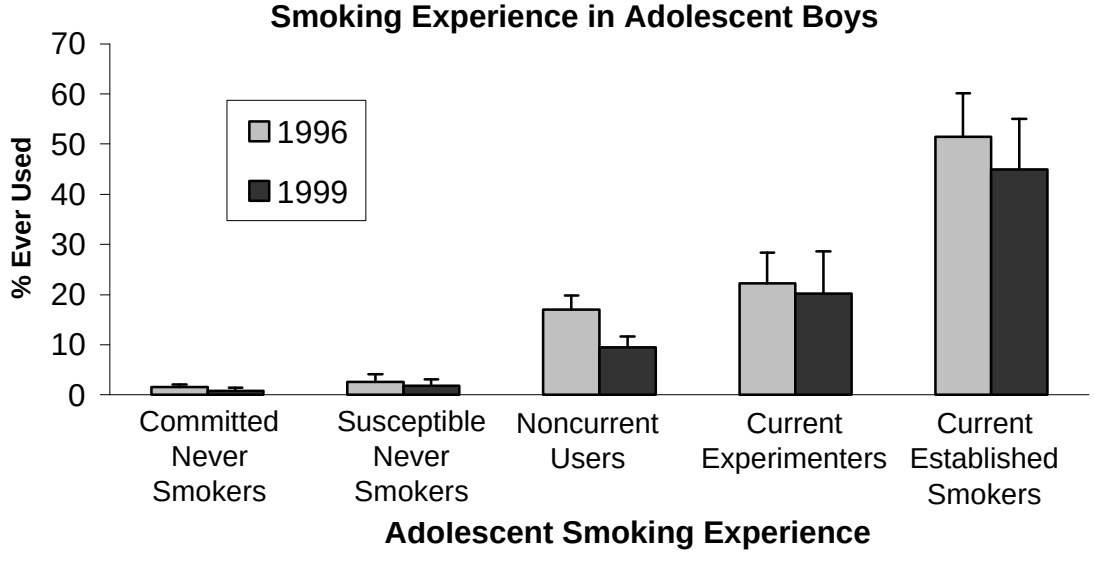
**In 1999, smokeless tobacco use among adolescent boys was at only one third the level observed in 1993.**

Significantly fewer California adolescents used smokeless tobacco in 1996 than in 1993, and there was a further significant decline from 1996 to 1999. Overall, the percentage of teens who had ever used smokeless tobacco decreased from 8.2±0.7% in 1993 to 6.2±0.6% in 1996 and to 3.1±0.5% in 1999. Current use (in the past 30 days) of smokeless tobacco by adolescents declined from 1.7±0.5% in 1993 to 1.0±0.3% in 1996

and to 0.6±0.2% in 1999. The National Youth Tobacco Survey (NYTS), a school-based survey, found that 2.7±0.7% of middle school students and 6.6±1.6% of high school students reported using smokeless tobacco in the previous 30 days (CDC, 2000). School surveys typically produce higher smoking prevalence estimates than telephone surveys (USDHHS, 1994), and this phenomenon may hold for other tobacco use as well.

Experimentation with smokeless tobacco is significantly higher in boys than in girls; for instance, in 1999 5.2±0.9% of boys had experimented compared to only 1.0±0.3% of girls. Among boys, those who lived in rural areas of the state were significantly more likely to have experimented with smokeless tobacco than those living in urban areas (9.1±3.2% vs. 4.8±4.1%). Table A11.2 shows the demographics of ever use of other tobacco products by adolescents in 1999.

Figure 11.4 shows experimentation with smokeless tobacco in boys according to their status with respect to cigarette smoking in both 1996 and 1999. Committed never smokers definitely rule out future smoking whereas susceptible never smokers do not. Noncurrent users have smoked but not in the past 30 days while current experimenters




| | 1996 | 1999 |
|---|---|---|
| Committed Never Smokers | 1.51 | 0.80 |
| Susceptible Never Smokers | 2.6 | 1.80 |
| Noncurrent Users | 17.0 | 9.5 |
| Current Experimenters | 22.3 | 20.2 |
| Current Established Smokers | 51.5 | 45.0 |

Source: CTS 1996, 1999

Figure 11.4

have smoked fewer than 100 cigarettes in their lifetime, but have smoked at least one day in the last month. Current established smokers have smoked at least 100 cigarettes in their lifetime and at least one day in the past month. With increasing cigarette smoking experience, experimentation with smokeless tobacco also increased, and these trends

