Finding #1

(c) Approximately 438,000 people die in the United States from tobacco-related diseases every year, making it the nation's leading cause of preventable death;[1] and

[1] US Department of Health and Human Services, Centers for Disease Control and Prevention. *Morbidity and Mortality Weekly Report: Annual Smoking - Attributable Mortality, Years of Potential Life Lost, and Productivity Losses - United States 1997-2001.* 2005, 54(25): p. 625-628. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/mm5425a1.htm.

Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses — United States, 1997--2001

Smoking harms nearly every organ of the body, causing many diseases and reducing quality of life and life expectancy (*1*). This report assesses the health consequences and productivity losses attributable to smoking in the United States during 1997--2001. CDC calculated national estimates of annual smoking-attributable mortality (SAM), years of potential life lost (YPLL) for adults and infants, and productivity losses for adults. The findings indicated that, during 1997--2001, cigarette smoking and exposure to tobacco smoke resulted in approximately 438,000 premature deaths in the United States, 5.5 million YPLL, and $92 billion in productivity losses annually. Implementation of comprehensive tobacco-control programs as recommended by CDC can reduce smoking prevalence and related mortality and health-care costs (*1*).

The Adult and Maternal and Child Health Smoking-Attributable Mortality, Morbidity and Economic Cost (SAMMEC) software (*2*) was revised on the basis of findings from the 2004 Surgeon General's report on diseases caused by smoking (*1*). The list of smoking-attributable diseases now includes stomach cancer and acute myeloid leukemia and excludes hypertension. Sex- and age-specific smoking-attributable deaths were calculated by multiplying the total number of deaths for 19 adult and four infant disease categories by estimates of the smoking-attributable fraction (SAF) of preventable deaths. The attributable fractions provide estimates of the public health burden of each risk factor and the relative importance of risk factors for multifactorial diseases. Because of the effect of interactions between various risk factors, attributable fractions for a given disease can add up to more than 100%. For adults, SAFs were derived by using sex-specific relative risk (RR) estimates (*2*) for current and former smokers for each cause of

[1] US Department of Health and Human Services, Centers for Disease Control and Prevention. *Morbidity and Mortality Weekly Report: Annual Smoking - Attributable Mortality, Years of Potential Life Lost, and Productivity Losses - United States 1997-2001.* 2005, 54(25): p. 625-628. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/mm5425a1.htm.

death from the American Cancer Society's Cancer Prevention Study-II (CPS-II) for the period 1982--1988 (*2*). For ischemic heart disease and cerebrovascular disease deaths, RR estimates were also stratified by age (35--64 years and ≥65 years). SAFs also used sex- and age-specific (35--64 years and ≥65 years) current and former cigarette smoking--prevalence estimates from the National Health Interview Survey.* For infants, SAFs were calculated by using pediatric RR estimates (*2*) and maternal smoking prevalence estimates from birth certificates (*2*). Smoking-attributable YPLL and productivity losses were estimated by multiplying sex- and age-specific SAM by remaining life expectancy (*3*) and lifetime earnings data (*4*). In addition, smoking-attributable fire-related deaths (*5*) and lung cancer and heart disease deaths attributable to exposure to secondhand smoke (*6,7*) were included in the SAM estimates.

During 1997--2001, smoking resulted in an estimated annual average of 259,494 deaths among men and 178,408 deaths among women in the United States (Table). Among adults, 158,529 (39.8%) of these deaths were attributed to cancer, 137,979 (34.7%) to cardiovascular diseases, and 101,454 (25.5%) to respiratory diseases. The three leading specific causes of smoking-attributable death were lung cancer (123,836), chronic obstructive pulmonary disease (COPD)[†] (90,582), and ischemic heart disease (86,801). Smoking during pregnancy resulted in an estimated 910 infant deaths annually during 1997--2001. An estimated 38,112 lung cancer and heart disease deaths annually were attributable to exposure to secondhand smoke. The average annual SAM estimates also included 918 deaths from smoking-attributable fires.

During 1997--2001, on average, smoking accounted for an estimated 3.3 million YPLL for men and 2.2 million YPLL for women annually, excluding burn deaths and adult deaths from secondhand smoke. Estimates for average annual smoking-attributable productivity losses were approximately $61.9 billion for men and $30.5 billion for women during this period (Table).

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Editorial Note:

During 1997--2001, an estimated 438,000 persons in the United States died prematurely each year as a result of smoking or exposure to secondhand smoke. This figure is lower than the average annual estimate of approximately 440,000 deaths during 1995--1999 (*8*) because of changes in the list of smoking-attributable diseases and declines in the prevalence of smoking. Accelerated reductions in the prevalence of smoking could prevent millions of premature deaths (*1*).

The findings in this report are subject to at least six limitations. First, the estimates understate deaths attributable to tobacco use because estimates of deaths attributable to cigar smoking, pipe smoking, and smokeless tobacco use were excluded. Second, RRs were based on deaths during 1982--1988 among birth cohorts who might have had

different smoking histories than current or former smokers (e.g., age of initiation and duration of smoking before quitting). Third, this report used a death certificate--based definition of COPD, including codes for bronchitis/emphysema and chronic airway obstruction (ICD-10 J44) (*1*). Therefore, the COPD SAM estimate used for this report might differ from other estimates that use other definitions of COPD (*1*). Fourth, RRs were adjusted for the effects of age but not for other potential confounders. However, research suggests that education, alcohol, and other confounders had negligible additional impact on SAM estimates for lung cancer, COPD, ischemic heart disease, and cerebrovascular disease in CPS-II (*2*). Fifth, productivity losses understate the total costs of smoking because costs associated with smoking-attributable health-care expenditures, smoking-related disability, employee absenteeism, and secondhand smoke--attributable disease morbidity and mortality were not included. Finally, the estimates do not account for the sampling variability in smoking prevalence estimates or in RRs.

Cigarette smoking continues to impose substantial health and financial costs on society. In 1998, smoking-attributable health-care expenditures were estimated at $75.5 billion (*2*). During 1997--2001, these expenditures plus the productivity losses ($92 billion) exceeded $167 billion per year. By comparison, investments in comprehensive, state-based tobacco prevention and control programs in 2002 were approximately 200-fold smaller than those costs (*9*). Because investments in evidence-based prevention programs have produced larger and faster reductions in cigarette consumption (*10*), increased investments to the levels recommended by CDC are needed to achieve a greater health impact.

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* SAFs for each disease are calculated by using the following equation: SAF = $[(p_1(RR_1 -- 1) + p_2(RR_2 -- 1)] / [p_1(RR_1 -- 1) + p_2(RR_2 -- 1) + 1]$ where p_1 = percentage of current smokers (persons who have smoked ≥100 cigarettes and now smoke every day or some days), p_2 = percentage of former smokers (persons who have smoked ≥100 cigarettes and do not currently smoke), RR_1 = relative risk for current smokers relative to never smokers, and RR_2 = relative risk for former smokers relative to never smokers.

† COPD includes bronchitis/emphysema (*International Classification of Diseases, Tenth Revision* [ICD-10] codes J40--J42 and J43) and chronic airway obstruction (ICD-10 J44) (*1*).

Table

TABLE. Annual deaths and estimates of smoking-attributable mortality (SAM), years of potential life lost (YPLL), and productivity losses (PLoss), by sex and cause of death — United States, 1997–2001

	Male				Female			
Cause of death (ICD-10* code)	Deaths	SAM	YPLL	PLoss†	Deaths	SAM	YPLL	PLoss
Malignant neoplasms								
Lip, oral cavity, pharynx (C00–C14)	4,079	3,686	63,153	1,407,109	2,525	1,182	19,710	329,290
Esophagus (C15)	9,097	6,593	101,667	2,075,079	2,854	1,625	25,002	377,255
Stomach (C16)	7,403	2,052	29,495	576,855	5,223	600	9,165	142,908
Pancreas (C25)	13,994	3,078	48,397	1,011,369	14,774	3,431	51,555	766,122
Larynx (C32)	3,017	2,499	36,241	775,921	916	595	10,375	172,920
Trachea, lung, bronchus (C33–C34)	89,912	79,026	1,113,644	20,950,649	69,181	44,810	740,221	11,796,204
Cervix uteri (C53)	—	—	—	—	3,969	491	12,959	300,078
Kidney, other urinary (C64–65)	7,169	2,790	43,091	891,392	4,454	222	3,861	66,492
Urinary bladder (C67)	8,025	3,764	42,204	697,445	3,841	1,054	12,959	150,902
Acute myeloid leukemia (C92.0)	3,447	791	11,084	233,255	2,919	299	4,999	89,554
Total	**146,967**	**104,219**	**1,490,826**	**28,559,991**	**104,576**	**54,310**	**890,793**	**14,185,616**
Cardiovascular diseases								
Ischemic heart disease (I20–I25)	262,969	54,629	948,560	17,962,696	256,971	92,172	426,109	5,758,054
Other heart disease (I00–I09, I26–I51)	70,389	13,006	169,552	3,148,169	92,173	7,997	95,948	1,168,297
Cerebrovascular disease (I60–I69)	64,074	8,543	135,609	2,942,167	101,873	8,893	151,945	2,715,092
Atherosclerosis (I70–I71)	5,444	1,499	13,994	159,591	9,276	759	6,822	41,664
Aortic aneurysm (I71)	9,695	6,203	75,640	1,263,516	6,185	3,046	37,129	423,264
Other arterial disease (I72–I78)	4,199	547	7,200	132,202	5,585	805	10,246	131,435
Total	**416,677**	**84,367**	**1,249,955**	**25,607,330**	**471,963**	**53,612**	**728,198**	**10,237,792**
Respiratory diseases								
Pneumonia, influenza (J10–J18)	27,299	6,170	60,852	814,279	34,748	4,702	49,577	483,219
Bronchitis, emphysema (J40–J42, J43)	9,455	8,586	97,003	1,442,012	8,594	6,922	90,597	1,085,109
Chronic airway obstruction (J44)	48,644	39,563	411,713	5,515,658	47,769	35,511	427,097	4,508,079
Total	**85,488**	**54,319**	**569,578**	**7,771,949**	**91,111**	**47,135**	**567,211**	**6,156,407**
Perinatal conditions								
Short gestation/low birthweight (P07)	2,435	290	17,024	—	1,980	197	14,870	—
Respiratory distress syndrome (P22)	699	25	1,853	—	469	17	1,358	—
Other respiratory (newborn) (P23–28)	891	44	3,220	—	640	31	2,491	—
Sudden infant death syndrome (R95)	1,603	224	16,587	—	1,082	152	12,053	—
Total	**5,617**	**523**	**38,713**	**—**	**4,170**	**397**	**30,772**	**—**
Burn deaths	—	530	—	—	—	388	—	—
Secondhand smoke deaths								
Lung cancer	—	1,190	—	—	—	1,930	—	—
Ischemic heart disease	—	14,406	—	—	—	20,646	—	—
Total	—	15,536	—	—	—	22,576	—	—
Total	—	**259,494**	**3,349,072**	**61,938,270**	—	**178,408**	**2,216,974**	**30,579,815**

* *International Classification of Diseases, Tenth Revision.*
† Productivity loss estimates are in thousands of dollars.

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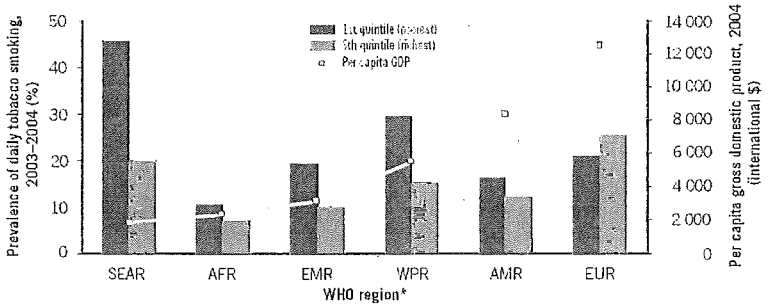
Finding #2

(d) The World Health Organization (WHO) estimates that by 2030, tobacco will account for 8.3 million deaths per year, killing 50% more people in 2015 than HIV/AIDS, and will be responsible for 10% of all deaths worldwide;[2] and

[2] World Health Organization. *World Health Statistics 2007, Part 1: Ten Statistical Highlights in Global Public Health.* 2007, p. 12. Available at: www.who.int/whosis/whostat2007_10highlights.pdf.

6. Tobacco use and poverty: high prevalence among the world's poorest

Daily tobacco smoking among adults aged 18 years and older, by income quintile and WHO region[20]



SEAR, South-East Asia; AFR, African; EMR, Eastern Mediterranean; WPR, Western Pacific; AMR, Americas; EUR, European.

Health inequalities refer to differences in health status or in the distribution of health determinants between different populations. The burden of disease attributable to tobacco use weighs increasingly heavily on populations in developing economies. According to the latest estimates, more than 80% of the 8.3 million deaths attributed to tobacco and projected to the year 2030 will occur in low-income and middle-income countries.[15]

Data on the prevalence of smoking among adults in developing countries are limited. WHO's World Health Survey provides a valuable insight into the comparative prevalence among adults aged 18 and older.[20] The results of the 2003–2004 survey indicate that daily tobacco smoking is most prevalent among the lowest-income households in developing economies – that is, among the poorest of the poor. Indeed, prevalence is highest among the poor in all WHO regions except the European Region. The difference in prevalence between the poor and the (relatively) rich is greatest among the group of South-East Asian countries surveyed, where average per capita income is lowest.

The combination of a higher prevalence of tobacco use and more limited access to health resources results in severe health inequalities, and is likely to perpetuate the vicious circle of illness and poverty. Inequalities between and within countries in terms of the risk of infectious diseases now have been extended to inequalities in risk factors for noncommunicable diseases; this has implications for health systems at all levels.

* Surveyed countries in each region include: African Region (AFR): Burkina Faso, Chad, Comoros, Congo, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Malawi, Mali, Mauritania, Mauritius, Namibia, Senegal, South Africa, Swaziland, Zambia, Zimbabwe; Region of the Americas (AMR): Brazil, Dominican Republic, Ecuador, Guatemala, Mexico, Paraguay, Uruguay; Eastern Mediterranean Region (EMR): Morocco, Pakistan, Tunisia, United Arab Emirates; European Region (EUR): Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Latvia, Russian Federation, Slovakia, Slovenia, Spain, Ukraine; South-East Asia Region (SEAR): Bangladesh, India, Sri Lanka, Myanmar, Nepal; Western Pacific Region (WPR): China, Laos, Malaysia, Philippines, Viet Nam.

Finding #3

- Each day, nearly 5,000 children under 18 years of age smoke their first cigarette, and almost 2000 children under 18 years of age begin smoking daily;[3]

[3] Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *Results from the 2004 National Survey on Drug Use and Health: National Findings.* 2005. Available at: http://oas.samhsa.gov/NSDUH/2k4nsduh/2k4Results/2k4Results.pdf.

Finding #4

- More than 75% of all current smokers in 2001 began smoking before the age of 18;[4]

[4] Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. *2003 National Survey on Drug Use and Health: Results.* 2003. Available at: www.oas.samhsa.gov/nhsda/2k3nsduh/2k3Results.htm#ch5.

4. Tobacco Use

The National Survey on Drug Use and Health (NSDUH) includes a series of questions about the use of tobacco products, including cigarettes, chewing tobacco, snuff, cigars, and pipe tobacco. For analytic purposes, data for chewing tobacco and snuff are combined as "smokeless tobacco." Cigarette use is defined as smoking "part or all of a cigarette." Questions to determine nicotine dependence among current cigarette smokers also are included in the NSDUH. Nicotine dependence is based on criteria from the Nicotine Dependence Syndrome Scale (NDSS) or the Fagerstrom Test of Nicotine Dependence (FTND) (see **Appendix B**, **Section B.4.2**, of this report).

Tobacco

- ***The number of Americans who smoke cigarettes for the first time each year has remained above 2.5 million in nearly every year since 1965. In 2001, the most recent year for which cigarette incidence estimates are made, an estimated 2.7 million Americans used cigarettes for the first time. This translates to an average of more than 7,000 new smokers each day. About three quarters (76 percent) of these initiates were under age 18, and about half (51 percent) were males.***

#4

- Following a period of increase from 1990 to 1997, cigarette initiation decreased from 3.3 million in 1997 to 2.7 million in 2001 (**Figure 5.4**). The number of new daily smokers decreased from 2.0 million in 1997 to 1.4 million in 2002. Among youths under age 18, the number of new daily smokers decreased from 1.1 million per year between 1997 and 2000 to 734,000 in 2002. This corresponds to a decrease from about 3,000 to about 2,000 new youth daily smokers each day.

#3

Figure 4.1 Past Month Tobacco Use among Persons Aged 12 or Older: 2002 and 2003

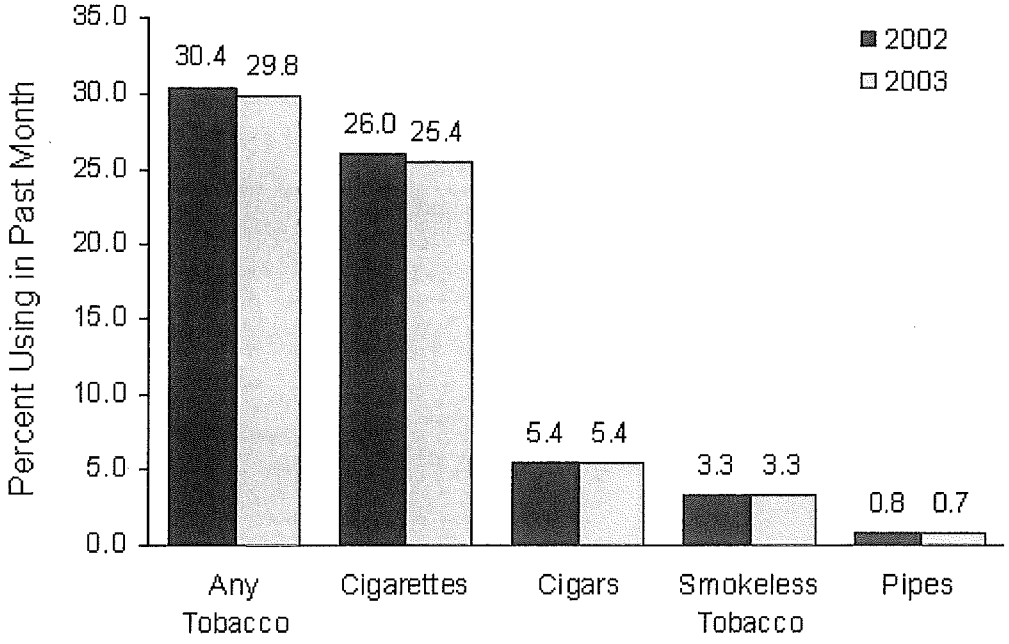


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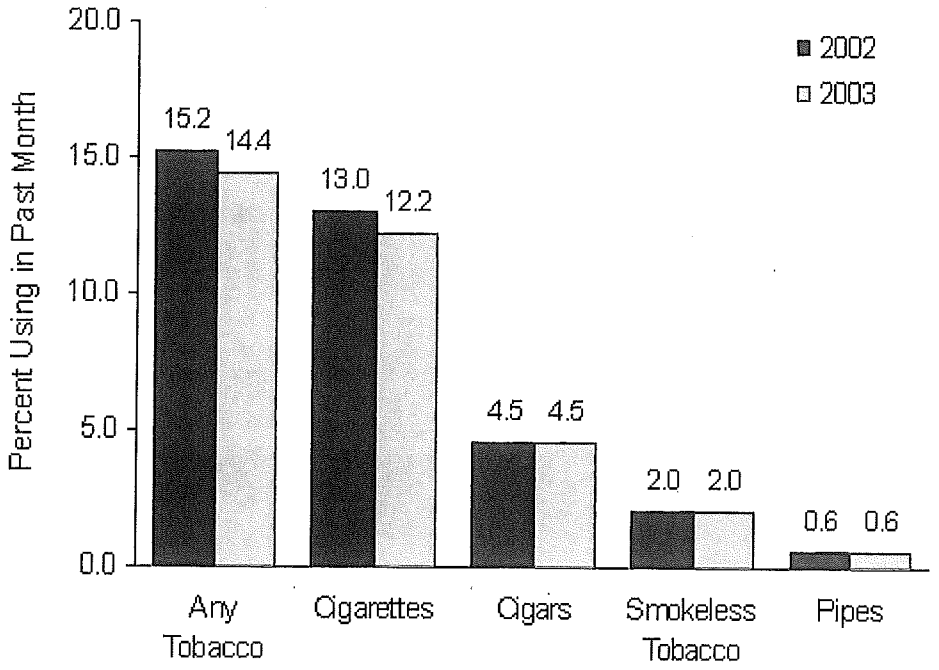
Figure 4.2 Past Month Tobacco Use among Youths Aged 12 to 17: 2002 and 2003



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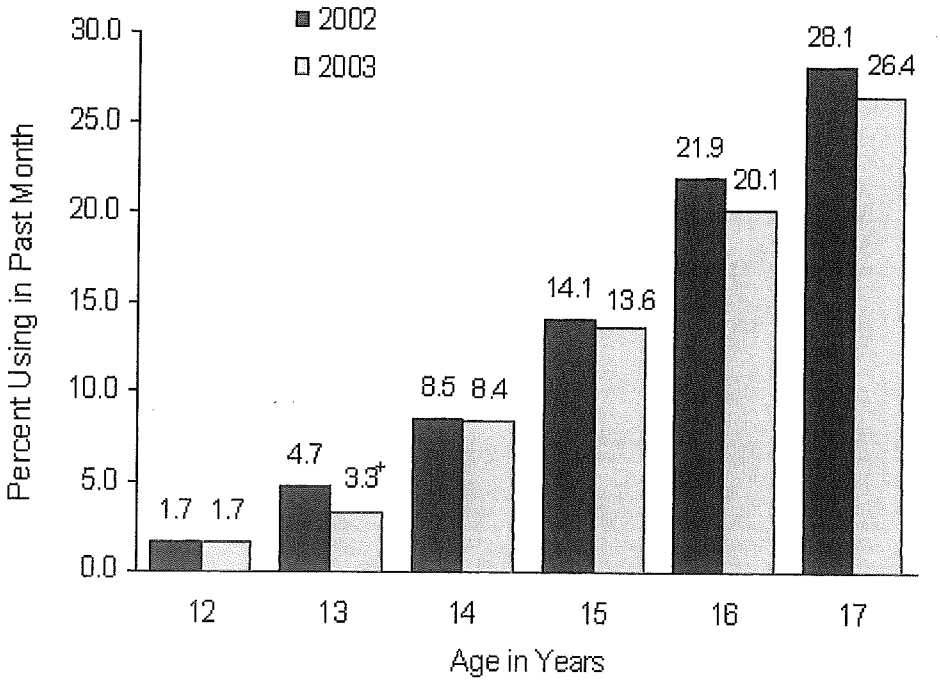
Note: Statistically significant differences (at 0.05 level) between 2002 and 2003 are denoted by " + ".