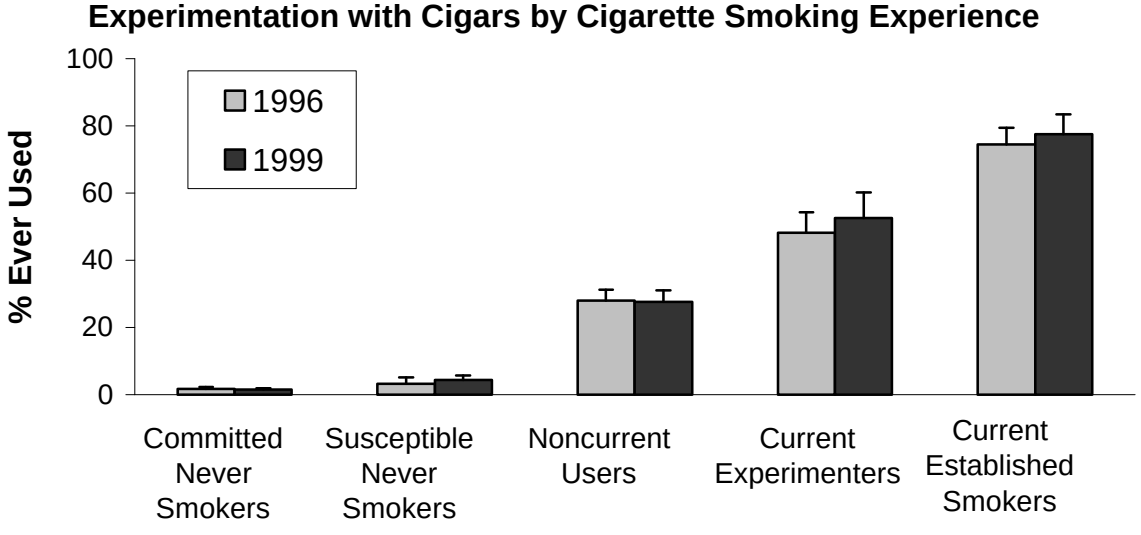
were statistically significant for both 1996 and 1999. There was some indication of the decline in experimentation with smokeless tobacco in all cigarette smoking status groups, and the decline was statistically significant in all groups except the current cigarette use groups.

While use of smokeless tobacco was at relatively low levels in 1999, adolescents may have turned to cigars or bidis instead.

Cigars

Overall in 1996, 15.0±1.2% of teens 12-17 years of age reported they had ever tried a cigar. This percentage declined significantly to 11.9±1.1% in 1999. As in 1996, in 1999 boys were significantly more likely to have experimented with cigars; 15.0±1.7% reported they had ever smoked a cigar, compared to 8.7±1.2% of girls. Non-Hispanic White adolescents (15.7±1.8%) were more likely to have tried cigars than other ethnic groups**.** Refer to Table A11.2 at the end of this chapter for the complete demographic breakdown of adolescent experimentation with cigars. The 1999 CTS indicated that 2.9±0.6% of California adolescents 12-17 years of age used cigars in the past month. The NYTS found that 6.1±1.1% of middle school students and 15.3±1.4% of high school students used cigars in the past month (CDC, 2000).

Experimentation with cigars was rare among committed never smokers, but occurred about twice as often in susceptible never smokers (Figure 11.5). Adolescents who have




| | 1996 | 1999 |
|---|---|---|
| Committed Never Smokers | 1.73 | 1.48 |
| Susceptible Never Smokers | 3.2 | 4.3 |
| Noncurrent Users | 28.0 | 27.6 |
| Current Experimenters | 48.2 | 52.6 |
| Current Established Smokers | 74.5 | 77.6 |

Source: CTS 1996, 1999

Figure 11.5

experimented with cigarettes in the past showed a considerable increased rate of cigar experimentation. Current cigarette experimenters and current established smokers had particularly high rates of experimentation with cigars. The overall slight decrease in cigar use among adolescents was mainly because of the decreased use among committed never smokers and noncurrent users. These groups have increased substantially in numbers since 1996 (see Chapter 4), which accounts for the overall decrease in experimentation with cigars among adolescents.

Bidis

Overall, 7.0±0.8% of adolescents responding to the 1999 CTS reported they had experimented with bidis and 1.4±0.4% reported bidi use in the last month. In the NYTS, the prevalence of bidi use in the last month was 2.4±0.6% in middle school and 5.0±0.8% in high school students (CDC, 2000). A school survey of urban 7th to 12th graders in Massachusetts yielded even higher estimates of current bidi use: 40% had tried bidis and 16% had used them in the last 30 days (Celebucki et al., 1999).

Table 11.2 highlights the demographics of bidi use from the 1999 CTS. Boys were significantly more likely to have experimented with bidis than girls, experimentation increased significantly with age, and contrary to the NYTS (CDC, 2000), bidi experimentation was significantly higher in Non Hispanic Whites compared to other

**Table 11.2**
**Demographics of Bidi Use in California Adolescents**

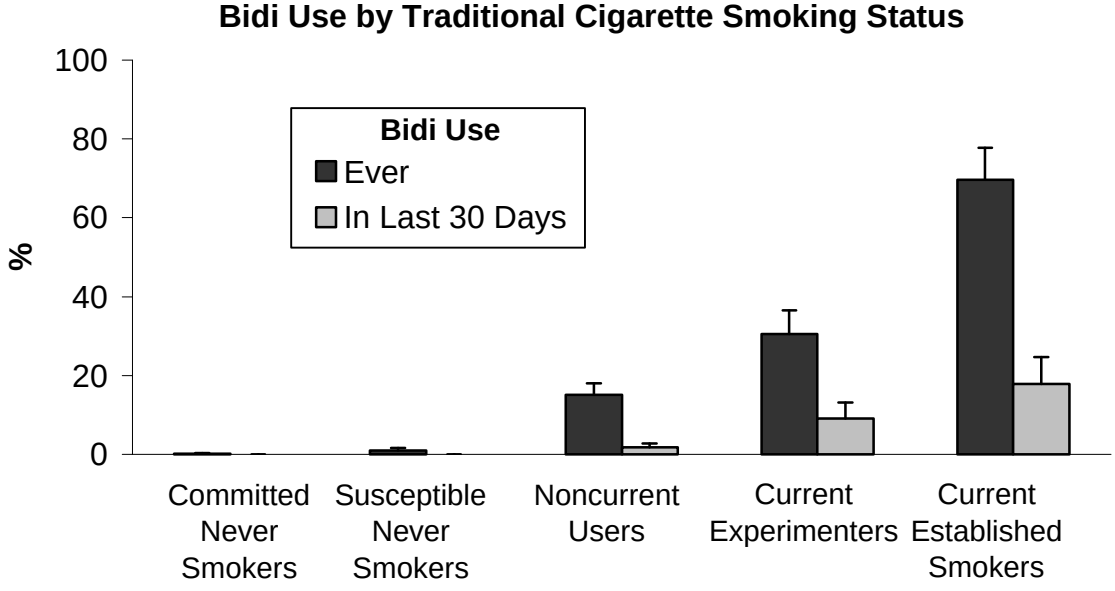
| | **Ever Smoked Bidis %** | **Smoked Bidis in Last 30 days %** |
|---|---|---|
| Overall | 7.0 (±0.8) | 1.35 (±0.37) |
| Sex | | |
| Boys | 8.0 (±1.2) | 1.50 (±0.60) |
| Girls | 5.9 (±0.3) | 1.20 (±0.49) |
| Age (Years) | | |
| 12-13 | 0.73 (±0.46) | 0.24 (±0.29) |
| 14-15 | 5.5 (±1.3) | 0.99 (±0.52) |
| 16-17 | 14.9 (±2.0) | 2.9 (±0.9) |
| Race/Ethnicity | | |
| African American | 6.8 (±2.3) | 1.13 (±1.10) |
| Asian/PI | 4.9 (±2.2) | 1.33 (±1.17) |
| Hispanic | 5.4 (±1.1) | 1.15 (±0.52) |
| Non Hispanic White | 9.0 (±1.3) | 1.60 (±0.57) |
| Other | 10.5 (±7.7) | 1.28 (±2.56) |
| Residency | | |
| Urban | 7.1 (±0.8) | 1.37 (±0.40) |
| Rural | 6.4 (±2.3) | 1.18 (±0.91) |

Table entries are weighted percentages and 95% confidence limits.
Source CTS 1999

ethnic groups, except African Americans. While bidi use appears higher in urban compared to rural areas, these differences were not statistically significant.

**As with other tobacco products, bidi use is associated with the use of cigarettes.**

Figure 11.6 shows that as with smokeless tobacco and cigar experimentation, bidi experimentation occurs significantly more often in adolescents with cigarette smoking experience. Current bidi use also showed this significant trend. In 1999, nearly as many current established smokers had experimented with bidis as had experimented with cigars (Figure 11.5).

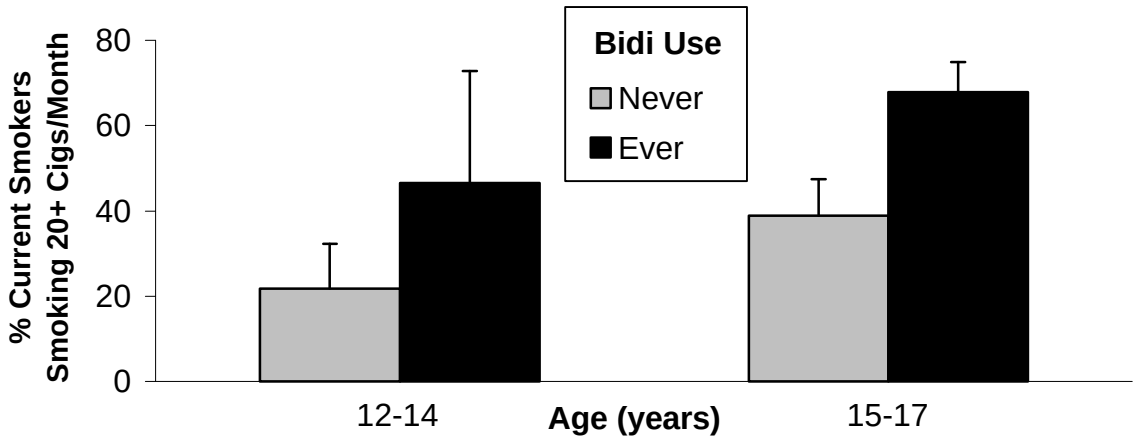



| Bidi Use | | |
|---|---|---|
| | Ever | In Last 30 Days |
| Committed Never Smokers | 0.24 | 0.0 |
| Susceptible Never Smokers | 1.03 | 0.02 |
| Noncurrent Users | 15.2 | 1.79 |
| Current Experimenters | 30.6 | 9.1 |
| Current Established Smokers | 69.7 | 17.9 |