Figure 4.3 Past Month Cigarette Use among Youths Aged 12 to 17, by Age: 2002 and 2003



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Finding #5

- Among middle school students who were current cigarette users in 2004, 70.6% were not asked to show proof of age when they purchased or attempted to purchase cigarettes from a store, and 66.4% were not refused purchase because of their age;[5]

[5] US Department of Health and Human Services, Centers for Disease Control and Prevention. *Morbidity and Mortality Weekly Report: Tobacco Use, Access & Exposure to Tobacco Among Middle & High School Students, U.S., 2004*. 2005, 54: p. 297-301. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/mm5412a1.htm.

Tobacco Use, Access, and Exposure to Tobacco in Media Among Middle and High School Students --- United States, 2004

Please note: An erratum has been published for this article. To view the erratum, please click here.

Two of the national health objectives for 2010 are to reduce the prevalence of any tobacco use during the preceding month to ≤21% and the prevalence of current cigarette use to ≤16% among high school students (objectives 27-2a and 27-2b) (*1*). The National Youth Tobacco Survey (NYTS), conducted by CDC in 2004, provided estimates of current use of tobacco products and selected indicators related to tobacco use, including youth exposure to tobacco-related media and access to cigarettes. This report summarizes data from the 2004 NYTS and describes changes in tobacco use and indicators related to tobacco use since 2002 (*2*). During 2002--2004, middle school students reported decreases in pipe use, seeing actors using tobacco on television or in movies, and seeing advertisements for tobacco products on the Internet. Among high school students, no changes were observed in the use of tobacco or in access to tobacco products; however, seeing actors using tobacco on television or in movies declined slightly, and seeing advertisements for tobacco products on the Internet increased. The lack of substantial decreases in the use of almost all tobacco products among middle and high school students underscores the need to fully implement evidence-based strategies (e.g., increasing the retail price of tobacco products, implementing smoking-prevention media campaigns, and decreasing minors' access as part of comprehensive tobacco-control programs) that are effective in preventing youth tobacco use (*3*).

Similar to the 2002 NYTS (*2*), the sampling frame for the 2004 NYTS consisted of all U.S. public and private schools and was stratified by U.S. Census Bureau data by region

and urbanicity; non-Hispanic black, Hispanic, and Asian students were oversampled. A total of 91 primary sampling units (PSUs) (i.e., large counties or groups of counties) were selected in the first stage of sampling, and 288 schools were selected from these PSUs in the second stage of sampling. Of these 288 eligible schools, 267 (93%) participated in the survey. In each school, typically five classes (approximately 125 students) were selected randomly from a required subject area (e.g., English) or a particular class period (e.g., all 2nd period classes). Participation was voluntary and anonymous, and school parental permission procedures were followed; students recorded their responses in a computer-scannable booklet.

Of 31,774 students who were sampled from the participating schools, 27,933 (88%) completed the survey (14,034 middle school students [grades 6--8], 13,738 high school students [grades 9--12], and 161 students unclassified with respect to grade). Data were weighted to be nationally representative. Statistical software was used to compute 95% confidence intervals for prevalence estimates. Differences in tobacco use estimates during 2002--2004 were assessed by using t-tests at two-tailed significance level. All statistically significant results were $p<0.05$. Current use of specific tobacco products (i.e., cigarettes, cigars, smokeless tobacco, pipes, bidis [leaf-wrapped, flavored cigarettes from India], or kreteks [clove cigarettes]) was defined as having used that product on at least 1 day during the 30 days preceding the survey. Current use of any tobacco product was defined as having used any of the listed products on at least 1 day during the 30 days preceding the survey. Students were asked how often they saw actors using tobacco on television or in movies or saw advertisements for tobacco products on the Internet, whether they were asked for proof of age when they bought or tried to buy cigarettes in a store during the preceding 30 days, and whether anyone ever refused to sell them cigarettes because of their age during the preceding 30 days.

In 2004, a total of 11.7% of middle school students reported current use of any tobacco product (Table 1). Cigarettes (8.1%) were the most commonly used product, followed by cigars (5.2%), smokeless tobacco (2.9%), pipes (2.6%), bidis (2.3%), and kreteks (1.5%). During 2002--2004, no significant changes were observed among middle school students in use of any tobacco or cigarettes (in 2002, a total of 13.3% of middle school students reported current use of any tobacco product, and 9.8% reported current use of cigarettes), cigars, smokeless tobacco, bidis, or kreteks. Pipe use declined significantly, from 3.5% to 2.6%. Among males, cigarette smoking and use of pipes and kreteks declined, from 9.8% to 7.7%, 5.1% to 3.3%, and 2.7% to 1.9%, respectively. Among Asians, use of any tobacco, cigarettes, cigars, pipes, bidis, and kreteks decreased. Among non-Hispanic blacks, use of pipes decreased. Among Hispanics, use of cigars and bidis increased significantly.

In 2004, a total of 28.0% of high school students reported current use of any tobacco product (Table 2). Cigarettes (22.3%) were the most commonly used product, followed by cigars (12.8%), smokeless tobacco (6.0%), pipes (3.1%), bidis (2.6%), and kreteks (2.3%). During 2002--2004, no significant decreases were observed in use of any tobacco or use of a specific tobacco product (in 2002, a total of 28.2% of high school students reported current use of any tobacco product, and 22.5% reported current use of

cigarettes). Among non-Hispanic blacks, use of any tobacco product and pipes decreased, from 21.7% to 17.1% and 3.7% to 1.8%, respectively. Among Hispanics, cigar use increased, from 10.8% to 13.3%.

In 2004, a total of 77.9% of middle school students reported seeing actors using tobacco on television or in movies, and 34.1% reported seeing advertisements for tobacco products on the Internet (Table 3), compared with 89.9% and 42.7% in 2002, respectively. In addition, in 2004, a total of 70.6% of current cigarette smokers in middle school said they were not asked to show proof of age when they purchased or attempted to purchase cigarettes from a store, and 66.4% said they were not refused purchase of cigarettes because of their age. No significant differences were observed from 2002.

During 2002--2004, a significant overall decline, from 91.3% to 86.5%, was observed among high school students who reported seeing actors using tobacco on television or in movies. However, a significant increase was observed, from 33.5% to 39.2%, in seeing tobacco products on the Internet. Among current smokers aged <18 years in high school, 63.9% said they were not asked to show proof of age when they purchased or attempted to purchase cigarettes from a store, and 62.1% said they were not refused purchase of cigarettes because of their age. No significant differences were documented from 2002.

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Editorial Note:

Preventing smoking initiation and use among adolescents is critical to ending the epidemic of tobacco use in the United States. In assessing state and national tobacco-control efforts, multiple indicators are needed to evaluate progress in reducing tobacco use among adolescents, in particular, measures of exposure to influences that promote or discourage tobacco use. NYTS serves as a national evaluation tool and as a benchmark for the 29 states that implemented a comparable state Youth Tobacco Survey in 2003 and 2004. Data from two of the multiple indicators in NYTS indicated no change occurred in minors' access to cigarettes, whereas declines in seeing actors using tobacco on television or in movies occurred among both middle and high school students. Although the levels of exposure to seeing actors using tobacco decreased from 91.3% in 2002 to 86.5% in 2004 among high school students and from 89.9% in 2002 to 77.9% in 2004 among middle school students, approximately three fourths of middle and high school students are still exposed to these images. Parental monitoring of and limitations on minors' access to media sources might reduce exposures (*4*); however, reductions in exposure large enough to effectively prevent smoking initiation might require different industry practices on smoking images in movies (*5*).

Because the overall prevalence of any tobacco use or cigarette smoking did not change during 2002--2004 (*2*), data from future surveys will be important in determining whether

progress toward meeting the national health objectives for 2010 is slowing. Several factors might be related to this lack of change in prevalence. From winter 1997 to spring 2002, the retail price of cigarettes increased approximately 80%, but from spring 2002 to spring 2004, the price increased only 4% (*6*). Although smoking-prevention media campaigns are effective in preventing youth smoking initiation (*7*), funding for these campaigns has declined substantially (*8*). In addition, during the preceding 3 fiscal years (FYs), a 28% decline in the total investment in statewide comprehensive tobacco-prevention and -control programs occurred, from $749.7 million in FY 2002 to $542.6 in FY 2004 (*8*). Finally, whereas factors preventing tobacco use (e.g., increasing the retail price of tobacco products, implementing smoking-prevention media campaigns, and funding for comprehensive state tobacco-prevention and -control programs) declined from 2002 to 2004, tobacco industry expenditures on tobacco advertising and promotion increased from $5.7 billion in 1997 to $12.5 billion in 2002 (*9*).

The findings in this report are subject to at least three limitations. First, these data apply only to youths who attended middle school or high school. Among persons aged 16--17 years in the United States, approximately 5% were not enrolled in a high school program and had not completed high school in 2000 (*2*). Second, the questionnaire was offered only in English. Thus, comprehension might have been limited for students with English as a second language. Third, significance testing did not control for possible changes in demographics from 2002 to 2004.

The decline in youth smoking prevalence since the late 1990s has been a public health success, reversing the pattern of increase in the early 1990s (*2*). However, the lack of substantial change among middle and high school students during the preceding 2 years emphasizes the need for sustained, comprehensive, evidence-based programs that demonstrate the ability to reduce adolescent smoking prevalence (*10*).

Acknowledgments

The findings in this report are based, in part, on contributions by KH Flint, MA, JG Ross, MS, R Iachan, PhD, WH Robb, MS, Macro International Inc., Calverton, Maryland. LL Pederson, PhD, K Jackson, MSPH, RTI International, Atlanta, Georgia.

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Table 1

TABLE 1. Percentage of students in middle school (grades 6–8) who were current users* of any tobacco product, by pro sex, and race/ethnicity — National Youth Tobacco Survey, United States, 2002 and 2004

	Any tobacco†		Cigarettes		Cigars		Smokeless tobacco		Pipes		Bidis		Kre
Characteristic	%	(95% CI§)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%
Middle school, 2004													
Sex													
Male	12.7	(±1.7)	7.7¶	(±1.3)	6.6	(±1.1)	3.9	(±1.0)	3.3¶	(±0.8)	2.8	(±0.7)	1.9¶
Female	10.7	(±1.9)	8.6	(±1.9)	3.8	(±0.5)	1.9	(±0.5)	1.8	(±0.5)	1.7	(±0.4)	1.2
Race/Ethnicity													
White, non-Hispanic	11.2	(±1.9)	8.3	(±1.8)	4.4	(±0.8)	3.1	(±0.9)	2.2	(±0.6)	1.8	(±0.5)	1.2
Black, non-Hispanic	12.3	(±2.5)	7.5	(±1.9)	6.9	(±1.8)	1.8	(±0.8)	2.0¶	(±0.8)	2.7	(±0.9)	1.6
Hispanic	14.8	(±1.9)	9.4	(±1.5)	8.0¶	(±1.2)	3.7	(±0.9)	5.3	(±1.2)	4.3¶	(±0.8)	3.0
Asian	3.4¶	(±1.8)	2.2¶	(±1.5)	0.7¶	(±0.6)	1.0	(±0.7)	0.7¶	(±0.7)	0.5¶	(±0.6)	0.7¶
Total	11.7	(±1.6)	8.1	(±1.5)	5.2	(±0.7)	2.9	(±0.6)	2.6¶	(±0.6)	2.3	(±0.5)	1.5
Middle school, 2002													
Sex													
Male	14.7	(±1.6)	9.6	(±1.3)	7.9	(±1.1)	5.3	(±1.3)	5.1	(±0.8)	3.1	(±0.6)	2.7
Female	11.7	(±1.4)	9.7	(±1.4)	4.1	(±0.7)	1.6	(±0.5)	1.9	(±0.4)	1.7	(±0.4)	1.1
Race/Ethnicity													
White, non-Hispanic	13.2	(±1.8)	10.1	(±1.6)	5.5	(±1.0)	3.8	(±1.1)	2.8	(±0.6)	1.8	(±0.4)	1.5
Black, non-Hispanic	13.5	(±2.4)	9.0	(±2.3)	7.3	(±1.7)	2.3	(±0.9)	3.9	(±1.4)	3.1	(±1.0)	2.3
Hispanic	12.5	(±1.9)	8.7	(±1.5)	6.3	(±1.1)	2.7	(±0.7)	4.3	(±0.9)	2.9	(±0.7)	2.6
Asian	8.6	(±3.3)	7.4	(±3.3)	5.0	(±2.8)	3.5	(±2.7)	4.6	(±2.7)	3.1	(±2.2)	3.8
Total	13.3	(±1.4)	9.8	(±1.2)	6.0	(±0.7)	3.5	(±0.7)	3.5	(±0.5)	2.4	(±0.3)	2.0

* Used tobacco on at least 1 day during the 30 days preceding the survey.
† Cigarettes, cigars, smokeless tobacco, pipes, bidis (leaf-wrapped, flavored cigarettes from India), or kreteks (clove cigarettes).
§ Confidence interval.
¶ Significant difference ($p<0.05$), 2004 versus 2002.

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Table 2

TABLE 2. Percentage of students in high school (grades 9–12) who were current users* of any tobacco product, by produc and race/ethnicity — National Youth Tobacco Survey, United States, 2002 and 2004

Characteristic	Any tobacco†		Cigarettes		Cigars		Smokeless tobacco		Pipes		Bidis		Kr
	%	(95% CI§)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%
High school, 2004													
Sex													
Male	31.5	(±3.0)	22.1	(±2.7)	18.4	(±1.8)	10.8	(±2.2)	4.6	(±0.9)	3.6	(±0.7)	3.2
Female	24.7	(±3.1)	23.4	(±3.1)	7.5	(±1.4)	1.4	(±0.6)	1.6	(±0.6)	1.6	(±0.5)	1.5
Race/Ethnicity													
White, non-Hispanic	31.5	(±4.1)	25.4	(±3.8)	13.6	(±2.1)	7.5	(±1.6)	2.9	(±0.8)	2.2	(±0.5)	2.3
Black, non-Hispanic	17.1¶	(±3.3)	11.4	(±3.1)	10.5	(±2.1)	1.7	(±1.2)	1.8¶	(±0.8)	2.1	(±0.8)	1.3
Hispanic	26.2	(±2.9)	21.6	(±3.1)	13.3¶	(±1.7)	3.5	(±1.1)	5.0	(±1.0)	4.6	(±0.9)	3.3
Asian	13.1	(±3.3)	11.2	(±2.6)	5.7	(±2.4)	2.1	(±1.7)	2.0	(±1.1)	2.1	(±1.2)	1.4
Total	28.0	(±2.9)	22.3	(±2.7)	12.8	(±1.5)	6.0	(±1.2)	3.1	(±0.6)	2.6	(±0.5)	2.3
High school, 2002													
Sex													
Male	32.6	(±2.3)	23.9	(±2.1)	16.9	(±1.4)	10.5	(±2.0)	5.0	(±0.9)	3.7	(±0.8)	3.5
Female	23.7	(±1.8)	21.0	(±1.9)	6.2	(±0.9)	1.2	(±0.3)	1.4	(±0.4)	1.5	(±0.4)	1.8
Race/Ethnicity													
White, non-Hispanic	30.9	(±2.0)	25.2	(±1.8)	11.8	(±1.0)	7.3	(±1.4)	2.8	(±0.6)	2.2	(±0.5)	2.7
Black, non-Hispanic	21.7	(±2.9)	13.8	(±2.8)	12.0	(±1.9)	1.8	(±0.8)	3.7	(±1.2)	3.4	(±1.1)	1.9
Hispanic	24.1	(±2.7)	19.8	(±2.5)	10.8	(±1.5)	3.3	(±1.1)	4.6	(±1.1)	3.5	(±0.9)	3.0
Asian	14.6	(±3.8)	12.2	(±3.4)	5.4	(±2.3)	2.1	(±1.5)	2.7	(±1.5)	2.9	(±1.6)	2.1
Total	28.2	(±1.7)	22.5	(±1.6)	11.6	(±0.9)	5.9	(±1.1)	3.2	(±0.6)	2.6	(±0.5)	2.7

* Used tobacco on at least 1 day during the 30 days preceding the survey.
† Cigarettes, cigars, smokeless tobacco, pipes, bidis (leaf-wrapped, flavored cigarettes from India), or kretek (clove cigarettes).
§ Confidence interval.
¶ Significant difference ($p<0.05$), 2004 versus 2002.

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Table 3

TABLE 3. Percentage of students in middle school (grades 6–8) and high school (grades 9–12) who reported being e tobacco-related media and advertising, and current smokers aged <18 years who tried to buy cigarettes in a store, by se ethnicity — National Youth Tobacco Survey, United States, 2004

	All students				Current cigarette smokers* aged <18 y			
	Saw actors on television or in movies using tobacco		Saw advertisements for tobacco products on the Internet		Were not asked to show proof of age when purchasing cigarettes		Were n refused pur because o	
Characteristic	%	(95% CI†)	%	(95% CI)	%	(95% CI)	%	(9
Middle school								
Sex								
Male	78.6§	(±1.9)	33.8§	(±2.1)	67.9	(±7.8)	62.8	(±
Female	77.2§	(±2.1)	34.3§	(±2.7)	73.3	(±9.4)	70.1	(±
Race/Ethnicity								
White, non-Hispanic	78.5§	(±2.3)	34.4§	(±1.9)	70.9	(±8.7)	69.8	(±
Black, non-Hispanic	77.1§	(±2.4)	31.2§	(±2.5)	65.7	(±14.9)	63.6	(±
Hispanic	78.1§	(±2.1)	35.7§	(±2.5)	60.5	(±14.1)	63.4	(±
Asian	72.7§	(±4.6)	29.1§	(±6.6)	¶	¶	¶	–
Total	77.9§	(±1.9)	34.1§	(±2.0)	70.6	(±6.9)	66.4	(±
High school								
Sex								
Male	85.9§	(±1.4)	38.8§	(±1.9)	57.9	(±5.4)	52.6	(±
Female	87.1§	(±1.7)	39.6§	(±2.2)	71.6§	(±7.1)	73.2§	(±
Race/Ethnicity								
White, non-Hispanic	88.9§	(±1.6)	39.5§	(±1.9)	63.1	(±7.3)	62.1	(±
Black, non-Hispanic	84.6§	(±2.1)	38.4	(±2.8)	77.2	(±10.6)	74.8§	(±
Hispanic	86.5§	(±1.5)	44.1§	(±2.8)	60.6	(±6.9)	55.1	(±
Asian	86.4§	(±3.6)	41.0	(±4.9)	¶	¶	¶	–
Total	86.5§	(±1.2)	39.2§	(±1.5)	63.9	(±5.7)	62.1	(±

* Smoked cigarettes on at least 1 day during the 30 days preceding the survey and bought or tried to buy cigarettes in a store.
† Confidence interval.
§ Significant difference (p<0.05), 2004 versus 2002.
¶ Unstable estimate because of small sample size.

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Finding #6

- In 2002, children under eighteen smoked approximately 540 million packs of cigarettes, generating nearly $1.2 billion in tobacco industry revenue[6]; and

[6] Healton C, Farrelly MC, Weitzenkamp D, et al. "Youth Smoking Prevention and Tobacco Industry Revenue." *Tobacco Control,* 15: 103-106, 2006. Available at: http://tobaccocontrol.bmj.com/cgi/content/full/15/2/103.

Tobacco Control 2006;15:103-106; doi:10.1136/tc.2005.012237

RESEARCH PAPER

Youth smoking prevention and tobacco industry revenue

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Objectives: Epidemiological surveys make it clear that youth smoking contributes to both current and future tobacco industry revenue: over 80% of adult smokers reportedly began smoking before age 18. This paper estimates annual and lifetime revenue from youth smoking, and highlights the association between declines in youth smoking and declines in tobacco industry revenue.

Main outcome measures: This paper reports the amount of tobacco industry revenue generated by youth smoking at two points in time (1997 and 2002), and describes the distribution of youth generated tobacco income among the major tobacco companies. The authors project the amount of tobacco industry revenue that will be generated by members of two cohorts (the high school senior classes of 1997 and 2002) over the course of their lifetimes.

Results: In 1997, youth consumed 890 million cigarette packs, generating $737 million in annual industry revenue. By 2002, consumption dropped to 541 million packs and revenue increased to nearly $1.2 billion. Fifty eight per cent of youth generated revenue goes to Philip Morris USA, 18% to Lorillard, and 12% to RJ Reynolds. The authors project that, over the course of their lives, the 1997 high school senior class will

smoke 12.4 billion packs of cigarettes, generating $27.3 billion in revenue. The 2002 high school senior class is projected to smoke 10.4 billion packs, generating $22.9 billion in revenue over the course of their lives.

Conclusions: Cigarette price increases from 1997 to 2002 have resulted in greater revenue for the tobacco industry, despite declines in youth smoking prevalence. However, in the absence of further cigarette price increases, declines in youth smoking are projected to lead ultimately to a loss of approximately $4 billion in future tobacco industry revenue from a single high school cohort.

Finding #7

- A review of thirteen California communities with strong tobacco retailer licensing ordinances shows that the youth sales rate declined in twelve of the thirteen communities, with an average decrease of 68% in the youth sales rate;[7]

[7] American Lung Association of California, Center for Tobacco Policy and Organizing. *Tobacco Retail Licensing is Effective.* 2007. Available at: www.center4tobaccopolicy.org/_files/_files/5377_Tobacco%20Retailer%20Licensing%20is%20Effective%20October%202007.pdf

The Center for Tobacco Policy & Organizing
AMERICAN LUNG ASSOCIATION

Tobacco Retail Licensing Is Effective

October 2007

Several years ago tobacco control advocates in California launched a new effort to end illegal sales of tobacco to minors. The strategy was to pass strong local tobacco retailer licensing ordinances. What distinguishes these new ordinances from earlier, weaker versions is licensing fees high enough to fund strong enforcement programs, usually between $200-300 per retailer. Strong licensing ordinances also include financial deterrents through fines and penalties that include the suspension and revocation of the license. Forty-seven communities have passed strong ordinances so far, and more are on the way.

Enough time has now passed for some of these communities to have implemented their licensing program and to evaluate the effectiveness of the program in deterring sales of tobacco to minors. The table below lists illegal sales rates to minors in 11 communities before and after a strong licensing law was enacted. These sales rates were determined by youth tobacco purchase surveys administered by local agencies. It is important to note that results from the youth tobacco purchase surveys are somewhat dependent on certain factors that differ in each community, such as the age of the youth and the number of stores surveyed.

The results overwhelmingly demonstrate that local tobacco retailer licensing ordinances with strong enforcement provisions are effective. Rates of illegal tobacco sales to minors have decreased in almost every California community that has passed strong tobacco retailer licensing ordinances. In many communities, the reductions are quite dramatic. However, a licensing ordinance by itself will not automatically decrease sales rates. Proper education and enforcement about the local ordinance and state youth access laws are always needed in every California community that has passed a strong tobacco retailer licensing ordinance to educate merchants and deter them from illegally selling tobacco to minors.

City/County	Date Passed	Annual Fee	Youth Sales Rate Before Ordinance	Most Recent Youth Sales Rate
Banning	August 2006	$350	71%	21%
Berkeley	December 2002	$380	38%	19%
Contra Costa County	January 2003	$160	37%	7%
Corona	October 2005	$350	29%	0%
Elk Grove	September 2004	$270	17%	0%
Grover Beach	September 2005	$224	46%	27%
Hollister	May 2006	$270	33%	5%
Murrieta	May 2006	$350	31%	7%
Pasadena	January 2004	$211	20%	5%
Riverside	May 2006	$350	65%	0%
Sacramento	March 2004	$300	27%	24%
Sacramento County	May 2004	$287	21%	23%
San Luis Obispo	August 2003	$255	17%	0%

To learn more about drafting an effective tobacco retailer licensing ordinance contact Randy Kline at the Technical Assistance Legal Center (TALC) at 510-444-8252 or rkline@phi.org.

The Center has produced a "Matrix of Strong Local Tobacco Retailer Licenses" that contains a list of all communities that have passed a strong licensing ordinance, complete with descriptions of enforcement and penalties as well as local contact information. Please visit our website to download this document.

www.Center4TobaccoPolicy.org
1029 J Street, Suite 450, Sacramento, CA, 95814 • (916) 554.5864

This material was made possible by funds received from the California Department of Health Services, under contract # 04-35335.

Finding #8

- A study of the effect of licensing and enforcement methods used in the Philadelphia area revealed a decrease in sales to minors from 85% in 1994 to 43% in 1998;[8]

[8]Ma GX, Shive S and Tracy M. "The Effects of Licensing and Inspection Enforcement to Reduce Tobacco Sales to Minors in Greater Philadelphia, 1994-1998." *Addictive Behaviors*, 26(5): 677-87, 2001. Abstract available at: www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11676378&dopt=Abstract.

Addict Behav. 2001 Sep-Oct;26(5):677-87.

The effects of licensing and inspection enforcement to reduce tobacco sales to minors in Greater Philadelphia, 1994-1998.

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This study examined the changes in tobacco sales to minors after active enforcement of merchant compliance to the Synar regulation and the city of Philadelphia Youth Access to Tobacco Ordinance 732. Data for the present study were obtained through Tobacco-free Education and Action Coalition for Health (TEACH) Program in a 5-year, follow-up retail compliance check survey of 1649 stores in 14 cluster areas of Philadelphia, PA. Trend analysis was conducted ofthe sales of tobacco to minors by type of retail outlet, gender, and age of the buyer, and gender, age, and race of the store clerk, and whether restriction policy signs were posted. Analysis indicates that there was a reduction in tobacco sales to minors after implementation of enforcement; sales dropped from 85% in 1994 to 43% in 1998. There were less sales to minors when signs were posted. There were differences in sales if the buyer was asked his or her age and whether the minor was asked to show identification. In addition, the age of the buyer and the brand of cigarettes were associated with sales. Future research should focus on both commercial and social availability and provision of tobacco to minors.

Publication Types:

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Finding #9

- A study of several Minnesota cities found that an increased licensing fee in conjunction with strict enforcement of youth access laws led to a decrease from 39.8% to 4.9% in sales of tobacco to minors;[9] and

[9] Forster JL et al. "The Effects of Community Policies to Reduce Youth Access to Tobacco." *American Journal of Public Health*, 88(8): 1193-1197, 1998. Available at: www.ajph.org/cgi/reprint/88/8/1193.

The Effects of Community Policies to Reduce Youth Access to Tobacco

ABSTRACT

Objectives. This study tested the hypothesis that adoption and implementation of local policies regarding youth access to tobacco can affect adolescent smoking.

Methods. A randomized community trial was conducted in 14 Minnesota communities. Seven intervention communities participated in a 32-month community-organizing effort to mobilize citizens and activate the community. The goal was to change ordinances, merchant policies and practices, and enforcement practices to reduce youth access to tobacco. Outcome measures were derived from surveys of students before and after the intervention and from tobacco purchase attempts in all retail outlets in the communities. Data analyses used mixed-model regression to account for the clustering within communities and to adjust for covariates.

Results. Each intervention community passed a comprehensive youth access ordinance. Intervention communities showed less pronounced increases in adolescent daily smoking relative to control communities. Tobacco purchase success declined somewhat more in intervention than control communities during the study period, but this difference was not statistically significant.

Conclusions. This study provides compelling evidence that policies designed to reduce youth access to tobacco can have a significant effect on adolescent smoking rates. (*Am J Public Health.* 1998;88:1193–1198)

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Introduction

A number of studies have shown that enforcing tobacco age-of-sale laws results in merchants' altering their practices and in reductions in illegal tobacco sales to minors.[1] It is believed that, consequently, young people who are experimenting with tobacco or considering initiation of tobacco use will be less likely to find a reliable and convenient source and thus will be discouraged from establishing the habit of regular use. New policies and enforcement practices also are believed to establish a normative climate in which provision of tobacco to minors and use of tobacco by youth are not acceptable.[2] These assumptions led the US Department of Health and Human Services, in January 1996, to issue rules to implement the Synar amendment, which requires that each state receiving a federal Substance Abuse Prevention and Treatment Block Grant adopt and enforce a tobacco age-of-sale law and show progressive reductions in tobacco sales to minors.[3] Following the same reasoning, the Food and Drug Administration issued regulations in August 1996 designed to restrict youth access to tobacco, including a requirement that retailers request identification of purchasers, a ban on tobacco vending machines and self-service displays in most locations, and a prohibition against free tobacco samples.[4] These actions came after a period of almost a decade during which similar provisions were adopted and/or enforced by hundreds of local jurisdictions and many state legislatures.[5–10]

Despite this intensive activity, little is known about the effects of these policies on tobacco use by youth. Reductions in smoking prevalence among youth in single communities before and after policy adoption and/or enforcement have been reported.[11–13] Recently, Rigotti et al. reported that after intensive enforcement of local youth access laws, retailer compliance with the laws was significantly higher in intervention communities than in comparison communities, but youth smoking rates were unchanged.[14]

Tobacco Policy Options for Prevention (TPOP) is a randomized community trial designed to test the effects of changes in local policies to limit youth access to tobacco. The study hypothesizes that local policy change brought about by community mobilization will have a positive effect on adolescent tobacco use through reductions in commercial availability. This paper reports the effects of the intervention on ordinances in TPOP communities, on cigarette purchase success by youth, and on adolescents' perceptions of availability and self-reported smoking behavior.

Methods

Design

Fourteen communities in Minnesota were randomly assigned to experimental or control conditions. Criteria for inclusion of communities in the study were 90 or more students in each of grades 8, 9, and 10; location outside the primary Minnesota American Stop Smoking Intervention Study (ASSIST) geographic area; and no recent ordinance changes regarding tobacco. With the exception

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of school officials, from whom permission was needed to survey students, no one was contacted in potential communities before the intervention was begun. Twenty-two school districts (representing 22 communities) were contacted to achieve the desired sample size of 14 communities. The 8 districts that refused our invitation cited the burden of other surveys in the schools. Study communities ranged in size from 3200 to 13 100 residents, and each was the largest community in its rural county. Communities were stratified prior to randomization by population and baseline student smoking rate. All communities in the TPOP study required that tobacco retailers be licensed at the beginning of the study, as did approximately 94% of Minnesota communities.[6]

Intervention

The goals of the 32-month intervention were to make tobacco access by youth a salient community issue, to change local ordinances to more effectively restrict youth access to tobacco, to change retailers' and other adults' practices regarding provision of tobacco to youth, and to promote enforcement of tobacco age-of-sale laws. The intervention followed a direct action community organizing model that called for mobilizing large numbers of people, encouraging individuals to take active roles as citizens and to hold leaders accountable for public decisions, highlighting conflicts between citizens' values and the status quo, and using that conflict to move individuals to action.[15] The process in each community was the same, but the implementation varied as the communities developed ownership of the project.

The intervention was staffed by a half-time community organizer in each community. After interviewing about 100 people in their community, organizers recruited a team of 8 to 15 members to lead the policy change effort. Team members came from varying backgrounds but participated as individuals, not organizational representatives.

The local team planned and executed activities to raise community awareness about youth tobacco access and use and to develop and demonstrate broad support for policy change. Teams conducted group presentations, letter and petition drives, media campaigns, and tobacco purchase attempts with underaged youth. Technical assistance and materials were provided by University of Minnesota staff, but the local teams decided how to use these resources.

Teams drafted their own ordinance based on models from other communities, introduced the ordinance to their city council, and then marshaled the support of community leaders and the public for their proposal. Team members and community supporters lobbied city councilors, met with tobacco retailers, and attempted to obtain the support of law enforcement officials for the proposed ordinance.

Following ordinance passage, teams worked to ensure enforcement of the ordinances, including mobilizing citizens again if the police delayed enforcement. The intervention implementation and process evaluation measures have been described in more detail elsewhere.[16]

Evaluation

Data were collected regarding adolescent tobacco use, tobacco acquisition behaviors, and perceptions about tobacco availability via surveys administered in spring 1993 and at the end of the intervention in spring 1996. University staff administered the survey during school time to all students in grades 8 through 10. Details of the survey have been reported elsewhere.[2] The final sample consisted of 6014 students in 1993 and 6269 students in 1996. Surveys were completed by 91.8% of eligible students in 1993 and 92.9% in 1996. More than 94% of the students in both the baseline and follow-up samples were White. There were no differences between students from treatment and control communities at baseline on any of the outcome variables.

Tobacco purchase attempts were completed at all retail tobacco outlets in each community in June 1993 and June 1996, following a standard protocol.[2] A list of all businesses (over the counter and vending machine) licensed to sell tobacco was obtained from each city clerk. Two purchase attempts were carried out at each business (one each on successive days) by 2 different 15-year-old female buyers from outside the study communities. Buyers were accompanied by an adult employee of the study. Immediately following the purchase attempt, buyers and supervisors recorded data about the purchase attempt and the store environment, including location and types of tobacco displays.

Measures

Prevalence of smoking among students was based on a smoking index constructed by combining answers to questions about lifetime smoking, smoking in the previous 7 days, and smoking in the previous 24 hours.[17] This index was used to classify students as never, monthly, weekly, or daily smokers. Students were asked to indicate how hard or easy it would be to obtain cigarettes from a variety of sources. The proportion who responded 1 (not at all difficult) to 3 (little difficulty) on a 7-point scale was calculated for each community. Students who had smoked were also asked how they had obtained their most recent cigarette. Those who selected either salesperson or vending machine were classified as having used a commercial source, while friend, sibling, parent, and another teenager or adult were considered social sources. Students were also asked how many times they had tried to buy cigarettes in the past 30 days, and the percentages of respondents who indicated one or more attempt were calculated for each community.

Analysis

Mixed-model regression procedures, implemented via SAS PROC MIXED (version 6.11),[18] were used in analyzing the school survey data. For each dependent variable, the primary analysis was conducted in 2 stages. The full model included fixed effects for condition, time, the time × condition interaction, and covariates identified as related to the dependent variable in question based on preliminary analyses (e.g., gender, age, grade, family structure, socioeconomic status, presence of an adult in the home after school, and discretionary income). Random effects were included for community (condition), for the time × community (condition) interaction, and for residual error. The reduced model eliminated covariates found to be nonsignificant in the full model ($P > .05$). The intervention effect, estimated as the net change over time between the 2 conditions, was represented by the time × condition interaction. The standard error for that effect reflected the multiple sources of random variation in the data and was based on the time × community (condition) interaction. Degrees of freedom were based on the number of communities. All random effects were presumed to be independently and identically distributed Gaussian effects, based on the recent report that this assumption is appropriate for data from group-randomized trials even when the observation-level data are dichotomous.[19]

Following the primary analysis for the school survey data, the reduced model was repeated after separate post hoc stratification by gender and grade. In those models, fixed-effect terms were added for the condition × stratum, time × stratum, and time × condition × stratum interactions, and random-effect terms were added for the stratum × community (condition) and time × stratum × community (condition) interactions. The

TABLE 1—Ordinances Passed in Tobacco Policy Options for Prevention (TPOP) Intervention Communities and Penalties Applied Following Enforcement: Minnesota, 1993–1996

Community	Date Adopted	License Fee	Vendor Penalty	Clerk Penalty	Vending Machine Ban	Self-Service Ban	Purchaser Penalty	Compliance Checks Required	Penalty Following Enforcement
A	2/16/95 and 3/11/96	$50	Yes	Yes	Yes	No	Yes	Yes	Warning
B	8/11/95	$100	Yes	No	Yes	Yes	No	Yes	Fine
C	2/22/95	$15	Yes	Yes	Yes	Yes	Yes	Yes	Fine
D	7/10/95	$25	Yes	No	Yes	Yes	No	Yes	Warning
E	4/3/95	$36	Yes	Yes	Yes	Yes	Yes	Yes	Fine
F	12/12/94	$250	Yes	Yes	Yes	No	Yes	No	Fine/suspension
G	10/17/95	$50	Yes	No	Yes	Yes	No	Yes	Warning

intervention effect in the stratified analyses was represented by the time × condition × stratum interaction and was assessed against the time × stratum × community (condition) interaction. Degrees of freedom were based on the number of communities and strata.

The tobacco purchase attempt data were analyzed via similar procedures, modified to reflect the slightly different design used in this survey. Fixed effects were included for condition, time, and the time × condition interaction. Covariates were type of outlet and age and gender of seller. For dependent variables in which the value could vary between the 2 visits to each outlet, visit was included as a random effect. For all dependent variables, community (condition), time × community (condition), and residual error were included as random effects; in addition, the confederate's identification number was included as a random-effect covariate. The intervention effect, estimated as the net change over time between the intervention and comparison conditions, was represented by the time × condition interaction. The standard error for that effect reflected the multiple sources of random variation in the data and was based on the time × community (condition) interaction. Degrees of freedom were based on the number of communities.

Results

By the end of the intervention period, all 7 TPOP intervention communities had adopted a comprehensive ordinance aimed at ensuring merchant compliance with tobacco age-of-sale laws and reducing youth access to tobacco. The provisions of the ordinances are shown in Table 1. All communities increased the license fee to cover administrative costs, added a graduated system of civil penalties for the license holder, and banned tobacco vending machines, and 6 required that at least 2 unannounced compliance checks be carried out annually. In addition, 5 communities prohibited self-service displays of tobacco products, and 4 included fines for both salespersons who made illegal sales and minors who attempted to purchase tobacco. By the end of the intervention period, compliance checks had been carried out by police in all 7 intervention communities, according to police records. In 4 communities, violators were given fines or license suspensions; in the other 3 communities, only warnings were issued.

During the intervention period, 3 control communities adopted modifications of their tobacco ordinance: one community adopted a self-service ban to take effect in August 1997, another adopted civil penalties for tobacco sales to minors, and a third adopted a model ordinance proposed by the tobacco retail industry. The latter prohibited tobacco self-service displays and vending machines except when they were in view of an employee and permitted the community to conduct compliance checks. Ordinances passed in the control communities were weaker and much less comprehensive than those passed in intervention communities.

As Figure 1 indicates, the intervention resulted in a lower net prevalence of smoking in the intervention communities than in the control communities. The prevalence of daily, weekly, and monthly smoking climbed sharply in the control communities over the course of the study. However, the increase in the intervention communities was less pronounced, with net differences between intervention and control communities of –4.9% for daily smoking (95% confidence interval [CI] = –9.0, –0.7), –5.6% for weekly smoking (95% CI = –11.7, 0.5), and –6.7% for monthly smoking (95% CI = –14.9, 1.5). In addition to the main effects models, stratified models were examined to determine whether the effects were homogeneous across gender and grade. The intervention was equally effective in slowing the rate of increase in male and female students. For monthly and

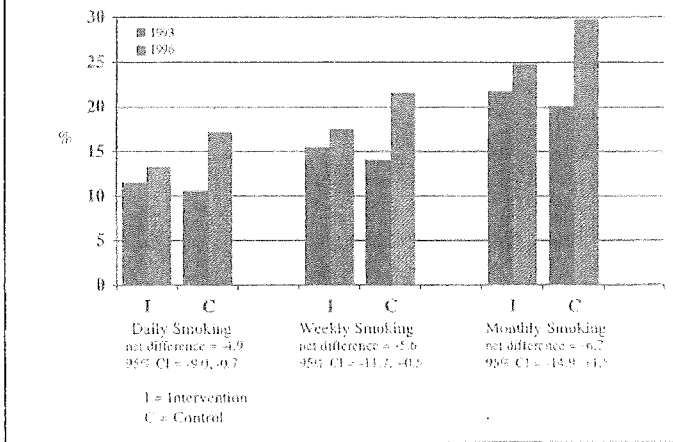

FIGURE 1—Prevalence of smoking, by time and treatment condition: Tobacco Policy Options for Prevention (TPOP) Intervention, Minnesota, 1993–1996.

TABLE 2—Perceived Availability and Sources of Cigarettes, by Time and Treatment Condition (Student Survey): Minnesota, 1993–1996

	Stratum	Intervention, %		Control, %		Net Difference, %	95% Confidence Interval
		1993	1996	1993	1996		
High perceived availability from social sources	All	79.9	85.1	81.2	84.1	2.3	−2.5, 7.1
High perceived availability from commercial sources	All	79.8	77.2	80.1	83.9	−6.4	−12.6, −0.1
Commercial source for most recent cigarette (smokers)	Male students	28.5	19.5	24.0	27.2	−12.2	−21.4, −3.0
	Female students	17.3	14.3	18.0	20.5	−5.5	−14.8, 3.9
Any purchase attempt in past month	All	9.0	6.5	8.0	9.9	−4.4	−8.2, −0.7
	Smokers	34.9	23.8	31.8	33.3	−12.5	−25.6, 0.5

weekly smokers, the intervention was also equally effective across grades 8 through 10. For daily smokers, there was a nonsignificant trend toward greater effectiveness among younger students.

Differences in perceived availability and cigarette acquisition patterns reported on the student survey were also noted (Table 2). The intervention had no effect on the perceived availability of cigarettes from social sources, with most students in both conditions reporting that it was easy to obtain cigarettes from family members, friends, or acquaintances. Perceived availability of cigarettes from commercial sources showed a net decrease among students in the intervention condition. There was a net decline among boys in reporting a commercial source for their most recent cigarette; the trend among girls was also favorable. The proportion of adolescents who reported at least one purchase attempt in the previous month declined in the intervention communities, while it increased in the control communities. This was true among students who had smoked at least once in the previous month as well as among all students.