Source: CTS 1999

Figure 11.6

Because bidis have a high nicotine content, they may promote cigarette consumption in adolescent cigarette smokers. It is of interest to determine the extent of major (a pack or more in the past month) cigarette use among adolescent current smokers according to whether or not they have used bidis. Figure 11.7 illustrates this analysis for adolescents 12-14 and 15-17 years of age.




| Bidi Use | | |
|---|---|---|
| | Never | Ever |
| 12-14 year olds | 21.7 | 46.6 |
| 15-17 year olds | 38.8 | 67.8 |

Source: CTS 1999

Figure 11.7

The percentage of adolescents reporting consumption of at least a pack of cigarettes in the past month is much lower among current cigarette smokers who have never used bidis than among those who have ever used bidis in both age groups. Whether bidi use promotes high levels of cigarette consumption or whether adolescents who smoke a lot of cigarettes are more likely to use bidis cannot be determined from these data. However, the high prevalence of significant cigarette consumption among bidi users in the younger age group suggests that bidis may foster nicotine addiction.

**4. Summary**

The data presented in this chapter indicate that the use of pipes and smokeless tobacco by adults remains low. While cigar use increased dramatically between 1990 and 1996, particularly among people under the age of 45 years, the slight decline from 1996 to 1999 suggests that the cigar fad is passing, at least among people who have never smoked cigarettes. As in 1996, the current cigar smoker in 1999 is more likely to be a Non-Hispanic White, better educated man who also currently smokes or formerly smoked cigarettes.

While very few cigar smokers (<5%) smoke cigars every day, daily cigar smoking is highest among former cigarette smokers compared to current or never smokers. Over 40% of adults who say they smoke cigars some days had not smoked any days in the past month. Further, over 85% of cigar users only smoked 1 cigar on the days they did smoke. While few cigar smokers who had never smoked cigarettes inhale, this

percentage increased for former cigarette smokers and was highest among current cigarette smokers.

Whether this occasional cigar use among adults (especially young adult males) and adolescents was a result of industry advertising campaigns promoting cigar use as an emblem of the young sophisticate remains to be investigated. The advertising campaign may have led people to believe that there is no harm in the occasional use of tobacco products.

While efforts to reduce adolescent use of smokeless tobacco products appear to have been successful, adolescents may have turned to cigars and bidis instead. The rates of experimentation with these products in 1999 were much higher than the rate of adolescent experimentation with smokeless tobacco, and **both** boys and girls were participating.

The correlation of alternative tobacco product use with adolescent cigarette smoking experience suggests that adolescents willing to experiment with one tobacco product are willing to experiment with others as well. Therefore, tobacco control efforts aimed at adolescents should seek to establish norms against the use of **any** tobacco products. The increase in the percentage of the adolescent population that are committed never smokers and who refrain from using other tobacco products is a sign of program success.

It appears that bidi use is associated with relatively high levels of cigarette consumption even in young adolescent smokers, but whether bidi use leads to higher cigarette consumption or whether adolescents who smoke at greater consumption levels are more open to experimenting with bidis or other tobacco products is unknown.

## CHAPTER 11: KEY FINDINGS

1. The use of pipes and smokeless tobacco in adult males continues to decrease. In 1999, only 1.5±0.4% of adult males currently used pipes and only 2.4±0.4% used smokeless tobacco.

2. The cigar smoking fad appears to have peaked. In 1999, adult current cigar use was 4.4±0.3% compared to 4.9±0.5% in 1996. Importantly, current cigar use declined significantly among adults who had never smoked cigarettes, in men from 7.5±1.4% in 1996 to 5.0±0.9% in 1999.

3. Regarding cigar smoking intensity, the 1999 CTS showed that:

   a. Most current cigar smokers only smoked a few cigars a month: 83.2±3.7% smoked fewer than 5 cigars in the last month, and 43.3±5.5% smoked none in the last month.

   b. Current cigar smokers who are former cigarette smokers smoked more cigars than either never smokers or current smokers. Of former cigarette smokers, 10.4±5.4% were daily cigar smokers and 19.0±7.5% smoked more than 10 cigars/month. For never cigarette smokers these rates were 1.5±1.9% and 6.3±4.0%, respectively, and for current cigarette smokers the rates were 3.6±1.8% and 11.6±3.2%.

   c. Current cigarette smokers were more likely to inhale the cigars they smoke (45.7±5.0%), compared to former cigarette smokers (20.5±8.6) or never cigarette smokers (10.8±6.6%).

4. Smokeless tobacco use has continued to decline among adolescent boys. In 1999, the percentage of boys who had used smokeless tobacco in the past 30 days was 0.6±0.2%, compared to 1.7±0.5% in 1993. The percentage of ever use (experimentation) was 3.1±0.5% in 1999, down from 8.7±0.7% in 1993.

5. Adolescents of both genders are experimenting with cigars and a tobacco product new to the United States, bidis, a flavored cigarette imported from Asian countries. In 1999, 11.9±1.1% of adolescents had experimented with cigars, down significantly from 15.0±1.2% in 1996. In 1999, 7.0±0.8% of adolescents reported experimenting with bidis.