There was a sharp decline in the success of underaged confederate buyers in purchasing cigarettes from 1993 to 1996 ($P = .0014$) (Table 3). The trend in purchase success differences between intervention and control communities was consistent with expectations but statistically nonsignificant. Similarly, there was a sharp increase in the proportion of purchase attempts in which the seller requested age identification ($P = .0099$); that trend also was the same in both the intervention and control communities. The proportion of outlets that stored cigarettes behind the counter or in locked cabinets increased sharply in the intervention communities. Finally, there was a modest increase in the proportion of outlets that posted signs announcing state, local, and store age-of-sale policies in the intervention communities relative to the control communities.

In summary, the results indicate that comprehensive ordinances passed in all intervention communities resulted in a lower smoking prevalence among young adolescents in these communities than in control communities. This net reduction in smoking prevalence was associated with a lower perceived availability of tobacco from commercial sources, a reduction in commercial sources of cigarettes, and fewer cigarette purchase attempts reported by adolescents in intervention than in control communities. Cigarettes were more likely to be displayed behind a counter in intervention communities, and stores were more likely to post signs about age-of-sale policies.

Discussion

This study provides evidence that a community mobilization intervention resulting in policy adoption and enforcement to reduce youth access to tobacco can affect adolescent smoking rates. The effects were consistent across grades and genders. Among daily smokers, who would be expected to try to purchase cigarettes most often, the effect was greater for the younger students, whose underage status would be more apparent to merchants. In addition, students in the intervention communities believed cigarettes were more difficult to buy and were less likely to try to purchase cigarettes.

The magnitude of change in adolescent smoking prevalence due to the TPOP intervention (a net reduction in daily smoking of 28% of the baseline rate) is considerably larger than the average effect sizes reported for school-based programs using social influence or social or other skills–focused curricula and equal to the effects reported by the most effective programs.[20] The intervention had these effects even though it did not include any components targeted directly at adolescents.

Although more than 6000 children were surveyed in both 1993 and 1996, all of the analyses were conducted at the level of the community (as was appropriate given that community was the unit of randomization). Thus, the degrees of freedom for all intervention effects reported here were based on the number of communities in the study (14) rather than the number of students. This approach to the analysis both protected the type I error rate and provided the statistical basis for generalizing to communities similar to those included in the study.[21] We believe that even though the confidence intervals included zero at the upper bound, the differences in weekly and monthly smoking prevalence in this study are noteworthy given the limited degrees of freedom.

Our findings suggest that refusals by sellers at the time of purchase attempts by young people do not account for the lower adolescent smoking rates observed in the intervention communities. Both intervention and control communities showed reductions in the proportion of businesses that sold cigarettes to underaged study confederates. Salespeople in both treatment and control communities were equally likely to ask these students for age identification. However, the community mobilization and awareness campaigns that were part of the intervention, as well as the policies that were adopted, may have increased the perception among students that they would not be able to purchase tobacco and/or discouraged them from trying to do so. Businesses in the intervention communities were more likely to display cigarettes behind a counter, thus requiring that individuals request the products from salespeople, and they were more likely to post signs announcing local or store policies regarding sale of tobacco to minors. These actions may account for the findings that students in the intervention communities were less likely to try to purchase cigarettes than students in control communities and that they believed cigarettes were more difficult to purchase. These findings are consistent with previous studies reporting that stores with self-service displays of tobacco products are more likely to sell tobacco to minors.[2,22]

TABLE 3—Purchase Success and Transaction Characteristics, by Time and Treatment Condition

	Stratum	Intervention, %		Control, %		Net Difference, %	95% Confidence Interval
		1993	1996	1993	1996		
Purchase success	All	38.8	4.9	41.9	12.5	−4.5	−18.7, 9.7
	Over the counter	36.7	3.1	41.0	8.8	−1.5	−11.7, 8.6
Identification requested	Over the counter	62.3	86.3	58.9	83.4	0.0	−11.2, 10.3
Cigarettes stored behind counter	Over the counter	52.6	83.8	55.2	57.2	29.2	3.1, 55.3
Signs posted on state, local, and store age-of-sale policies	All	10.9	23.4	9.2	7.7	14.1	−3.0, 31.1

The reduction in tobacco purchase success across both the intervention and control communities is not surprising given the level of attention to the issue of youth access to tobacco in Minnesota recently. During the intervention period (1993 through 1996), a strong effort to pass state legislation to reduce youth access to tobacco was accompanied by statewide media attention. State retailers' associations and the tobacco industry launched statewide campaigns to educate retailers and their employees about the Minnesota tobacco age-of-sale law and ways to avoid violating it. In addition, Minnesota participates in both the ASSIST and Smokeless States projects. Moreover, local health agencies throughout the state became interested in the issue and began implementing tobacco purchase attempts in their communities. Other recent studies also suggest that retailers respond to the changing policy and enforcement climate of a region rather than simply to local efforts.[23,24]

Results from this study emphasize the value of local policy changes in the context of intensive education for action, public debate, and involvement of hundreds of community members. In addition to the policy and practice changes and law enforcement efforts, the mobilization process changed perceptions of availability and (very likely) community norms about tobacco sales to and use by youth. The effects on youth tobacco use seen in this study must be attributed to effects of the local policies and their enforcement in the context of an intensive community organizing effort.

Our results are relevant to the debate among tobacco control advocates about whether an emphasis on reducing youth access to tobacco is warranted given available evidence concerning its effectiveness in reducing youth tobacco use.[25–27] This debate intensified in light of the finding of Rigotti and colleagues[14] that enforcement of the tobacco age-of-sale law was not associated with a reduction in adolescent smoking prevalence. In the Rigotti et al. study, enforcement efforts resulted in a reduction in tobacco sales to minors to about 20% in the 3 intervention towns (vs 54% in control towns) after 1 year. In the TPOP study, purchase success in the intervention communities was reduced to about 5%, as compared with 12.5% in the control communities. Because of the intensive activity leading to policy changes in the study communities, our results do not directly predict the effectiveness of efforts focused specifically on enforcement. It is possible that the level of reduction in purchase success achieved in our study is what is necessary to effectively reduce youth access, or it may be that an intensive community mobilization intervention is needed to change the perceptions and behaviors of young people.

Conclusions from this study are limited by the fact that our results reflect short-term effects only, based on data collected immediately following the intervention. Furthermore, all of the communities in the study are located in one state, and all are small towns in rural counties with relatively homogeneous, almost entirely White populations. Clearly, longer-term studies in a variety of communities are needed. Because of limitations in the standard purchase attempt methodology, we cannot be sure whether or not commercial access to tobacco was actually reduced. Changes in purchase success rates in intervention communities cannot be reliably distinguished from temporal trends. Nevertheless, these results provide encouraging evidence that efforts to limit commercial access to tobacco by youth represent an effective component of a multidimensional approach to reducing tobacco use. □

Acknowledgments

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Portions of these data were presented at the 125th Annual Meeting of the American Public Health Association, November 1997, Indianapolis, Ind.

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Finding #10

- Statewide, over 80% of California adults think tobacco retailers should be licensed;[10]

[10] California Department of Health Services, Tobacco Control Section. *California Tobacco Control Update.* 2006. Available at: http://ww2.cdph.ca.gov/programs/tobacco/Documents/CTCPUpdate2006.pdf

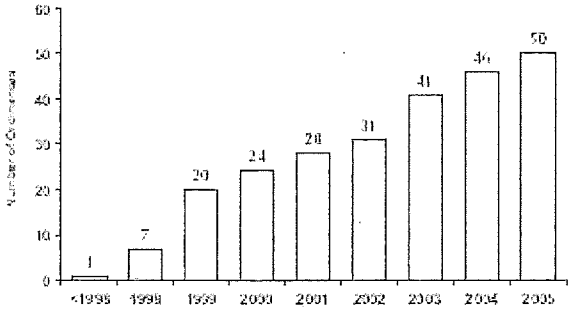
California Tobacco Control

UPDATE 2006

The Social Norm Change Approach

California Department of Health Services
Tobacco Control Section

Figure 6. Cumulative Number of Local Tobacco Retailer Licensing Ordinances, 1998-2005



Note: Bars show the years in which the ordinances were last amended.
Source: Local Tobacco Control Ordinance Data Base, California updated June 2006, maintained by American Nonsmokers' Rights Foundation.
Prepared by California Department of Health Services, Tobacco Control Section, 2006

ordinances by 100 percent from only 5 years ago; such ordinances now number a total of 50 (Figure 6).[31] This push for retail licensing at the local level culminated in a state law that requires businesses selling cigarettes and other tobacco products to the public to have a California Cigarette and Tobacco Products License.[32]

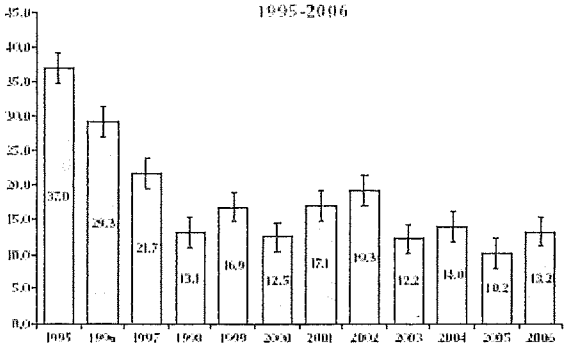
Legislation aimed at reducing the availability of tobacco is backed by strong public support. Recent data show that over 90 percent of Californians agree that store owners should have a license to sell cigarettes and that cigarette vending machines should be totally prohibited.[33] In addition, strengthened enforcement efforts as well as a growing number of state and local ordinances have resulted in tremendous declines in the rate of illegal tobacco sales to minors. Between 1996 and 2006, the illegal sales rate decreased from 37 percent to 13.2 percent (Figure 7).[33]

Cessation

For smokers who want help quitting, the CTCP funds local program cessation services, as well as the California Smokers' Helpline, a toll free telephone counseling service. The California Smoker's Helpline is the principle program at the state level specifically addressing smoking cessation using an individual behavior change approach. From its inception in 1992 through June 2006, the Helpline has provided assistance to almost 400,000 individuals.[34]

As Californians have become increasingly anti-tobacco in their views and assertive in protecting the rights of nonsmokers, many smokers have been motivated to move toward cessation. The percentage of current smokers

Figure 7. Percent of Retailers Selling Tobacco to Youth, 1995-2006



Unweighted for protocol (1995-1998), annual for protocol (1999-2006).
Source: Synar Tobacco Enforcement Survey, 1995-2006.
Prepared by: California Department of Health Services, Tobacco Control Section, 2006.

Finding #11

- Similarly, in rural areas in California, 78% of adults think tobacco retailers should be licensed, and 91% agree that a store owner who repeatedly sells cigarettes to minors should no longer have the right to sell cigarettes;[11]

[11] American Lung Association of California, Center for Tobacco Policy and Organizing. *Survey of California Rural and Small Town Voters About Local Tobacco Retail Licensing Ordinances.* 2008. Available at:

www.center4tobaccopolicy.org/_files/_files/Rural_Poll_Summary_of_Findings_Final_5-21-08.pdf.

Public Opinion Research Survey: March 2008

Survey of California Rural and Small Town Voters

About Local Tobacco Retailer Licensing Ordinances

Background

The sale of tobacco products to minors is a problem in most cities and counties in the state. Illegal sales by retailers contribute to the lifelong addiction of many youth to tobacco. To combat this problem, many California cities and counties have passed or are considering passing a tobacco retailer licensing ordinance.

In March 2008, the Center for Tobacco Policy & Organizing commissioned a survey of 945 California rural and small town voters to gauge the level of support for a licensing ordinance and to identify the unique challenges for getting an ordinance adopted in rural communities. The survey was conducted by Goodwin Simon Victoria Research. Complete survey results are available at www.Center4TobaccoPolicy.org/polling-rural.

Summary of Key Findings

Provisions of a Tobacco Retailer Licensing Ordinance

California rural voters understand the need for a tobacco retailer licensing ordinance and are supportive of a licensing ordinance and the different provisions of such a law:

- 50% feel that it is easy for minors to buy cigarettes at local retail stores
- 78% support requiring store owners to get a license to sell cigarettes
- 66% feel that a fee of $200 a year for the license is either "too low" or "about right"
- 91% agree that a store owner who repeatedly sells cigarettes to minors should no longer have the right to sell cigarettes
- 84% think that increasing the penalties, such as suspension and revocation of the license, on retailers for each new violation is either too mild or about right as a punishment
- 69% would be more inclined to support a licensing ordinance if it included a provision to not allow stores that sell methamphetamine (meth) pipes to obtain a license. This includes about half of those who earlier in the survey were opposed to a local tobacco license.

Statements For and Against a Tobacco Retailer Licensing Ordinance

California rural voters are receptive to statements in favor of a licensing ordinance. At least 75% of voters thought that all eight arguments given in the survey were important reasons to support a licensing ordinance. The four statements rated as most important are listed below:

- 86% -- There is no more effective way to improve the health of the community than through reducing smoking, especially among teens
- 83% -- These laws really work, because communities that have adopted a licensing ordinance have seen sales of cigarettes to minors decrease
- 81% -- A licensing ordinance sends the message that smoking is not okay for minors and that the community is not going to allow it
- 80% -- If you can stop the easy access of minors to cigarettes then teen smoking can be reduced

Fewer rural voters feel that the reasons against adopting a licensing ordinance are important The three statements rated as most important are listed below:

- 64% -- It is not fair to blame the store owners; teens and parents should be held accountable
- 54% -- A new layer of taxes and bureaucracy is too much
- 52% -- A licensing ordinance could end up punishing everyone by shutting down local small grocery stores in areas where they are few and far between

Secondhand Smoke Exposure

In addition, California rural voters were asked about their support for policies to reduce exposure to secondhand smoke.

- 86% feel that secondhand smoke is harmful
- 75% support a law requiring apartment buildings to offer sections with non-smoking units where all apartments, balconies and patios are smoke free
- 70% support a law requiring smoking to be restricted at outdoor events such as county fairs and rodeos
- 68% support a law prohibiting smoking in outdoor common areas of apartment buildings
- 66% support restricting smoking in downtown areas
- 55% support prohibiting smoking in parks, trails and recreation areas

Differences among the Three Regions

The survey was conducted in three regions of California (Central Valley, Sierra and Northern). All regions demonstrate strong support for a tobacco retailer licensing ordinance; however support is especially strong in the Central Valley region. In the Central Valley region 83% of voters surveyed support a licensing ordinance compared to 76% in the Sierra region and 75% in the Northern region.

Demographic Differences

There are important differences in support among different demographic groups.

- Women are more supportive of a licensing ordinance than men (81% compared to 73%)
- 85% of parents are in favor compared to 75% of nonparents. Among parents of teenagers, 89% are in favor compared to 79% of parents of younger kids
- 87% of Latinos are in favor compared to 76% of non-Latinos
- 85% of those under the age of 50 favor licensing retailers, compared to about 74% of those 50 and over

Survey Methodology

This survey was conducted of 945 rural and small town voters in California in March 2008. Rural and small town voters were identified by excluding Bay Area and Southern California counties, excluding counties with a population density exceeding 110 people per square mile and then, from the remaining 29 counties, excluding cities with a population over 25,000. The rural counties were divided into three regions (Central Valley, Sierra and Northern) with an equal number of voters (315) surveyed in each region. This document summarizes the results for all three regions. Separate Key Findings documents summarize each of these regional surveys. The margin of error for the survey results as a whole is plus or minus 3.1% at a 95% confidence level.

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This material was made possible by funds received from the California Department of Health Services, under contract # 04-35335.

Finding #12

- 65% of California's key opinion leaders surveyed support implementation of tobacco-licensing requirements;[12]

[12] California Department of Health Services, Tobacco Control Section. *Final Report, Independent Evaluation of the California Tobacco Control Prevention & Education Program: Waves 1, 2, and 3 (1996-2000).* 2003. Available at: www.dhs.ca.gov/tobacco/documents/pubs/WavesComplete.pdf.

Finding #13

- Over 90% of enforcement agencies surveyed in 2000 rated license suspension or revocation after repeated violations as an effective strategy to reduce youth access to tobacco;[13] and

[13] California Department of Health Services, Tobacco Control Section. *Final Report, Independent Evaluation of the California Tobacco Control Prevention & Education Program: Waves 1, 2, and 3 (1996-2000).* 2003. Available at: www.dhs.ca.gov/tobacco/documents/WavesComplete.pdf .

Final Report

April 2003

Independent Evaluation of the California Tobacco Control Prevention & Education Program: Waves 1, 2, and 3 (1996-2000)

California Department of Health Services
Tobacco Control Section

Prepared by
The Independent Evaluation Consortium of:

The Gallup Organization
Stanford University
University of Southern California

Gray Davis, Governor
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California Health and Human Services Agency

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

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- **Local TCP efforts to monitor illegal sales of cigarettes were moderately correlated with increases in the percent of 10th-grade youth who were refused sale of cigarettes (correlation = .34, n.s.).**
- **No relationships between local TCP youth access efforts and changes in cigarette purchase attempts among 8th-grade youth were found.**

Youths' Perceptions of the Accessibility of Cigarettes

The second set of outcomes we examined were three measures of youths' perceptions about how easy it is to get tobacco in general, from retail sources, and from social sources. Nearly all evaluation counties showed decreases in 8th- and 10th-grade youths' perceptions of the ease of getting cigarettes in general and from social and retail sources. However, the associations between local TCP YA efforts and youths' perceived ease of getting cigarettes were either negligible or un-interpretable.

Time Trends in Community-Level YA Outcomes

YA Policy Passage

A total of 53 city and county jurisdictions encompassing 16.5 percent of the California population passed YA policies during the Independent Evaluation period. These 53 jurisdictions were contained within the following 19 counties:

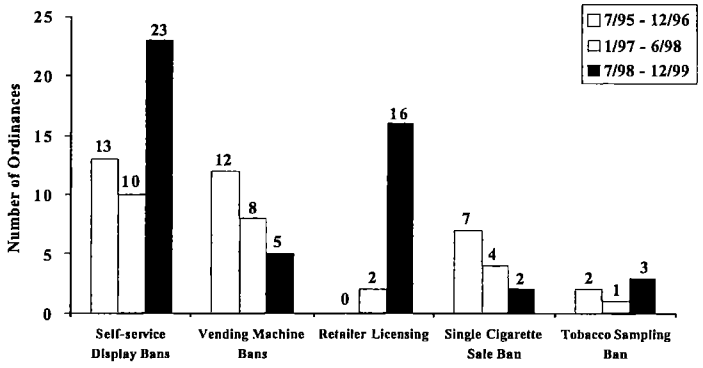
Contra Costa (Antioch, Danville, El Cerrito, Lafayette, Pinole, Pittsburg, Pleasant Hill, Richmond, San Ramon, Walnut Creek, Contra Costa County)
Kings (Avenal, Corcoran, Hanford)
Lassen (Lassen County)
Los Angeles (Pasadena, San Fernando)
Marin (Corte Madera, Novato, San Rafael)
Merced (Los Banos)
Orange (Laguna Hills)
San Bernardino (Redlands)
San Diego (Chula Vista, Coronado, El Cajon, Imperial Beach, Oceanside, San Diego, San Marcos, Vista)
San Francisco (city and county)
San Luis Obispo (San Luis Obispo)
San Mateo (Belmont, Colma, East Palo Alto, Millbrae, Redwood City, San Carlos, San Mateo, San Mateo County)
Santa Barbara (Buellton, Santa Barbara, Santa Barbara County)
Santa Clara (San Jose)
Santa Cruz (Santa Cruz, Scotts Valley, Santa Cruz County)
Siskiyou (Weed)
Tulare (Exeter, Tulare)
Ventura (Thousand Oaks)
Yolo (Yolo County)

Altogether, 108 new YA ordinance provisions were passed during the Independent Evaluation. Figure 3-D2 displays the number of specific types of YA ordinance provisions passed during each evaluation period.

Ordinance provisions banning retail self-service cigarette displays were passed most often (n = 46), followed by cigarette vending machine bans (n = 25), and licensing for retailers selling tobacco products (n = 18). In 2000, there were large increases in the number of provisions banning self-service displays and requiring retail licensing. As part of the STAKE Act, implemented in January 1996, state law prohibits the sale of tobacco products from vending machines except in places where minors are excluded by law. This state law may, in part, account for the steady decrease across evaluation periods in the number of jurisdictions that passed vending machine bans. The law does not prohibit local jurisdictions from enacting ordinances to completely ban tobacco vending machines.

Two types of provisions had low levels of passage, bans on sales of single cigarettes (n = 13) and bans on tobacco sampling (n = 6). Passage of single cigarette sales bans showed a steady decline over time, and passage of tobacco sampling bans was low at each evaluation period. These patterns are not surprising given the implementation of the MSA between state attorneys general and the tobacco industry in 1998. The minimum pack size provision of the MSA is only in effect through December 2001, however, which means local laws may still be needed in the long term.

Figure 3-D2
Specific Types of Local YA Ordinance Provisions Passed In Each Evaluation Period



Source: American Nonsmokers' Rights Foundation, 2000; In-house review of local ordinance documents, 2000.

Success Story: The local TCP project director survey data indicated that, compared to other counties, **Contra Costa County** had the highest percentage of overall effort (23 percent) devoted to passing and strengthening local ordinances related to youth access to tobacco

products in 2000. In December of 1998, the county passed a Tobacco-Free Youth Ordinance that included provisions to ban self-service displays and establish tobacco retailer licensing. Following the county Board of Supervisors' lead, 10 of Contra Costa's 19 cities passed similar Tobacco-Free Youth Ordinances. As a result of these efforts, over 60 percent of Contra Costa's population is covered by some of the strongest laws in the state to curb YA to tobacco. In addition, Contra Costa has set a legislative example for other counties to follow.

Table A-3 in the appendix provides more details on the type of YA ordinance activity by jurisdiction.

Enforcement of YA Policies

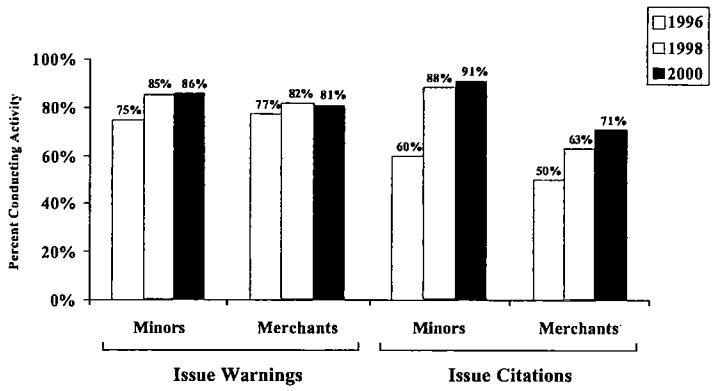
In California, under Penal Code 308 it is illegal to knowingly sell or give tobacco to someone under 18 years of age, and it is illegal for someone under 18 years of age to buy or possess tobacco. Local law enforcement agencies such as city police departments and county sheriffs are responsible for the enforcement of Penal Code 308. The Independent Evaluation surveyed all enforcement agencies in the 18 evaluation counties (N = 226).

Warnings and Citations

Figure 3-D3 shows that the vast majority of YA enforcement agencies have been active by issuing warnings and citations to both minors and merchants. Between 1996 and 2000, we observed no significant increases in the proportion of enforcement agencies that issued *warnings* to minors (from 75 percent to 86 percent) or merchants (from 77 percent to 81 percent).

Over time there has been a steep increase in the number of enforcement agencies that issued *citations* to both minors (from 60 percent to 91 percent, $p<.01$) and merchants (from 50 percent to 71 percent, $p<.01$), but the majority of the increase occurred between 1996 and 1998, with no significant increases between 1998 and 2000. Differences between urban and rural counties on warnings and citations for minors and merchants were also not statistically significant.[8]

Figure 3-D3
Percent of Agencies Issuing Warnings and Citations for Youth Access Violations by Minors and Merchants



Source: Youth Access Enforcement Survey, 1996, 1998, and 2000.

The level of enforcement of Penal Code 308 via citations appears to be increasing over time, but overall, more agencies are issuing citations to minors than to merchants. For example, in 2000, 91 percent of enforcement agencies reported issuing citations to minors compared to 71 percent that reported issuing citations to merchants.

Compliance Checks

Compliance checks are undercover buying attempts conducted by enforcement agencies to determine if stores selling tobacco are in compliance with Penal Code 308. Research over the past decade shows that unannounced compliance checks are the most effective activity to reduce the rate of illegal tobacco sales to minors (Altman, et al., 1999; Feighery, et al., 1991; Jason, et al. 1991). Independent Evaluation data from key opinion leaders has consistently indicated that they believe that compliance checks increase compliance with YA laws. In 2000, 85 percent of key opinion leaders agreed that compliance checks were an effective means of reducing youth access to tobacco.

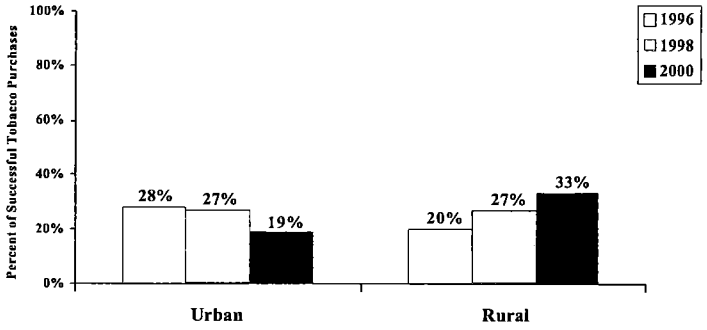
Between 1996 and 2000, the proportion of law enforcement agencies conducting compliance checks has been 30 percent to 40 percent, with 35 percent of agencies reporting they conducted at least one compliance check in 2000. Agencies that conducted at least one compliance check in 2000 estimated that 55 percent of tobacco outlets in their jurisdiction were visited, on average.

Prior to 2000, the U.S. Food and Drug Administration (FDA) conducted 2,000 to 4,000 compliance checks annually. After a Supreme Court ruling in March of 2000, the FDA no longer has the authority to conduct compliance checks in its efforts to regulate tobacco, as it

had done since 1996. This judicial ruling makes it more important for statewide TCP efforts to encourage law enforcement agencies to conduct compliance checks at the local level.

Buy Rates. In our 2000 law enforcement agency survey, we found that those agencies that conducted compliance checks reported that, on average, 19 percent of purchase attempts resulted in successful buys. This rate is higher than the 13 percent illegal tobacco sales rate for California reported in 2000 (Tobacco Control Section, 2000). In the Independent Evaluation data, the illegal tobacco sales rate for urban and rural counties showed different patterns. The buy rate in urban counties decreased from 28 percent in 1996 to 19 percent in 2000, whereas the buy rate increased in rural counties over time from 20 percent to 33 percent.[9] Figure 3-D4 shows that the estimate of successful buys was higher in rural areas than urban areas in 2000 ($p<.10$).

Figure 3-D4
Successful Youth Tobacco Purchases During
Sting Operations in Urban and Rural Counties



Note: Buy rates are estimates from agencies conducting at least one sting operation in the last 12 months.
Source: Youth Access Enforcement Survey, 1996, 1998, and 2000.

Success Story: In **Yuba County,** the local TCP focused 40 percent of its total tobacco control efforts on reducing tobacco availability to youth. Specifically, 25 percent of their effort focused on encouraging enforcement of Penal Code (PC) 308 with the goal of increasing compliance checks to three per year in Marysville, Yuba's largest incorporated city. The Independent Evaluation surveys of YA law enforcement agencies revealed that TCP's efforts seemed to have worked. The Marysville Police Department reported conducting three compliance checks in the last year. Their most recent compliance check operation resulted in just two successful buys out of 25 attempts, and they estimated that in the past 12 months they visited 98 percent of stores that sell tobacco in the city.

Predictors of YA Enforcement. Understanding what factors are related to higher levels of YA enforcement could provide important clues for intervention by local TCPs. The Independent Evaluation examined the relationship of the following set of six enforcement agency characteristics to the strongest type of YA enforcement, compliance checks: belief

that the YA issue is important, belief that enforcement of illegal sales is important, belief that enforcement of youth tobacco possession laws is important, perception that retailers are compliant, beliefs about the barriers to enforcement, and perceptions about the extent of collaboration with other groups on enforcing youth access policies.[10]

In 2000, as in 1998, agencies were more likely to have conducted compliance checks during the previous year if they reported:

- Lower perceived barriers to enforcement ($p<.01$).
- Higher collaboration with other individuals or groups concerned with enforcement of YA laws ($p<.01$).

Over the three evaluation periods, three barriers have consistently ranked as the top barriers to the enforcement of YA tobacco policies: limited staff (87 percent), insufficient budget (78 percent), and low priority in the community (75 percent). The majority of agencies (60 percent) did not rate insufficient community leadership as a barrier in any evaluation period.

Higher collaboration with other organizations was also found to be a significant predictor of ETS enforcement, as reported previously. Agencies reported higher collaboration in 1998 than 1996 with all queried groups (health departments, government officials, voluntary health organizations, educational organizations, merchant & business organizations, and tobacco prevention coalitions), but collaboration did not increase further between 1998 and 2000. In 2000, YA enforcement agencies reported collaborating most frequently with educational organizations such as local schools.

Perceived Effectiveness of Tobacco Licenses for Store Owners

12 At all three evaluation periods, adults and key opinion leaders were asked if they agreed that "Store owners should need a license to sell cigarettes just like alcoholic beverages." Since 1996, over 70 percent of adults and 65 percent of key opinion leaders have indicated that they agree or strongly agree with this statement. Similarly, over 70 percent of enforcement agencies have consistently rated tobacco merchant licensing as effective (ratings greater or equal to 4 on a 7 point scale). These percentages indicate continued strong support for tobacco merchant licensing in California communities. In addition, in 2000, over 90 percent

13 of YA enforcement agencies rated suspension or revocation of license after repeated infractions as an effective strategy for reducing YA.

Time Trends in Individual-Level YA Outcomes

Ease of Getting Cigarettes

In 1996, 1998, and 2000, youth were asked how easy they thought it would be to obtain cigarettes. In 1998 and 2000, the set of questions about where youth got their tobacco was expanded to include the ease of obtaining cigarettes specifically from retail and social sources. The data show that by 2000, fewer youth believed it would be "sort of easy" or "very easy" to obtain cigarettes, in general and from retail or social sources, specifically.

Finding #14

(l) Ninety-four cities and counties in California have passed tobacco retailer licensing ordinances in an effort to stop minors from smoking;[14] and

[14] American Nonsmokers' Rights Foundation. *California Municipalities With Ordinances Restricting Youth Access To Tobacco.* 2008. Available at: http://talc.phlaw.org/pdf_files/0021.pdf.

ANRF AMERICAN NONSMOKERS' RIGHTS FOUNDATION

Defending your right to breathe smokefree air since 1976

CALIFORNIA MUNICIPALITIES WITH LAWS RESTRICTING YOUTH ACCESS TO TOBACCO

July 1, 2009

Note: The jurisdictional effect of county-level laws varies widely. Look for a plus symbol (+) next to each county with a law that covers both incorporated and unincorporated areas of the county. A county without a symbol means that the county law covers unincorporated areas only.

Local Laws Restricting Self Service Tobacco Displays*

Name	County
Alameda County	Alameda
Antioch	Contra Costa
Arroyo Grande	San Luis Obispo
Avenal	Kings
Bakersfield	Kern
Baldwin Park	Los Angeles
Banning	Riverside
Beaumont	Riverside
Belmont	San Mateo
Belvedere	Marin
Berkeley	Alameda
Brawley	Imperial
Brentwood	Contra Costa
Calimesa	Riverside
Calistoga	Napa
Camarillo	Ventura
Carpinteria	Santa Barbara
Carson	Los Angeles
Chico	Butte
Chula Vista	San Diego
Clayton	Contra Costa
Coachella	Riverside
Colton	San Bernardino
Concord	Contra Costa
Contra Costa County	Contra Costa
Corcoran	Kings
Corona	Riverside
Coronado	San Diego
Corte Madera	Marin
Costa Mesa	Orange
Cotati	Sonoma
Danville	Contra Costa
Davis	Yolo
Desert Hot Springs	Riverside
Dublin	Alameda
El Cajon	San Diego
El Centro	Imperial
El Cerrito	Contra Costa
El Segundo	Los Angeles
Encinitas	San Diego
Exeter	Tulare
Fairfax	Marin
Fort Bragg	Mendocino
Fresno	Fresno
Garden Grove	Orange
Gardena	Los Angeles
Goleta	Santa Barbara
Grover Beach	San Luis Obispo
Hanford	Kings
Healdsburg	Sonoma
Hemet	Riverside
Hollister	San Benito
Imperial	Imperial
Imperial Beach	San Diego
La Habra	Orange
La Mesa	San Diego
Lafayette	Contra Costa
Laguna Beach	Orange
Laguna Hills	Orange
Lake Elsinore	Riverside
Larkspur	Marin
Lassen County+	Lassen
Long Beach	Los Angeles
Los Angeles	Los Angeles
Los Banos	Merced
Mammoth Lakes	Mono
Marin County	Marin
Martinez	Contra Costa
Mendocino County	Mendocino
Menlo Park	San Mateo
Merced	Merced
Mill Valley	Marin
Monterey County	Monterey
Moraga	Contra Costa
Moreno Valley	Riverside
Mountain View	Santa Clara
Murrieta	Riverside
Napa	Napa
Napa County	Napa
National City	San Diego
Nevada City	Nevada
Newark	Alameda
Norco	Riverside
Norwalk	Los Angeles
Novato	Marin
Oakland	Alameda
Oakley	Contra Costa
Oceanside	San Diego
Orinda	Contra Costa

Name	County
Orland	Glenn
Pacifica	San Mateo
Palo Alto	Santa Clara
Paradise	Butte
Pasadena	Los Angeles
Perris	Riverside
Petaluma	Sonoma
Pinole	Contra Costa
Pismo Beach	San Luis Obispo
Pittsburg	Contra Costa
Pleasant Hill	Contra Costa
Poway	San Diego
Rancho Cucamonga	San Bernardino
Redlands	San Bernardino
Richmond	Contra Costa
Riverside	Riverside
Riverside County	Riverside
Roseville	Placer
Salinas	Monterey
San Anselmo	Marin
San Bernardino County	San Bernardino
San Diego	San Diego

Name	County
San Diego County	San Diego
San Fernando	Los Angeles
San Francisco	San Francisco
San Jacinto	Riverside
San Jose	Santa Clara
San Luis Obispo	San Luis Obispo
San Luis Obispo County	San Luis Obispo
San Marcos	San Diego
San Mateo	San Mateo
San Mateo County	San Mateo
San Rafael	Marin
San Ramon	Contra Costa
Santa Barbara	Santa Barbara
Santa Barbara County	Santa Barbara
Santa Clara	Santa Clara
Santa Cruz	Santa Cruz
Santa Cruz County	Santa Cruz
Santa Monica	Los Angeles
Santa Rosa	Sonoma
Santee	San Diego
Sausalito	Marin

Name	County
Scotts Valley	Santa Cruz
Sebastopol	Sonoma
Selma	Fresno
Shafter	Kern
Sonoma	Sonoma
Sonoma County	Sonoma
South Pasadena	Los Angeles
Stanton	Orange
Susanville	Lassen
Temecula	Riverside
Tiburon	Marin
Tulare	Tulare
Ukiah	Mendocino
Union City	Alameda
Vallejo	Solano
Vista	San Diego
Walnut Creek	Contra Costa
Watsonville	Santa Cruz
West Hollywood	Los Angeles
West Sacramento	Yolo
Willows	Glenn
Windsor	Sonoma
Woodland	Yolo
Yolo County	Yolo
Yountville	Napa

TOTAL LAWS: 157

These laws ban displays of tobacco that the public has access.to without the assistance of a store employee. Some exempt cartons from this prohibition.

Local Laws Licensing Tobacco Retailers**

Name	County
Antioch	Contra Costa
Arroyo Grande	San Luis Obispo
Baldwin Park	Los Angeles
Banning	Riverside
Beaumont	Riverside
Berkeley	Alameda
Brentwood	Contra Costa
Brisbane	San Mateo
Burbank	Los Angeles
Calimesa	Riverside
Carson	Los Angeles
Clayton	Contra Costa
Coachella	Riverside
Colma	San Mateo
Concord	Contra Costa

Name	County
Contra Costa County	Contra Costa
Corona	Riverside
Daly City	San Mateo
Danville	Contra Costa
Davis	Yolo
Delano	Kern
Desert Hot Springs	Riverside
East Palo Alto	San Mateo
El Cajon	San Diego
El Cerrito	Contra Costa
El Segundo	Los Angeles
Elk Grove	Sacramento
Gardena	Los Angeles
Glendale	Los Angeles
Goleta	Santa Barbara

Name	County
Grover Beach	San Luis Obispo
Hemet	Riverside
Hollister	San Benito
Indian Wells	Riverside
Inglewood	Los Angeles
Kern County	Kern
Lafayette	Contra Costa
Lake Elsinore	Riverside
Lancaster	Los Angeles
Lawndale	Los Angeles
Long Beach	Los Angeles
Los Angeles	Los Angeles
Martinez	Contra Costa
Millbrae	San Mateo
Moreno Valley	Riverside

Name	County
Murrieta	Riverside
Nevada City	Nevada
Norco	Riverside
Oakland	Alameda
Oakley	Contra Costa
Orinda	Contra Costa
Pacifica	San Mateo
Palm Desert	Riverside
Pasadena	Los Angeles
Perris	Riverside
Pinole	Contra Costa
Pittsburg	Contra Costa
Pleasant Hill	Contra Costa
Portola Valley	San Mateo
Rancho Cordova	Sacramento
Rancho Mirage	Riverside
Redwood City	San Mateo

Name	County
Richmond	Contra Costa
Riverside	Riverside
Riverside County	Riverside
Roseville	Placer
Sacramento	Sacramento
Sacramento County	Sacramento
San Bruno	San Mateo
San Carlos	San Mateo
San Diego	San Diego
San Fernando	Los Angeles
San Francisco	San Francisco
San Jacinto	Riverside
San Luis Obispo	San Luis Obispo
San Luis Obispo County	San Luis Obispo
San Mateo	San Mateo
San Mateo County	San Mateo

Name	County
San Pablo	Contra Costa
San Rafael	Marin
Santa Ana	Orange
Santa Barbara	Santa Barbara
Santa Barbara County	Santa Barbara
Santa Monica	Los Angeles
Sierra Madre	Los Angeles
South Pasadena	Los Angeles
South San Francisco	San Mateo
Tehachapi	Kern
Temecula	Riverside
Ukiah	Mendocino
Vista	San Diego
Walnut Creek	Contra Costa
Willits	Mendocino
Yolo County	Yolo

TOTAL LAWS: 94

***Only laws that provide for the suspension or revocation of the license if the merchant is repeatedly caught selling tobacco to minors are included here.*

[+]Law pertains to both incorporated and unincorporated areas of county.

Only laws reviewed and analyzed by ANR Foundation staff using standardized criteria are included on these lists. Omission of a particular law may be the result of differences of opinion in interpretation, or because staff have not yet analyzed the law.

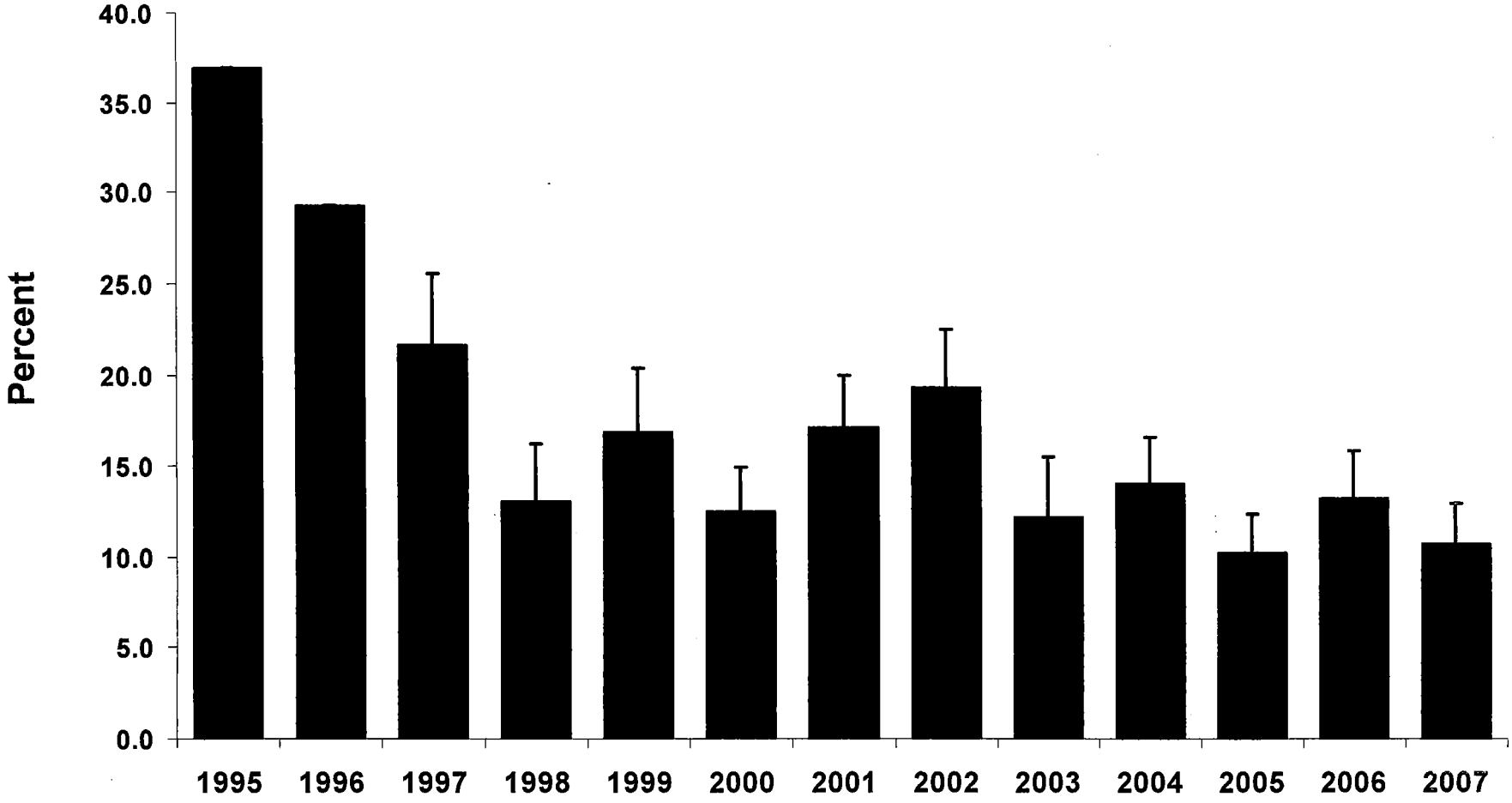
May be reprinted with appropriate credit to the American Nonsmokers' Rights Foundation.