6. Adolescent experimentation with other tobacco products is highly associated with their experience with cigarettes. Almost none of the adolescents committed to never smoking cigarettes had used any other tobacco product. Since this portion of the adolescent population is increasing (Chapter 4), there should be declines in the use of other tobacco products over time.

## Table A11.1 Current Tobacco Use Status (1999 Adult CTS)

| OVERALL | Any Tobacco Product Use (%) | Cigarettes* (%) | Cigars (%) | Pipes (%) | Chewing Tobacco/ Snuff (%) | Population Size (n) | Sample Size (n) |
|---|---|---|---|---|---|---|---|
| **TOTAL** | 21.7 | 18.2 | 4.3 | 0.8 | 1.2 | 23,905,198 | 14,729 |
| **SEX** | | | | | | | |
| Male | 28.3 | 21.7 | 8.1 | 1.5 | 2.4 | 11,692,309 | 7,272 |
| Female | 15.4 | 14.9 | 0.7 | 0.1 | 0.1 | 12,212,889 | 7,457 |
| **SEX Male** | | | | | | | |
| **AGE** | | | | | | | |
| 18-24 | 33.0 | 26.8 | 10.5 | 1.2 | 3.4 | 1,759,465 | 1,161 |
| 25-44 | 31.7 | 23.8 | 9.2 | 1.1 | 3.4 | 5,357,749 | 3,251 |
| 45-64 | 26.6 | 20.7 | 7.0 | 2.3 | 0.9 | 3,164,734 | 2,091 |
| 65+ | 12.9 | 9.4 | 2.7 | 1.5 | 0.6 | 1,410,361 | 769 |
| **RACE/ETHNICITY** | | | | | | | |
| Hispanic | 26.3 | 22.9 | 5.0 | 0.8 | 0.7 | 3,360,533 | 1,800 |
| Non-Hispanic White | 30.0 | 20.5 | 10.6 | 2.1 | 3.6 | 6,354,293 | 4,386 |
| African-American | 27.3 | 25.1 | 5.9 | 0.5 | 1.6 | 649,838 | 338 |
| Asian/PI | 21.4 | 19.6 | 3.8 | 0.4 | 0.3 | 1,164,277 | 642 |
| Other | 53.6 | 46.4 | 9.9 | 3.6 | 8.3 | 163,368 | 106 |
| **EDUCATION** | | | | | | | |
| <12 | 32.0 | 30.1 | 4.2 | 1.4 | 1.2 | 2,292,741 | 979 |
| 12 | 32.2 | 25.7 | 7.9 | 1.3 | 3.6 | 2,948,219 | 2,059 |
| 13-15 | 30.2 | 22.8 | 9.9 | 1.8 | 2.7 | 3,025,122 | 2,230 |
| 16+ | 20.6 | 11.6 | 9.1 | 1.4 | 1.9 | 3,426,227 | 2,004 |
| **HOUSEHOLD INCOME** | | | | | | | |
| Missing | 21.9 | 18.6 | 4.8 | 0.7 | 0.7 | 1,174,102 | 688 |
| $10,000 or less | 32.0 | 29.0 | 4.7 | 1.3 | 2.1 | 852,802 | 447 |
| $10,001 to $20,000 | 31.0 | 28.5 | 4.8 | 1.5 | 1.6 | 1,273,041 | 761 |
| $20,001 to $30,000 | 29.8 | 24.3 | 6.4 | 1.6 | 3.4 | 1,486,478 | 871 |
| $30,001 to $50,000 | 28.7 | 23.1 | 7.2 | 1.6 | 2.8 | 2,198,089 | 1,425 |
| $50,001 to $75,000 | 29.4 | 19.4 | 11.2 | 1.9 | 3.2 | 2,003,708 | 1,299 |
| over $75,000 | 26.4 | 16.7 | 11.3 | 1.4 | 2.2 | 2,704,089 | 1,781 |
| **URBAN/RURAL** | | | | | | | |
| Urban | 27.8 | 21.5 | 7.9 | 1.4 | 2.1 | 10,633,499 | 6,452 |
| Rural | 32.8 | 24.3 | 9.3 | 1.9 | 5.0 | 1,058,810 | 820 |
| **REGION** | | | | | | | |
| Los Angeles | 21.0 | 18.6 | 3.6 | 0.7 | 0.5 | 6,961,682 | 3,129 |
| San Diego | 23.3 | 19.0 | 4.7 | 1.1 | 1.3 | 2,025,890 | 943 |
| Orange | 18.9 | 14.9 | 5.4 | 0.7 | 0.8 | 1,952,763 | 1,189 |
| Santa Clara | 16.3 | 13.8 | 3.0 | 0.2 | 1.2 | 1,198,554 | 731 |
| San Bernadino | 24.6 | 22.7 | 4.1 | 1.3 | 0.7 | 1,120,416 | 779 |
| Alameda | 16.9 | 13.7 | 3.6 | 0.7 | 0.7 | 1,019,881 | 598 |
| Riverside | 26.0 | 22.7 | 4.5 | 1.2 | 1.5 | 976,702 | 678 |
| Sacramento | 22.1 | 17.7 | 4.8 | 0.8 | 1.0 | 838,583 | 600 |
| Contra Costa | 23.1 | 18.4 | 7.5 | 1.8 | 1.5 | 655,733 | 497 |
| San Francisco | 20.7 | 18.7 | 3.4 | 0.3 | 0.7 | 644,186 | 512 |
| San Mateo, Solano | 22.2 | 18.2 | 4.5 | 0.5 | 1.4 | 820,811 | 558 |
| Marin, Napa, Sonoma | 20.8 | 16.9 | 4.4 | 0.4 | 1.2 | 594,959 | 510 |
| Butte, Colusa, Del Norte, Glenn, etc. | 28.7 | 24.7 | 4.1 | 0.8 | 4.7 | 775,761 | 578 |
| San Luis Obispo, Santa Barbara, Ventura | 20.0 | 14.5 | 5.3 | 0.5 | 2.4 | 1,002,031 | 638 |
| Amador, Alpine, Calaveras, El Dorado, etc. | 24.9 | 19.4 | 5.7 | 0.5 | 3.2 | 928,440 | 639 |
| Santa Cruz | 21.9 | 17.8 | 4.4 | 1.4 | 2.6 | 463,698 | 543 |
| Fresno, Madera, Merced, Stanislaus | 23.2 | 19.1 | 4.5 | 0.7 | 1.8 | 1,052,982 | 680 |
| Imperial, Inyo, Kern, Kings, Mono, Tulare | 23.5 | 19.5 | 4.4 | 0.6 | 1.7 | 872,126 | 927 |

*Use caution in comparing the 1999 data with earlier CTS years because of the change in how smoking status is defined.

**Table A11.2 Experimentation with Tobacco Products (1999 Youth CTS)**

| OVERALL | Cigarettes (%) | Chewing Tobacco/ Snuff (%) | Cigars (%) | Bidis (%) | Any Tobacco Product Use (%) | POPULATION SIZE (n) | SAMPLE SIZE (n) |
|---|---|---|---|---|---|---|---|
| TOTAL | 22.7 | 3.1 | 11.9 | 7.0 | 26.1 | 2,918,234 | 6,090 |
| SEX | | | | | | | |
| Male | 23.0 | 5.2 | 15.0 | 8.0 | 27.4 | 1,512,912 | 3,062 |
| Female | 22.5 | 1.0 | 8.7 | 5.9 | 24.6 | 1,405,322 | 3,028 |
| AGE | | | | | | | |
| 12-13 | 7.3 | 0.8 | 3.4 | 0.7 | 9.7 | 995,530 | 2,008 |
| 14-15 | 22.6 | 2.5 | 10.5 | 5.6 | 25.4 | 989,282 | 2,053 |
| 16-17 | 39.3 | 6.3 | 22.6 | 15.3 | 44.2 | 933,422 | 2,029 |
| RACE/ETHNICITY | | | | | | | |
| Hispanic | 23.6 | 2.5 | 9.6 | 5.4 | 26.3 | 1,083,232 | 2,178 |
| Non-Hispanic White | 25.8 | 4.9 | 15.7 | 9.0 | 29.9 | 1,180,692 | 2,910 |
| African-American | 14.9 | 0.8 | 10.3 | 6.8 | 19.2 | 232,401 | 412 |
| Asian/PI | 15.4 | 0.9 | 8.0 | 4.9 | 17.2 | 362,238 | 496 |
| Other | 21.9 | 3.3 | 10.5 | 10.5 | 26.0 | 59,671 | 94 |
| SCHOOL PERFORMANCE | | | | | | | |
| Much bet than aver | 15.4 | 2.4 | 7.8 | 4.2 | 18.0 | 594,637 | 1,277 |
| Better than aver | 21.6 | 3.0 | 12.6 | 6.9 | 25.1 | 1,091,990 | 2,367 |
| Average and below | 27.3 | 3.7 | 13.3 | 8.4 | 30.8 | 1,231,607 | 2,446 |
| HOUSEHOLD INCOME | | | | | | | |
| Missing | 22.7 | 3.3 | 11.7 | 7.8 | 25.7 | 247,804 | 479 |
| $10,000 or less | 22.8 | 2.6 | 9.7 | 6.6 | 25.5 | 228,259 | 398 |
| $10,001 to $20,000 | 21.7 | 2.3 | 9.8 | 4.7 | 24.6 | 345,189 | 623 |
| $20,001 to $30,000 | 23.5 | 2.7 | 10.9 | 7.1 | 27.2 | 342,060 | 659 |
| $30,001 to $50,000 | 23.2 | 3.0 | 11.5 | 5.4 | 26.2 | 528,987 | 1,070 |
| $50,001 to $75,000 | 25.1 | 3.7 | 12.8 | 8.1 | 28.0 | 509,865 | 1,134 |
| over $75,000 | 20.8 | 3.6 | 14.0 | 8.3 | 25.0 | 716,070 | 1,727 |
| URBAN/RURAL | | | | | | | |
| Urban | 22.4 | 2.9 | 12.0 | 7.1 | 25.7 | 2,640,687 | 5,319 |
| Rural | 26.2 | 5.7 | 11.8 | 6.4 | 29.4 | 277,547 | 771 |
| REGION | | | | | | | |
| Los Angeles | 21.6 | 1.7 | 10.2 | 5 | 24.7 | 857,849 | 1,292 |
| San Diego | 20.7 | 2.5 | 13 | 8.7 | 24.7 | 238,404 | 390 |
| Orange | 20.6 | 1.9 | 10.5 | 6.8 | 22.5 | 230,671 | 486 |
| Santa Clara | 26.8 | 2.2 | 8.3 | 10.3 | 28.1 | 136,179 | 276 |
| San Bernadino | 21.4 | 4.7 | 10.8 | 6.4 | 24 | 160,152 | 367 |
| Alameda | 20 | 3.1 | 15.2 | 9.9 | 23.7 | 111,904 | 222 |
| Riverside | 20.7 | 2.8 | 8.2 | 5 | 22.5 | 128,038 | 318 |
| Sacramento | 22.5 | 5.5 | 11.2 | 6 | 24.1 | 99,833 | 208 |
| Contra Costa | 20.2 | 3.4 | 12.1 | 9.7 | 24.7 | 76,172 | 235 |
| San Francisco | 23.4 | 2.9 | 16.5 | 15.2 | 27.3 | 46,760 | 94 |
| San Mateo, Solano | 33.5 | 4.9 | 15.3 | 11.7 | 35.8 | 88,446 | 200 |
| Marin, Napa, Sonoma | 27.7 | 5.3 | 28.2 | 12.6 | 40.9 | 60,827 | 205 |
| Butte, Colusa, Del Norte, Glenn, etc. | 32 | 8.3 | 16.2 | 9 | 34.3 | 95,929 | 239 |
| San Luis Obispo, Santa Barbara, Ventura | 24 | 2.9 | 13.6 | 5 | 30.5 | 124,569 | 229 |
| Amador, Alpine, Calaveras, El Dorado,etc. | 22.8 | 4 | 15.7 | 7.8 | 28.5 | 116,584 | 284 |
| Santa Cruz | 21.2 | 2.8 | 12.8 | 9 | 26.1 | 60,084 | 218 |
| Fresno, Madera, Merced, Stanislaus | 22.3 | 4.8 | 12.2 | 5.5 | 24 | 153,397 | 336 |
| Imperial, Inyo, Kern, Kings, Mono, Tulare | 24.3 | 5 | 10.4 | 4.9 | 27.9 | 132,436 | 491 |