Finding #15 & 16

- Nearly 11% of all tobacco retailers unlawfully sold to minors in 2007;[15]
- Non-traditional tobacco retailers such as deli, meat, and donut shops sold to minors in 2007 at a much higher rate than the statewide average, as high as 16%;[16]

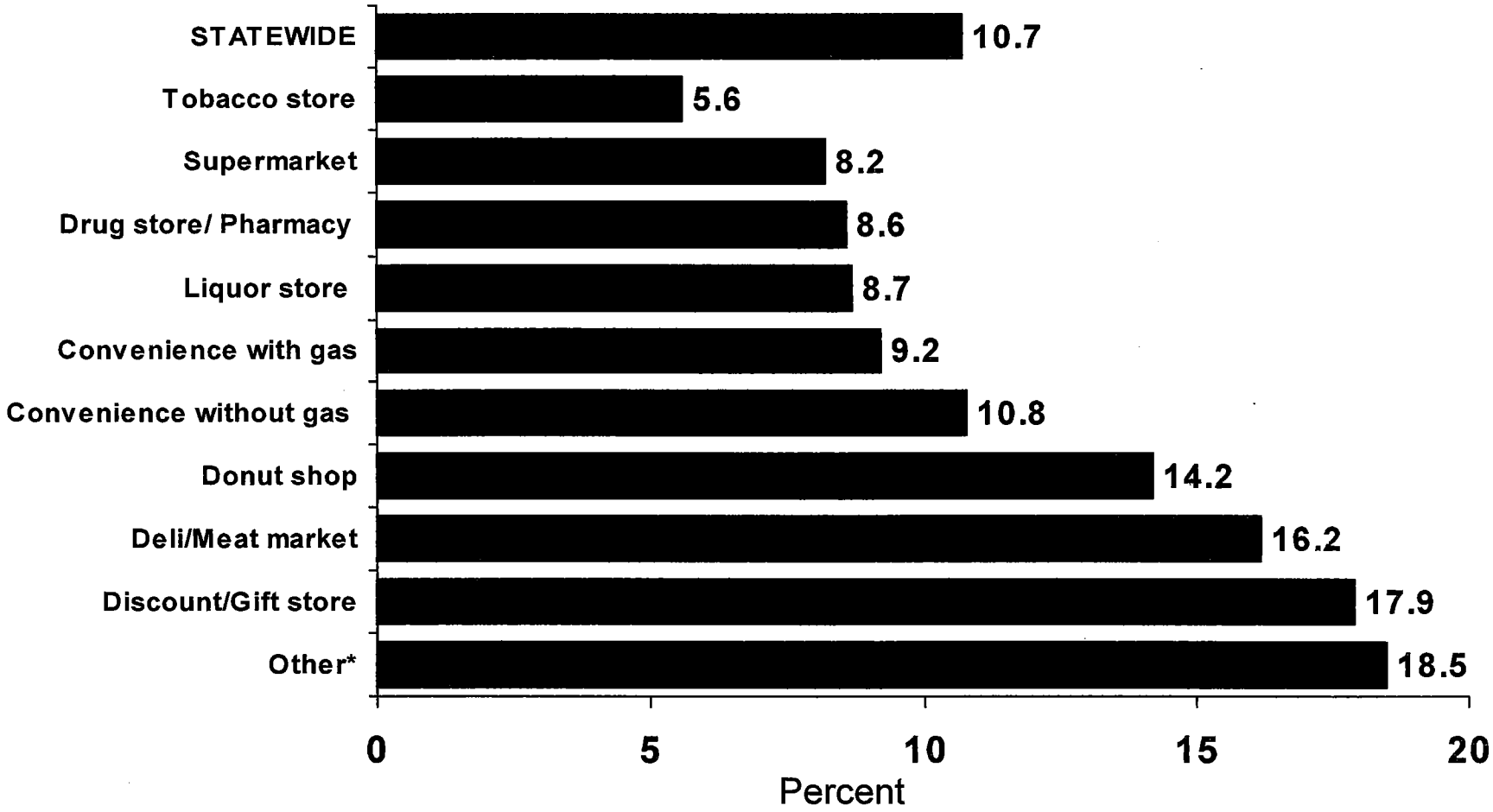
[15] [16]California Department of Health Services, Tobacco Control Section. *Youth Purchase Survey, 2007: Percent of Retailers Selling Tobacco to Youth by Store Type.* 2007 (graph on file with TALC).

Percent of Retailers Selling Tobacco to Youth, 1995-2007



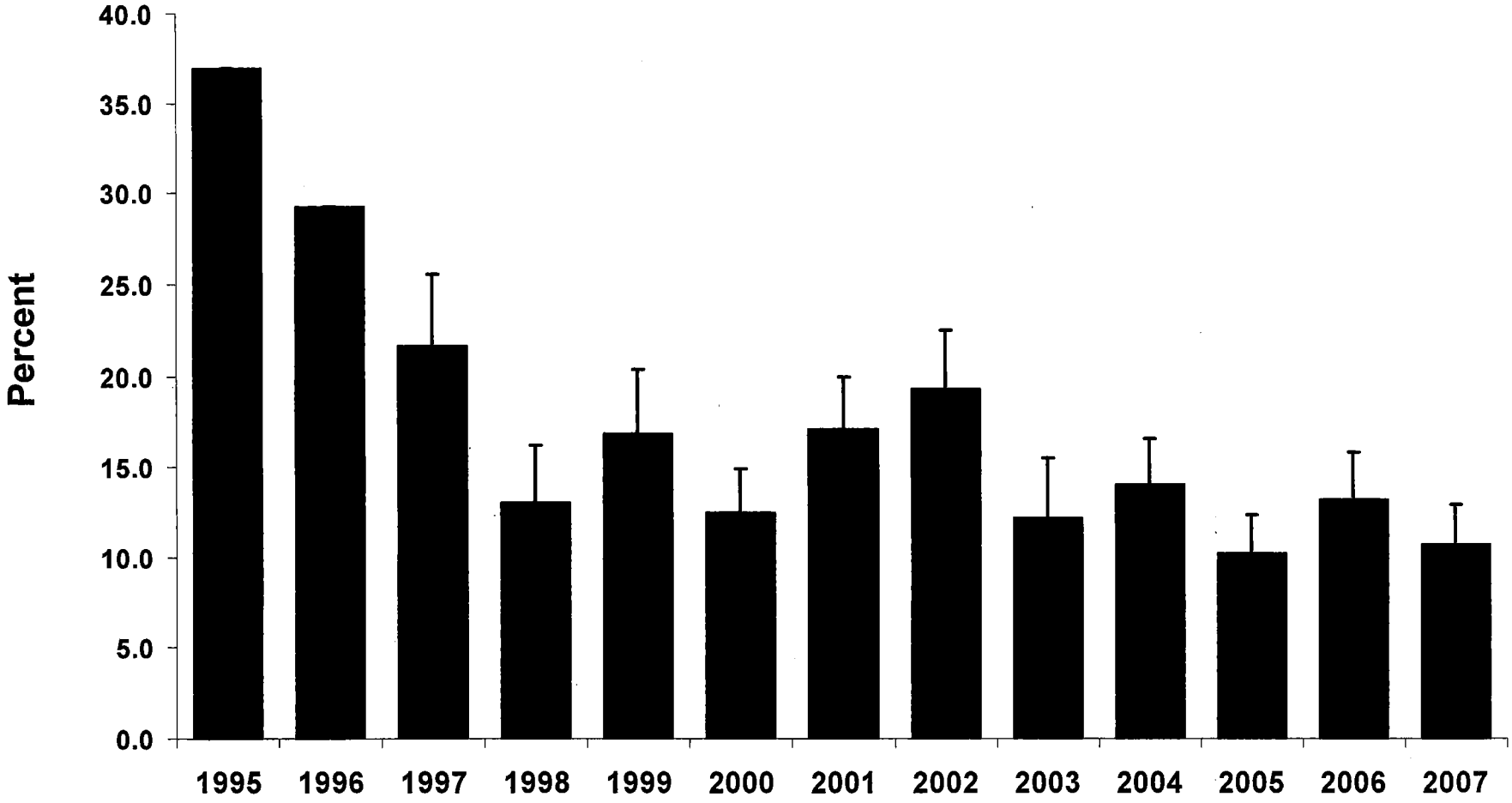
Attempted buy protocol 1995-1996; Actual buy protocol 1997-2007.
Source: Youth Tobacco Purchase Survey, 1995-2007.
Prepared by: California Department of Public Health, Tobacco Control Section, July 2007.

Percent of Retailers Selling Tobacco to Youth by Store Type, 2007



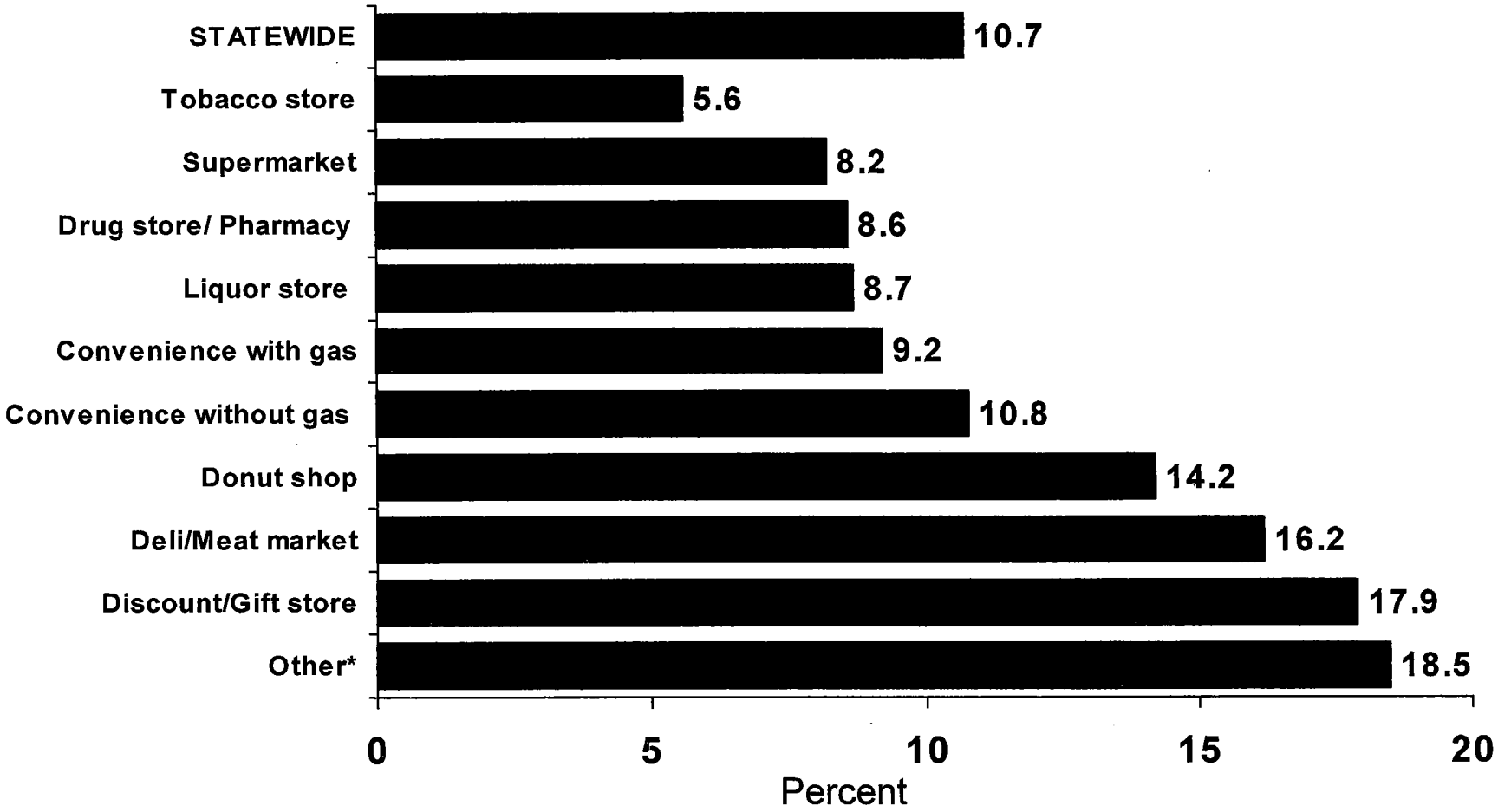
Source: Youth Tobacco Purchase Survey, 2007. Prepared by: California Department of Public Health, Tobacco Control Section, July 2007.
*Other includes gas station only, produce market, restaurant, and others.
Sales rates are standardized to an equal distribution of youth's gender and age.

Percent of Retailers Selling Tobacco to Youth, 1995-2007



Attempted buy protocol 1995-1996; Actual buy protocol 1997-2007.
Source: Youth Tobacco Purchase Survey, 1995-2007.
Prepared by: California Department of Public Health, Tobacco Control Section, July 2007.

Percent of Retailers Selling Tobacco to Youth by Store Type, 2007



Source: Youth Tobacco Purchase Survey, 2007. Prepared by: California Department of Public Health, Tobacco Control Section, July 2007.
*Other includes gas station only, produce market, restaurant, and others.
Sales rates are standardized to an equal distribution of youth's gender and age.

Finding #17
Teens surveyed in 2002 say they bought their cigarettes at: gas stations (58%), liquor stores (45%), and supermarkets and small grocery stores (29% combined);[17]

[17]California Department of Health Services, Tobacco Control Section. *Final Report, Tobacco Control Successes in California: A Focus on Young People, Results from the California Tobacco Surveys, 1990-2002*. 2003, p. 11-12. Available at: www.dhs.ca.gov/tobacco/documents/eval/2003CTSReport.pdf.

FINAL REPORT

October, 2003

Tobacco Control Successes in California: A Focus on Young People, Results from the California Tobacco Surveys, 1990-2002

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

Chapter
11

KEY FINDINGS
Limiting Youth Access to Cigarettes

1) **The perceived ease of buying a few cigarettes has continued to decline since 1996.** This decline was highly significant among never smokers and experimenters. For example, among committed never smokers, perceived ease declined from 29.1% in 1999 to 17.6% in 2002, a factor decline of 39.5%.

2) **The percentage of all 15- to 17-year olds reporting that they thought it would be easy to buy a pack of cigarettes declined significantly between 1999 and 2002** (40.8% to 34.2%; a factor decline of 16.2%). However, among ever smokers the percentages were the same in 1999 and 2002.

3) **Adolescent never smokers' perception that cigarettes are easy to get decreased between 1996 and 2002**. In 2002, 45.9% of adolescent never smokers said cigarettes were easy to get. This level was 48.0% in 1999, but was significantly higher in 1996, at 57.2%.

4) **For the first time since 1990, there has been a decrease in the percentage of never smokers reporting that they have been offered cigarettes**, from 37.0% in 1999 to 31.5% in 2002, a factor change of 14.9%. Nearly all the decline was among committed never smokers, but in 2002, 26.5% of this group still reported an offer, something tobacco control should attempt to reduce further.

5) **Most adolescent smokers continued to obtain cigarettes through social sources.** Among ever smokers in 2002, 58.2% reported their usual source of cigarettes as "someone gives them to me." This rate was much higher for experimenters (69.2%), than for daily established smokers (16.4%), who generally buy their cigarettes themselves or through an intermediary.

6) **In 1999 and 2002, very few adolescents reported obtaining their cigarettes via alternative commercial sources**; none of the adolescents in the samples reported using the Internet to buy cigarettes in the last year.

7) **As in previous years, in 2002, most adolescents who purchased cigarettes did so at outlets most likely to sell tobacco to minors:** gas stations, liquor stores, and small grocery stores.

8) **In 2002, only about one quarter (24.5%) of adolescents who usually bought their own cigarettes were asked for ID the last time they attempted to purchase cigarettes**, indicating a clear need for further enforcement of this law.

Limiting Youth Access to Cigarettes

Introduction

There is debate in the tobacco control community on the utility of enforcing laws restricting youth access to tobacco through commercial sources (Glantz, 1996; DiFranza 2000, 2002; DiFranza et al., 2001; Fichtenberg & Glantz, 2002; Ling et al., 2002). Some have criticized the dedication of scarce tobacco control resources to such enforcement efforts. This criticism is based on the evidence that most adolescent experimenters obtain their cigarettes from social rather than commercial sources (Emery et al., 1999; Difranza & Coleman, 2001; Castrucci et al., 2002), and because of the limited evidence to suggest that access law enforcement reduces youth smoking prevalence (Rigotti et al., 1997; Forster et al., 1997; Altman et al., 1999). However, enforcement of access laws may work indirectly to influence smoking uptake by strengthening societal anti-tobacco norms (Gilpin et al., 2004). The Federal government, through the Synar Amendment, has provided significant incentives for states to work in this area by making federal alcohol and substance abuse block grant funding contingent upon states demonstrating reductions in illegal sales of tobacco to minors (SAMHSA, 1996).

Since California enacted the Stop Tobacco Access to Kids Enforcement (STAKE) Act in 1994, results of annual random compliance checks to determine the statewide rate of illegal sales to minors have varied (Landrine et al., 2000). Steady declines in sales were reported between 1995 and 1997, 37% in 1995, 29.3% in 1996, and 21.7% in 1997 (CDHS, 2000). After seeing some increases in sales to minors between 1999 and 2002, California reported a drop in sales between 2002 and 2003, from about 19% in 2002 to 12.2% in 2003 (Rapaport, 2003).

In January 2002, new tobacco legislation went into effect in California that should affect youth access to tobacco through commercial sources. Changes to the Business and Professional Code (BP2295) tightened existing laws on sales to minors and the STAKE Act, and expanded the authority of the California Department of Health Services to investigate commercial sales of tobacco to minors via telephone marketing, mail offers, and over the Internet. Another recent code change (BP22962) also contributes to restricting access by prohibiting self-service display or sales of cigarettes.

Reducing youth access remains a priority area of the California Tobacco Control Program (TEROC, 2003). In 2000, the Program introduced components aimed at educating the public about the role of social sources (i.e., peers or family members) in enticing youth to smoke, and the need to work toward limiting the availability of cigarettes from such sources.

This chapter presents information obtained from the 2002 and earlier California Tobacco Surveys (CTS) specific to adolescents' access to cigarettes. Section 1 of the chapter presents youth perceptions regarding how easy it is for young people to obtain cigarettes,

and how those perceptions vary by smoking status. Section 2 describes adolescents' usual sources of cigarettes, including offers by peers, commercial versus social sources, and whether youth are obtaining cigarettes from alternative commercial sources such as the Internet. Section 3 looks at adolescent smokers' report of being asked for ID. Section 4 summarizes the findings of the chapter.

1. Adolescents' Perceived Ease of Obtaining Cigarettes

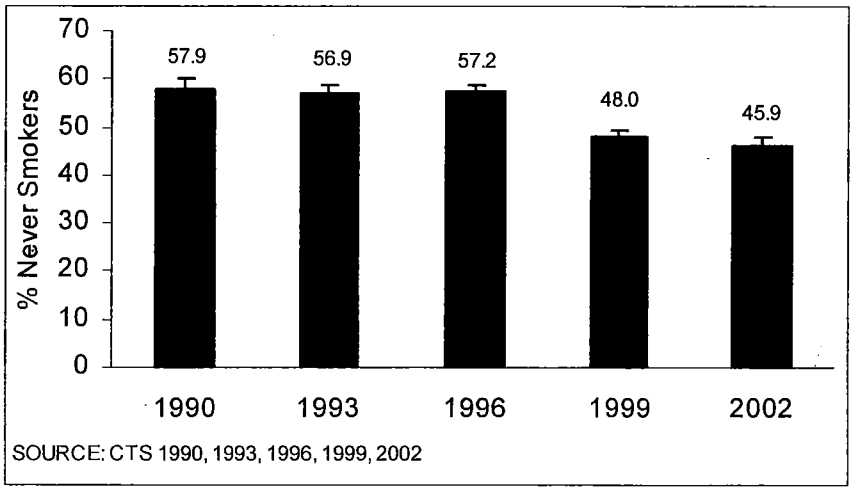
Public policies restricting youth access and the availability of social sources both influence adolescents' perceived ease of access to tobacco. Further, adolescents' perceptions of how easy or hard it is to obtain cigarettes may reflect changing social norms regarding adolescent tobacco use.

From 1990 through 2002, the CTS asked adolescent never smokers (not even a puff) the following question:

> *Do you think it would be easy or hard for you to get cigarettes if you wanted some?*

Figure 11.1 illustrates the recent decline in the percentage of never smokers who thought cigarettes would be easy to get. This perception did not change among never smokers between 1990 and 1996. However, between 1996 and 1999, the percentage of never smokers thinking cigarettes were easy to get declined significantly, with a further but non-significant decline from 1999 to 2002, for an overall decline by a factor of 19.7%

Figure 11.1: Never Smokers Who Think It Would Be Easy to Get Cigarettes



SOURCE: CTS 1990, 1993, 1996, 1999, 2002

Appendix Table A.11.1 summarizes demographic subgroup differences in the percentage of never smokers reporting that cigarettes would be easy to get at each time point from 1990 to 2002.