| | Cigarette (%) | Chewing Tobacco/ Snuff (%) | Cigars (%) | Bidis (%) | Any Tobacco Product Use (%) | POPULATION SIZE (n) | SAMPLE SIZE (n) |
|---|---|---|---|---|---|---|---|
| SEX Male | | | | | | | |
| AGE | | | | | | | |
| 12-13 | 7.1 | 1.5 | 4.6 | 0.9 | 10.6 | 521,024 | 1,024 |
| 14-15 | 23.6 | 3.8 | 13.8 | 7.1 | 27.6 | 523,994 | 1,052 |
| 16-17 | 40.0 | 10.8 | 27.8 | 16.8 | 45.9 | 467,894 | 986 |
| RACE/ETHNICITY | | | | | | | |
| Hispanic | 24.2 | 4.0 | 12.3 | 6.8 | 28.0 | 569,724 | 1,144 |
| Non-Hispanic White | 24.9 | 8.1 | 19.4 | 9.5 | 30.2 | 605,409 | 1,436 |
| African-American | 15.2 | 1.4 | 11.0 | 7.2 | 19.9 | 110,481 | 185 |
| Asian/PI | 18.1 | 1.6 | 11.3 | 6.1 | 21.1 | 193,899 | 253 |
| Other | 20.9 | 4.6 | 15.4 | 12.3 | 26.8 | 33,399 | 44 |
| SCHOOL PERFORMANCE | | | | | | | |
| Much bet than ave | 15.1 | 4.6 | 10.2 | 4.7 | 19.6 | 289,265 | 598 |
| Better than ave | 22.7 | 5.0 | 16.0 | 7.8 | 26.9 | 561,201 | 1,191 |
| Average and below | 26.6 | 5.6 | 16.2 | 9.5 | 31.3 | 662,446 | 1,273 |
| HOUSEHOLD INCOME | | | | | | | |
| Missing | 25.4 | 5.8 | 16.4 | 7.7 | 30.0 | 133,427 | 240 |
| $10,000 or less | 28.6 | 2.4 | 10.4 | 8.5 | 31.4 | 120,738 | 210 |
| $10,001 to $20,000 | 21.6 | 3.5 | 12.4 | 5.6 | 25.5 | 190,724 | 336 |
| $20,001 to $30,000 | 23.1 | 4.3 | 13.6 | 8.2 | 28.3 | 180,244 | 335 |
| $30,001 to $50,000 | 21.5 | 5.4 | 15.3 | 6.4 | 26.2 | 261,309 | 515 |
| $50,001 to $75,000 | 24.4 | 6.5 | 15.3 | 8.4 | 27.6 | 260,167 | 569 |
| over $75,000 | 20.9 | 6.0 | 17.5 | 9.9 | 26.4 | 366,303 | 857 |
| URBAN/RURAL | | | | | | | |
| Urban | 22.6 | 4.8 | 15.0 | 8.0 | 27.1 | 1,374,493 | 2,674 |
| Rural | 26.4 | 9.1 | 14.9 | 8.0 | 30.5 | 138,419 | 388 |
| SEX Female | | | | | | | |
| AGE | | | | | | | |
| 12-13 | 7.7 | 0.0 | 2.1 | 0.4 | 8.7 | 474,506 | 984 |
| 14-15 | 21.5 | 1.0 | 6.8 | 3.8 | 23.0 | 465,288 | 1,001 |
| 16-17 | 38.5 | 1.8 | 17.3 | 13.7 | 42.5 | 465,528 | 1,043 |
| RACE/ETHNICITY | | | | | | | |
| Hispanic | 23.0 | 0.8 | 6.6 | 3.8 | 24.4 | 513,508 | 1,034 |
| Non-Hispanic White | 26.6 | 1.5 | 11.8 | 8.4 | 29.6 | 575,283 | 1,474 |
| African-American | 14.7 | 0.3 | 9.6 | 6.3 | 18.5 | 121,920 | 227 |
| Asian/PI | 12.4 | 0.0 | 4.3 | 3.4 | 12.6 | 168,339 | 243 |
| Other | 23.2 | 1.6 | 4.1 | 8.1 | 24.8 | 26,272 | 50 |
| SCHOOL PERFORMANCE | | | | | | | |
| Much bet than ave | 15.7 | 0.3 | 5.6 | 3.7 | 16.4 | 305,372 | 679 |
| Better than ave | 20.3 | 0.9 | 9.0 | 6.1 | 23.1 | 530,789 | 1,176 |
| Average and below | 28.1 | 1.4 | 10.0 | 7.0 | 30.4 | 569,161 | 1,173 |
| HOUSEHOLD INCOME | | | | | | | |
| Missing | 19.6 | 0.4 | 6.3 | 7.9 | 20.8 | 114,377 | 239 |
| $10,000 or less | 16.4 | 2.7 | 8.9 | 4.6 | 18.9 | 107,521 | 188 |
| $10,001 to $20,000 | 21.9 | 0.8 | 6.6 | 3.7 | 23.5 | 154,465 | 287 |
| $20,001 to $30,000 | 23.9 | 0.9 | 7.9 | 5.9 | 25.9 | 161,816 | 324 |
| $30,001 to $50,000 | 24.8 | 0.7 | 7.8 | 4.4 | 26.3 | 267,678 | 555 |
| $50,001 to $75,000 | 25.9 | 0.8 | 10.2 | 7.9 | 28.3 | 249,698 | 565 |
| over $75,000 | 20.8 | 1.1 | 10.3 | 6.6 | 23.5 | 349,767 | 870 |
| URBAN/RURAL | | | | | | | |
| Urban | 22.1 | 0.8 | 8.7 | 6.1 | 24.2 | 1,266,194 | 2,645 |
| Rural | 25.9 | 2.2 | 8.8 | 4.8 | 28.3 | 139,128 | 383 |

## CHAPTER 11: GLOSSARY

### Adolescents

*Committed never smoker* – a *never smoker* who does not expect to try a cigarette soon and who answers definitely not to whether he or she would accept a cigarette offered by a friend and to a question about whether he or she will smoke in the next year.

*Current established smoker* – has smoked a cigarette on at least one day in the past month and has smoked at least 100 cigarettes in his or her lifetime.

*Current experimenter* – has smoked a cigarette on at least one day in the past month, but has not yet smoked 100 cigarettes in his or her lifetime.

*Current smoker* – has smoked a cigarette on at least one day in the past month.

*Current (Smokeless Tobacco, Cigar, Bidi) user* – answers yes to the question about whether he or she used the product on any of the last 30 days.

*Ever (Smokeless Tobacco, Cigar, Bidi) user* – answers yes to the question about whether he or she has ever used the product.

*Experimenter* – has smoked a cigarette (excludes *puffers*), but has not smoked at least 100 cigarettes in his or her lifetime.

*Non-current smoker (user)* – has not smoked a cigarette on any days in the past month.

*Puffer* – someone who has not smoked a cigarette, but admits to puffing on one.

*Susceptible never smoker* – a *never smoker* who either expects to try a cigarette soon or who does **not** answer definitely not to whether he or she would accept a cigarette offered by a friend or to a question about whether he or she will smoke in the next year.

### Adults

*Current (Cigar, Pipe, Smokeless Tobacco) user* – answers yes to the question about whether he or she currently uses the product.

*Current smoker* – has smoked at least 100 cigarettes in his or her lifetime and smokes now (old question) or now either everyday or some days (new question) at the time of the survey.

*Ever (Cigar, Pipe, Smokeless Tobacco) user* – answers yes to the question about whether he or she has ever used the product.

*Former smoker* – has smoked at least 100 cigarettes in lifetime, but does not smoke now (old question) or now smokes not at all (new question).

*Never smoker* – has smoked fewer than 100 cigarettes in his or her lifetime.

*Occasional cigar smoker* – answers some days to the question about whether he or she now smokes cigars everyday or some days.

## CHAPTER 11: REFERENCES

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