In addition to the above question asked of never smokers, beginning in 1996, the following question asked all respondents specifically how easy they thought it would be to purchase cigarettes:

Do you think it would be easy, somewhat difficult, or hard for you to buy

A pack of cigarettes?

A few cigarettes [not a pack or carton])?

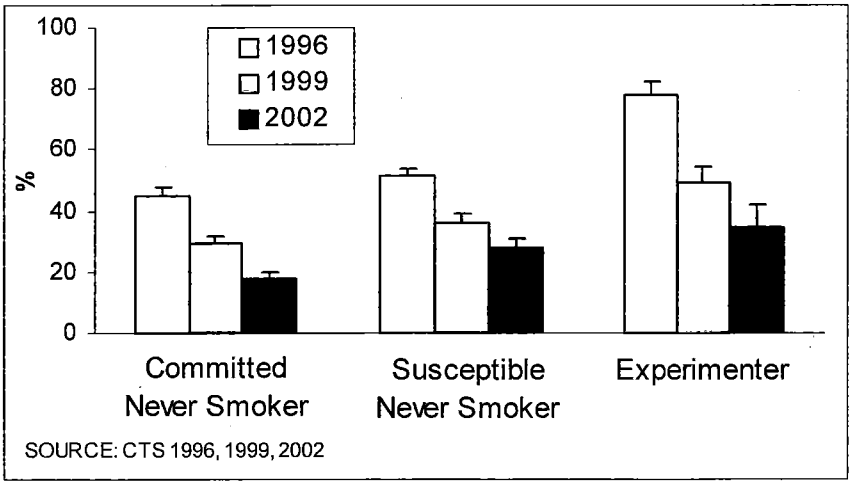
Since the commercial sale of single cigarettes is illegal, adolescent perceptions that purchase of a few cigarettes is easy might indicate either that they believe retailers are selling cigarettes illegally, or that cigarettes can easily be purchased from non-commercial (e.g., social) sources.

Because a youth must be 18 years old to purchase tobacco legally, it would be expected that 15- to 17-year-old adolescents, who look like they might be over 18 years of age, might try to purchase cigarettes by the pack commercially (possibly with the help of false identification). However, 12- to 14-year-old adolescents would be more likely to purchase a few cigarettes from a social source. Thus, the data are analyzed for two age groups by smoking experience.

Overall, in 2002, among 12- to 14-year-olds, 23.8±1.7% perceived that it would be easy to buy a few cigarettes, a significant decrease by a factor of 32.1% from 35.0±1.9% in 1999, and by a factor of 56.3% from 54.5±1.6% in 1996.

Figure 11.2 shows the results by smoking experience and indicates a continued declining trend in committed and susceptible never smokers and experimenters. The difference

Figure 11.2: Perception of Ease of Buying a Few Cigarettes (Ages 12-14 years)

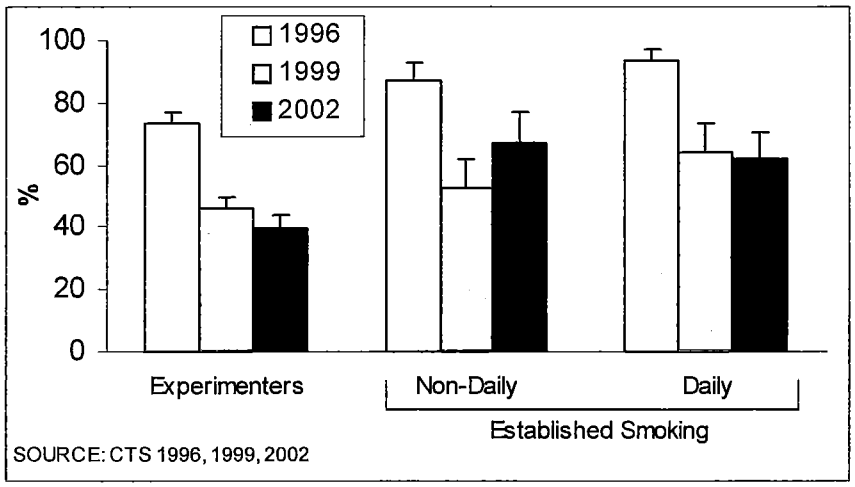


	1996	1999	2002
Committed Never Smoker	44.7	29.1	17.6
Susceptible Never Smoker	51.1	35.7	27.7
Experimenter	78.0	49.6	34.8

between each successive survey year was significant for all groups. In all years, susceptible never smokers were more likely to think that a few cigarettes were easy to buy than committed never smokers, and experimenters showed higher percentages than never smokers. The decline was most marked among experimenters and in 2002, there was no significant difference between experimenters and susceptible never smokers.

Among all 15- to 17-year-olds, 34.2±1.9% in 2002 thought it would be easy to buy a pack of cigarettes, which was significantly lower than the percentages in 1999 (40.8±1.9%) and in 1996 (69.8±1.9%), but as **Figure 11.3** shows, this was not the case for smokers. For all groups, experimenters and established smokers (non-daily and daily), the percentage perceiving that it would be easy to buy a pack of cigarettes dropped significantly between 1996 and 1999. However, the percentages in each group for 2002 were not significantly different than those in 1999. Thus, it was the never smokers whose perceptions about the ease of buying a pack that have declined.

Figure 11.3: Perception That It Is Easy to Buy a Pack Among Smokers (Ages 15-17)



	1996	1999	2002
Experimenters	73.2	45.7	39.9
Non-Daily	86.8	52.5	66.6
Daily	93.4	63.7	61.7

Appendix Tables A.11.2 and A.11.3 present the data on adolescents who report that it is easy to buy a few and a pack of cigarettes.

The data presented in this section indicate that the youngest adolescents with the least smoking experience are continuing to show declines in the percentages who perceive that cigarettes are easy to obtain. These are encouraging findings and these declines mirror the lower levels of experimentation among young adolescents.

2. Adolescent Sources of Cigarettes

As shown in Figure 11.1, almost half of never smokers think it is easy to get a few cigarettes, presumably from a peer. Perhaps these adolescents have been offered this opportunity or witnessed someone offering a peer a cigarette. Further, despite declines, the majority of 15- to 17-year-old established smokers think that it is easy to buy a pack of cigarettes. Thus, it is important to explore adolescents' sources of cigarettes.

Offer of a Cigarette

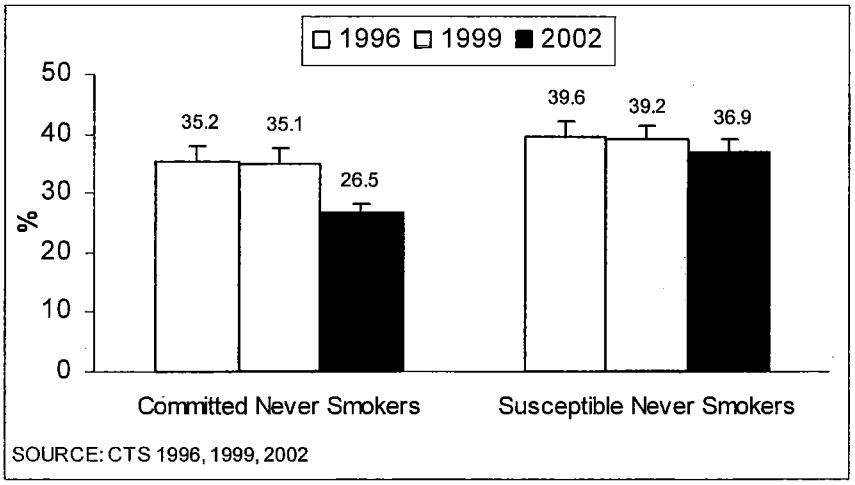
Given the reported decreases in adolescent smoking prevalence (see Chapters 2 and 7), the resulting decrease in the availability of social sources might affect the rate at which adolescents receive an offer of a cigarette. Starting with the 1996 CTS, all adolescent never smokers were asked the following question:

Have you ever been offered a cigarette?

Overall, the percentage of never smokers offered a cigarette was about the same in 1996 (37.4±1.8%) and 1999 (37.0±1.7%), but it declined significantly in 2002 (31.5±1.4%).

Figure 11.4 summarizes the responses to this question for committed and susceptible never smokers.

Figure 11.4: Never Smokers Offered Cigarettes



The offer of a cigarette to a committed never smoker may represent peer pressure to smoke and may be different from an offer to a susceptible never smoker, who might be looking for a cigarette. Since susceptible never smokers may be perceived by others to be more open to an offer of a cigarette than an adolescent who is committed not to smoke, there should be a higher percentage of susceptible never smokers than committed never

smokers who receive an offer. Yet, the group difference (35% vs. 39%) was small and nonsignificant, in both 1996 and 1999. Encouragingly, the percentage of committed never smokers who reported being offered a cigarette decreased substantially between 1999 and 2002, by a factor of 24.5%. However, at about one-quarter of the group, this percentage is still too high and needs to be a focus of further tobacco control efforts.

Appendix Table A.11.4 presents the data regarding offer of a cigarette according to demographic characteristics.

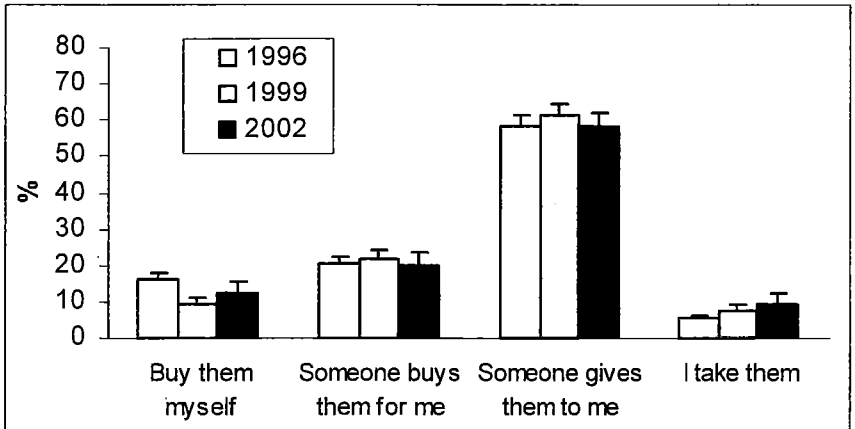
Social vs. Commercial Sources

The ongoing discussion and controversy in the tobacco control community about the value of restricting youth access to tobacco through commercial sources underscores the importance of examining where young smokers say they obtain their cigarettes. Since 1996, the CTS asked all adolescent ever smokers (excluding puffers) the following question:

> *Which of the following best describes how you usually {get/got} most of the cigarettes that you {smoke/smoked}?*
>
> *I {buy/bought} them myself,*
>
> *Someone in my home {buys/bought} them for me,*
>
> *Someone in my home {gives/gave} them to me,*
>
> *I {take/took} them from someone in my home without permission,*
>
> *Other people {buy/bought} them for me,*
>
> *Other people {give/gave} them to me,*
>
> *I {take/took} them from other people without permission, or*
>
> *I {take/took} them from a store without permission?*

For analysis purposes, these possible responses were grouped into the categories indicated in **Figure 11.5.** Clearly, most (close to 60%) adolescents who ever smoked generally obtained their cigarettes from social sources ("Someone gives them to me"). While there was a decline between 1996 and 1999 in the percentage reporting that they usually bought their cigarettes, the slight increase in 2002 made the difference between 2002 and 1996 nonsignificant. There appeared to be an increase in the relatively small percentage indicating that they take cigarettes without permission.

Figure 11.5: Adolescents' Usual Source of Cigarettes

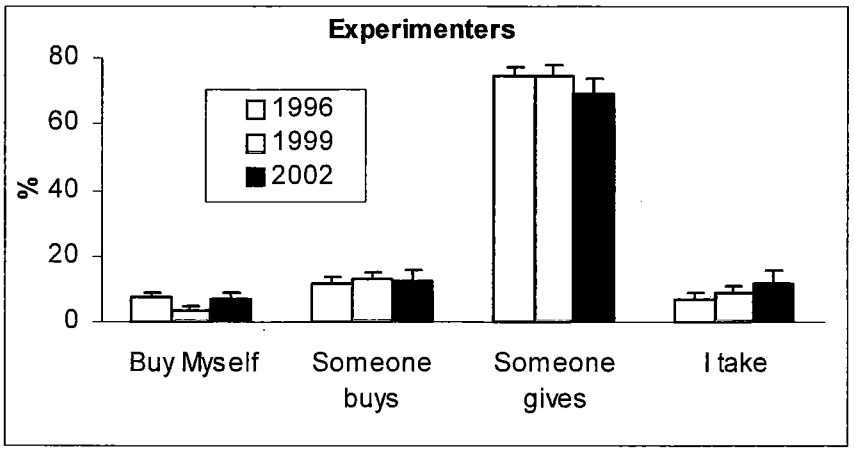


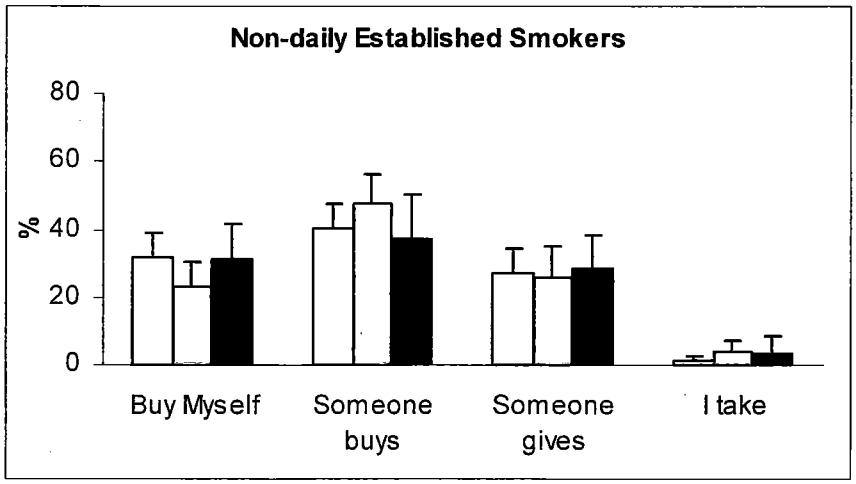
	1996	1999	2002
Buy them myself	16.1	9.3	12.7
Someone buys them for me	20.2	21.9	19.8
Someone gives them to me	58.4	61.3	58.2
I take them	5.3	7.5	9.3

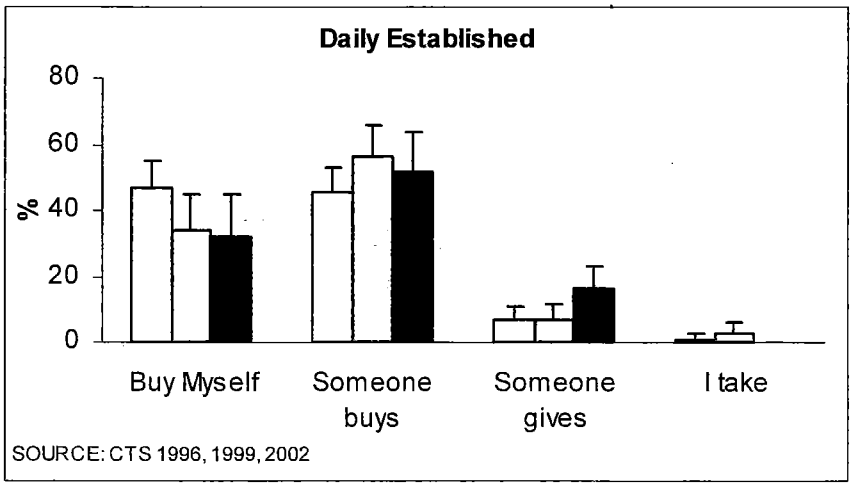
Figure 11.6 shows these data broken down by the adolescents' level of smoking experience. About 70% of experimenters obtained their cigarettes through social sources compared to about 30% of non-daily or 10-20% of daily established smokers. Around 60% of non-daily established smokers usually bought their own cigarettes themselves or through an intermediary, and the overall percentage of buyers was in the neighborhood of 80-90% for daily established smokers. In 1996, daily established smokers were substantially more likely to buy cigarettes themselves than non-daily established smokers, but this difference was not present in 2002. In general, non-daily established smokers were significantly more likely to rely on gifts of cigarettes than daily smokers.

Except for experimenters, there were no significant differences between survey years within smoking experience group. A higher percentage of experimenters in 2002 than in 1999 bought cigarettes themselves, and this percentage was nearly the same as in 1996. There was a slight increase between 1996 and 2002 in the percentage of experimenters taking cigarettes without permission. The data plotted in Figure 11.6 are tabulated in Appendix Table A.11.5.

Figure 11.6: Usual Source of Cigarettes for 15- to 17-Year-Olds. Data plotted are presented in Appendix Table A.11.1.







SOURCE: CTS 1996, 1999, 2002

Nonconventional Commercial Sources

Beginning in 1999, the CTS introduced a question for adolescent smokers to determine whether they attempt to purchase cigarettes more cheaply from nonconventional sources that avoid state excise taxes or are less likely to require ID. Specifically, all ever smokers were first asked the following:

> *The next few questions are about how you got your cigarettes in the last year {last year that you smoked}.*
>
> *In the last year {that you smoked}, did you ever buy them yourself?*

Those adolescents who answered affirmatively to the above question were then asked to respond yes or no to the following questions:

> *Did you ever go out of state or to an Indian reservation to buy cigarettes because they are cheaper?*
>
> *Did you ever go out of state or to an Indian reservation to buy cigarettes because you would not have to show ID?*
>
> *Did you ever buy cigarettes over the Internet?*

Table 11.1 shows the results for 1999 and 2002. Because so few adolescents reported buying cigarettes in the last year (first row of table), few were asked the second set of quesitons. However, it is clear that almost no adolescent ever smokers reported using these potentially cheaper sources of cigarettes in the last year. No adolescent in either the 1999 or 2002 samples reported using the Internet to buy cigarettes.

Table 11.1
Adolescent Cigarette Buyers Who Ever Bought Cigarettes

	1999		2002	
	N	%	N	%
Ever bought cigarettes	275	19.1 (±2.4)	160	22.1 (±3.2)
Ever bought out of state or at Indian reservation because cigarettes are cheaper?	29	2.2 (±1.1)	3	0.3 (±0.4)
Ever bought out of state or at Indian reservation because you would not have to show ID?	14	1.1 (±0.6)	3	0.6 (±0.7)
Did you ever buy cigarettes over the Internet?	0	——	0	——

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1999, 2002

Further probing adolescent smokers' commercial sources of cigarettes, the 1999 and 2002 CTS asked those ever smokers who had reported that their usual method of obtaining cigarettes was either to buy themselves or to have others buy for them the following question:

> *When you bought cigarettes yourself or through someone else, did you usually...*

Buy them in California at a regular store,

Buy them in California at an Indian reservation,

Buy them out of state, or

Buy them over the Internet?

In 1999, 92.8±3.4% of adolescent cigarette buyers (n=384) usually bought their cigarettes at regular stores in California, and of usual buyers in 2002 (n=211) this percentage was unchanged, 93.5±3.9%. The numbers reporting their usual source as the other choices were too few for valid estimates.

Regular Commercial Sources

Beginning in 1996, the CTS asked adolescent respondents who reported that they usually bought their own cigarettes whether they *often, sometimes,* or *never* bought cigarettes from each the following list of outlet types: *supermarkets, small neighborhood grocery stores, convenience stores or gas stations, discount tobacco stores, other discount stores such as Wal-Mart, liquor stores, vending machines, or some other location.* The discount stores were included for the first time in 1999.

Table 11.2 shows the results for "often" buying cigarettes from these sources for the three survey years. In each year, gas stations were the most popular venue with adolescent cigarette buyers, but liquor stores were a close second, followed by small grocery stores. While vending machines were never much of a usual source of cigarettes for adolescents, there has been a significant decline since 1996 in the percentage of adolescents relying on this source.

Table 11.2.
Types of Stores Where Adolescent Ever Buyers Purchase Cigarettes

	1996 %	1999 %	2002 %
Supermarket	6.3 (±1.9)	5.9 (±2.8)	3.9 (±3.2)
Small grocery	25.7 (±4.3	26.4 (±5.8)	25.0 (±7.7)
Gas station	47.0 (±5.2)	44.1 (±7.2)	58.3 (±7.5)
Tobacco discount stores		6.3 (±2.6)	11.4 (±5.5)
Other discount stores		2.2 (±2.8)	1.7 (±2.2)
Liquor stores	44.4 (±5.0)	41.3 (±7.2)	45.4 (±8.5)
Drug stores	4.9 (±2.4)	4.7 (±3.0)	8.7 (±6.1)
Vending machine	6.3 (±2.5)	2.2 (±2.3)	1.1 (±1.5)
Other	7.9 (±2.9)	10.0 (±4.5)	4.9 (±4.3)

TABLE ENTRIES ARE WEIGHTED PERCENTAGES AND 95% CONFIDENCE LIMITS.
SOURCE: CTS 1996, 1999, 2002

Combine for 2990

These results are consistent with reports from the California Department of Health Services, who conduct random compliance checks of retail outlets' willingness to sell tobacco to minors each year. CDHS has found that gas stations and other small stores are consistently more likely to sell cigarettes to minors than supermarkets (CDHS, 2000). For instance, in 1999 illegal sales for small outlets were in the neighborhood of 12%, compared to about 5% for supermarkets.

Finding # 18

Smoking related illnesses are responsible for approximately one in five deaths in the United States and are one of the leading sources of preventable death worldwide[18]

[18] Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. JAMA 2004; 291:1238-45. [PubMed]

http://www.ncbi.nlm.nih.gov/pubmed/15010446

Mokdad AH, **Marks JS**, **Stroup DF**, **Gerberding JL**.

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CONTEXT: Modifiable behavioral risk factors are leading causes of mortality in the United States. Quantifying these will provide insight into the effects of recent trends and the implications of missed prevention opportunities. OBJECTIVES: To identify and quantify the leading causes of mortality in the United States. DESIGN: Comprehensive MEDLINE search of English-language articles that identified epidemiological, clinical, and laboratory studies linking risk behaviors and mortality. The search was initially restricted to articles published during or after 1990, but we later included relevant articles published in 1980 to December 31, 2002. Prevalence and relative risk were identified during the literature search. We used 2000 mortality data reported to the Centers for Disease Control and Prevention to identify the causes and number of deaths. The estimates of cause of death were computed by multiplying estimates of the cause-attributable fraction of preventable deaths with the total mortality data. MAIN OUTCOME MEASURES: Actual causes of death. RESULTS: The leading causes of death in 2000 were tobacco (435 000 deaths; 18.1% of total US deaths), poor diet and physical inactivity (365 000 deaths; 15.2%) [corrected], and alcohol consumption (85 000 deaths; 3.5%). Other actual causes of death were microbial agents (75 000), toxic agents (55 000), motor vehicle crashes (43 000), incidents involving firearms (29 000), sexual behaviors (20 000), and illicit use of drugs (17 000). CONCLUSIONS: These analyses show that smoking remains the leading cause of mortality. However, poor diet and physical inactivity may soon overtake tobacco as the leading cause of death. These findings, along with escalating health care costs and aging population, argue persuasively that the need to establish a more preventive orientation in the US health care and public health systems has become more urgent.

Finding #19

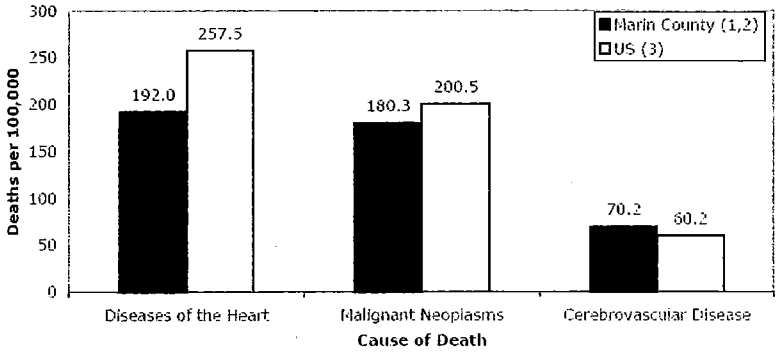
(a) in the County of Marin, the three leading causes of death in 2000 were Coronary Heart Disease, Cancer and Cerebrovascular Disease, all of which can be caused by or exacerbated by tobacco use;[19]

[19] Marin County Health and Human Services, Department of Epidemiology, Leading Causes of death; 2000. http://www.co.marin.ca.us/depts/HH/main/epi/pdf/leadingcausedeathcharts.pdf

LEADING CAUSES OF DEATH, MARIN COUNTY

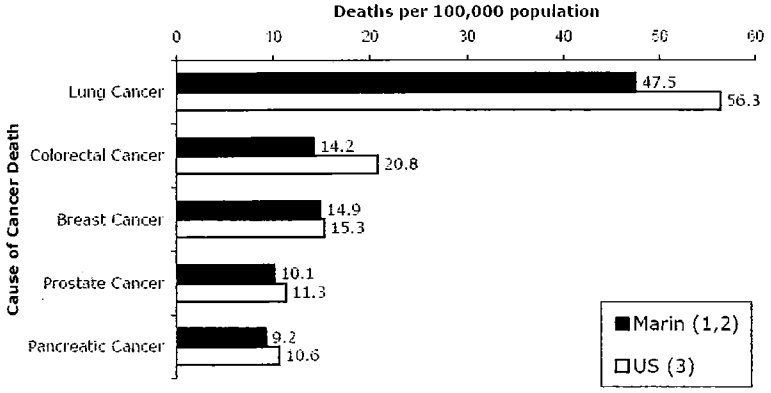
In Marin County, as in most regions of the country, diseases of the heart (e.g., coronary heart disease), cancer, and cerebrovascular diseases (e.g., stroke) are the most common causes of death. In 2000, at least one of these 3 conditions was listed as the primary cause of death in 62% of all Marin County resident deaths.

Age-Adjusted Rates Due to the Three Leading Causes of Death in Marin County 2000



Of all deaths attributable to cancer, the most common cause of cancer death, followed by breast cancer among women, and prostate cancer among men.

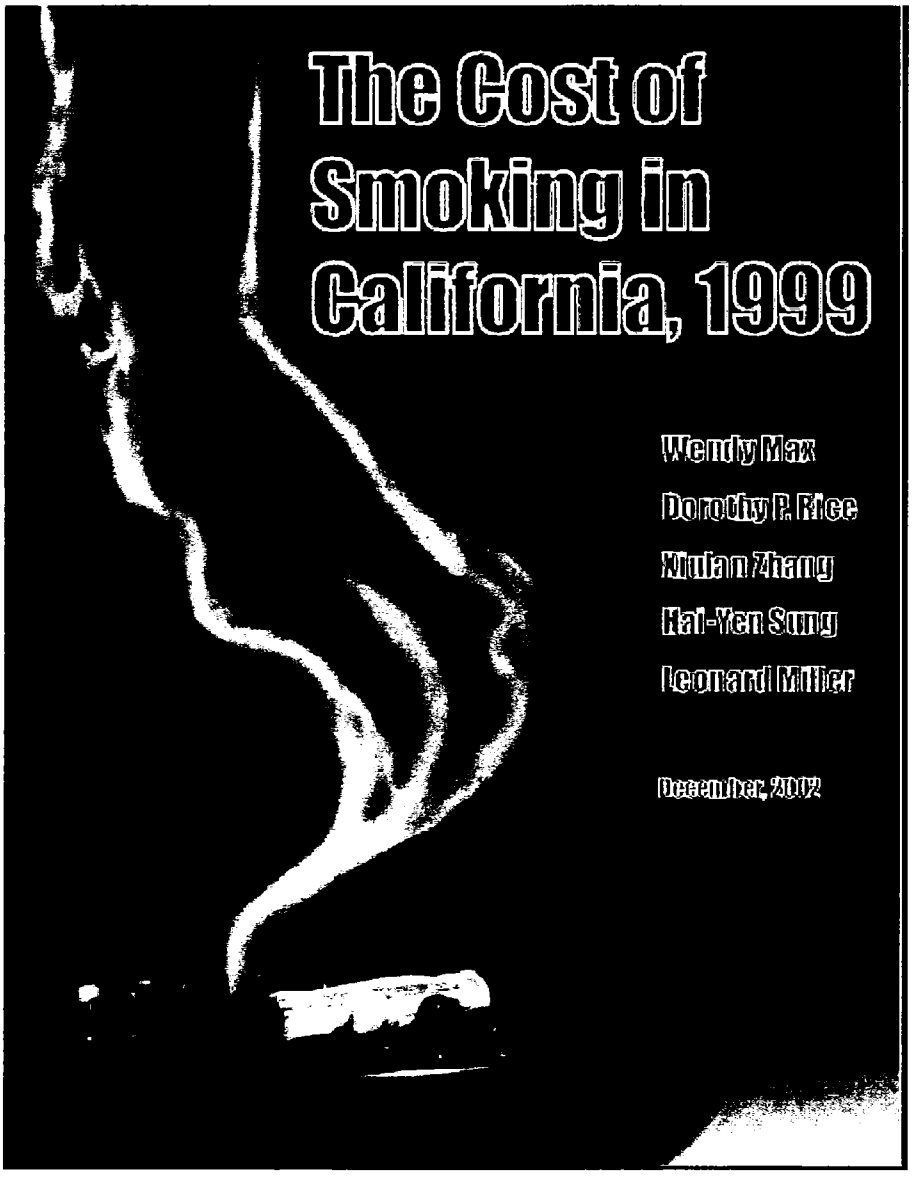
Leading Causes of Cancer Death by Age-Adjusted Death Rate 2000



Finding #20

In addition to its health impact, tobacco related death and disease has an economic impact. In 1999, the economic costs of smoking in California were estimated to be $475 per resident or $3,331 per smoker, for a total of nearly $15.8 billion in smoking-related costs (1999 dollars).[20]

20 Max W, Rice DP, Zhang X, Sung H-Y, Miller L. The Cost of Smoking in California, 1999. Sacramento, CA: California Department of Health Services, 2002.


The Cost of Smoking in California, 1999
Wendy Max
Dorothy P. Rice
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For single copies of this report, contact the Tobacco Control Section, California Department of Health Services, 601 North 7th Street, P.O. Box 942732, MS 555, Sacramento, CA 94234-7320, (916) 327-5425

The Cost of Smoking in California, 1999

California Department of Health Services
Tobacco Control Section

Prepared by
Institute for Health & Aging, School of Nursing
University of California, San Francisco

Highlights

- The economic burden of smoking in California in 1999 amounted to $15.8 billion.
- The cost of smoking in California was $475 per Californian and $3,331 per smoker.
- The cost of smoking per resident varies among counties, from $392 in Santa Clara County to $1,022 in Trinity County (considering only counties with statistically reliable estimates).
- While there are fewer smokers in California than there were a decade ago, 4.7 million Californians still smoke. Included are 4.5 million adults and 207,000 adolescents.
- More males than females smoke in California – 2.7 million or 22.1 percent of adult men and 1.9 million or 15.3 percent adult women. Adolescent males smoke at similar rates to adolescent females– 7.7 percent vs. 7.4 percent.
- The cost of smoking for men is greater than that for women - $9.4 billion compared to $6.3 billion. Direct costs and indirect lost productivity costs due to illness are similar for men and women, while indirect costs of lost productivity from premature death are substantially greater for men.
- Direct health care costs of smoking account for 54 percent of the total cost of smoking in California - $8.6 billion. Lost productivity due to illness comprises ten percent of the total, or $1.5 billion, and lost productivity from premature death comprises the remaining 36 percent, or $5.7 billion.
- Expenditures for hospital care of current and former smokers amount to $4.0 billion, or 47 percent of total direct medical costs; ambulatory care services amount to $2.1 billion or 24 percent; nursing home care amounts to $1.3 billion or 15 percent; prescription drugs amount to $1.1 billion; and home health care amounts to $87 million.
- Almost one in five deaths in California in 1999 are attributed to smoking, for a total of 43,137 deaths. This represents $5.7 billion in lost productivity and 535,000 years of potential life lost, or 12.4 years lost per death.
- Men account for 58 percent of deaths attributed to smoking, 59 percent of years of potential life lost, and 78 percent of the value of lost productivity.
- Smoking rates have declined in the ten-year period, 1989 to 1999. Comparison of the 1999 cost estimates with those for 1989, however, shows that the total more than doubled and the amount of increase among different cost components varied. Direct costs almost tripled during the ten-year period. These increases result from inflation in medical care costs, use of different methodology and different data sources.

Marin

Smoking Cost		Amount (Thousands)	Per Resident	Per Smoker
	Total	$110,630	$495	$1,704
	Direct	66,259	296	2,044
	Lost Productivity	42,371	179	1,366
	Illness	13,216	55	392
	Premature Death	29,155	124	974
	Men	$59,313	$501	$1,837
	Direct	33,399	282	1,034
	Lost Productivity	26,114	221	1,469
	Illness	6,065	51	341
	Premature Death	20,049	170	1,128
	Women	$51,296	$432	$1,266
	Direct	32,860	298	2,241
	Lost Productivity	16,257	137	1,033
	Illness	7,089	59	449
	Premature Death	9,168	78	583

Smoking-Attributable Health Care Expenditures		Amount (Thousands)	Per Resident	Per Smoker
	Total	$68,239	$288	$2,018
	Hospital	27,196	115	632
	Ambulatory	18,020	76	539
	Nursing Home Care	12,066	51	360
	Prescriptions	10,128	43	702
	Home Health	825	4	25

Population 1999			Under			65
		Total	18	18 - 34	35 - 64	and Over
	Total	236,768	44,305	46,432	113,398	32,634
	Men	116,168	22,571	24,960	56,023	14,131
	Women	120,761	21,432	21,451	57,375	18,503

Smoking Prevalence

	Currently Smoke		Formerly Smoked		Never Smoked	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Total	33,461	16.2	62,594	30.3	110,594	53.5
Men	17,777	17.4	32,644	31.9	52,027	50.8
12-17	518	7.4	602	15.0	5,973	91.7
18+	17,258	18.1	31,842	33.5	46,054	48.4
Women	15,705	15.2	29,950	28.7	58,567	56.2
12-17	295	4.3	1,219	17.7	5,377	78.0
18+	15,407	15.4	28,732	29.1	53,190	54.7

Deaths

		Due to Smoking	
	Total	Number	Percent of Total
Total	1,794	359	20.0
Men	819	159	19.4
Women	975	200	20.5

Years of Potential Life Lost

	Number of Years	Years per Death
Total	3,714	10.4
Men	1,714	10.8
Women	2,000	10.0

Lost Productivity From Premature Death

	Amount (thousands)	Per Death
Total	$29,255	$81,572
Men	20,947	126,390
Women	9,207	46,099

Finding #21

Those same costs in 2008 dollars would be $614 per resident or $4,310 per smoker for a total of nearly $20.4 billion dollars;[21]

[21] 2008 dollar figures calculated based on the Consumer Price Index from 1999 compared to 2008. A 1999 dollar is worth 29% more than a 2008 dollar. http://minneapolisfed.org/research/data/us/calc/

This calculation can be done on the home page listed above.

29+% x 475 + 475 = $614

29+% x 3331 + 3331 = $4310

Findings: 22 - 26

(e) As of January 2003, 75% of independent pharmacies, 70% of small chain pharmacies and 100% of Target retail stores do not sell tobacco products. However, almost all large grocery stores, large chain pharmacies and discount/warehouse retailers excluding Target and Costco (Novato store) continue to sell tobacco products;[22] [23]

(f) The California Department of Health Services funded several studies, which support the merits of tobacco-free pharmacy policies. The results show that of the independently-owned tobacco-free pharmacies in California, 96.8%[24] of California consumers indicate that they would continue to patronize their pharmacy or drugstore as often or more often if it stopped selling tobacco products; 72.3% of California consumers are not in favor of tobacco products being sold in drugstores, and 49.7%[25] "disagree" or "strongly disagree" that tobacco products should be sold through drugstores; and overall, 80.6% of chain drugstore pharmacists "disagree" or "strongly disagree" that it is appropriate for pharmacies and drugstores to carry tobacco products;

(g) Tobacco-free and or cigarette-free pharmacy policies are endorsed by the American Medical Association, the American Public Health Association and the American Pharmaceutical Association and legislation banning the sale of tobacco in pharmacies has been adopted by the United Kingdom, France, Canada, and other countries;

(h) Pharmacies and drugstores, which are tobacco vendors often cite loss of revenue as their primary reason to continue tobacco sales. However, a study funded by the California Department of Health Services shows that of the independently-owned pharmacies that have gone tobacco-free, 88%[26] reported that they had experienced either no loss or an increase in business since removing tobacco from their shelves. Pharmacies and drugstores with fears of potential restructuring costs associated with ending tobacco

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[22] Tobacco Education and Research Oversight Committee for California. Confronting a Relentless Adversary: A Plan for Success Toward a Tobacco-Free California 2006-2008; March 2006.

[23] How Californians Really Feel about Tobacco in Pharmacies. October 2000. Fact sheet developed by Prescription for Change a project of the California Medical Association Foundation funded by the California Department of Health Services, Tobacco Control Section, Grant No. 00-90381

[24] Robinson G. California Adult Consumer Survey Pharmacies and Drugstores Selling Tobacco Products - Phase II: Executive Summary, 1997-2000; California State University Fullerton, Social Science Research Center; California Medical Association Foundation, Pharmacy Partnership Project. California State University Fullerton, Social Science Research Center; California Medical Association Foundation, 2000.

[25] Robinson G. California Adult Consumer Survey. ibid.

[26] Prescription for Change Fact Sheet. op. cit.

- Encourage the system-wide adoption of policies prohibiting the acceptance of tobacco industry funding for research at all publicly-funded institutions of higher learning in California, including the University of California.
- Encourage members of the California legislature and other public officials to refuse donations from the tobacco industry, its representatives, or its subsidiaries.
- Ask California members of Congress to support strong federal regulation of the tobacco industry.
- Prohibit projects funded by the California Tobacco Control Program from promoting the use of so-called reduced risk tobacco products as either a substitutes or complements to proven strategies.
- Encourage research that examines the impact of so-called reduced risk tobacco products.
- Support U.S. ratification of the World Health Organization's Framework Convention on Tobacco Control.

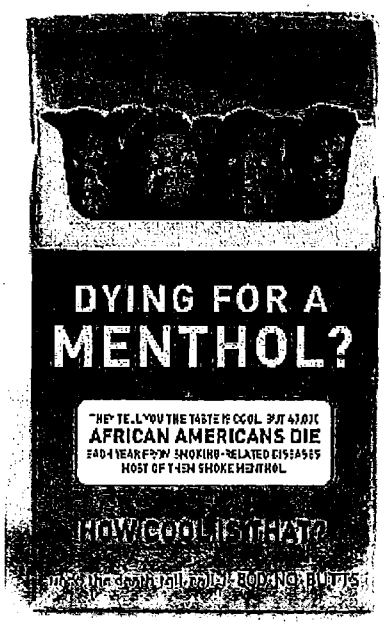
In order to effectively regulate and limit the products, activities, and influence of the tobacco industry, local, state and federal controls must work together to protect people's lives and health from the ill effects of tobacco use. Therefore, TEROC supports strong federal, state, and local regulation of the tobacco industry at every level of its operation.

Enforce Local Retailer Licensing

More control over the retail environment is needed, including better enforcement of existing laws and regulations. One of the best ways to prevent tobacco sales to minors and otherwise regulate the retail environment in which tobacco products are sold is through local tobacco retailer licensing. In order to protect the public health of their residents, local governments are encouraged to enact and enforce local tobacco retailer licensing laws and to suspend or revoke local licenses for violation of any state tobacco control law.

Limit Access: Making Pharmacies and College Campuses Tobacco-free

Over the last decade, progress has been made in the trend to make pharmacies tobacco-free. At the urging of tobacco control advocates, the health care community and the general public, about 80 percent of California's independent pharmacies no longer sell tobacco products. Chain drug stores are another matter, however. When their pharmacies offer health-promoting products and advice just down the aisle from displays of tobacco products, chain drug stores send a misleading and hypocritical message that tobacco does not harm health and that it is socially acceptable. TEROC joins the American Pharmacists Association, the California Pharmacists Association, the California Medical Association, and hundreds of other health care organizations in urging the passage of state and local prohibitions of tobacco sales in drug stores and pharmacies.



Colleges and universities have an important role to play in promoting the health of students and faculty. Because of the high smoking prevalence among young adults, college students constitute a population of great concern to the tobacco control community, and have been recognized as a "battleground group" for several years now. Allowing smoking on college campuses makes colleges complicit in students' harmful behavior, and promoting tobacco sales on campus undermines the important task of colleges to help students develop positive life skills. Allowing tobacco sales on campuses funded by the State of California also puts the state itself in the hypocritical position of seeming to encourage the use of tobacco products. Therefore, TEROC urges California's public colleges and universities to become tobacco-free.

funded by the California Department of Health Services, Tobacco Control Section, Grant No. 00-90381

[28] Robinson G. Chain Drugstore Polices and Attitudes about Tobacco Sales and Promotions, Phase II - Executive Summary; California Medical Association Foundation, Pharmacy Partnership Project. San Francisco, CA: CMA Foundation, Pharmacy Project, 2000.

[29] Robinson G. California Adult Consumer Survey Pharmacies and Drugstores Selling Tobacco Products - Phase II: Executive Summary, 1997-2000; California State University Fullerton, Social Science Research Center; California Medical Association Foundation, Pharmacy Partnership Project. California State University Fullerton, Social Science Research Center; California Medical Association Foundation, 2000.

[30] Robinson G. California Adult Consumer Survey. ibid.

[31] Prescription for Change Fact Sheet, op. cit.

Prescription for Change Fact Sheet. op. cit.

Prescription for Change

CALIFORNIA PHARMACY FACTS

There are approximately 6,300 licensed pharmacies in California including those located in independent pharmacies, hospitals, clinics, chain drugstores, discount and warehouse retail outlets and grocery stores. All hospital and clinic pharmacies are tobacco-free as are those in Targets and Medicine Shoppes and approximately 75-78% of the independent pharmacies. This represents 43% or 2,360 pharmacies, which are not currently selling tobacco products. Which leaves approximately 57% or over 3,000 California pharmacies that continue to sell tobacco products. With the four major chain pharmacies (Longs Drugs, Rite Aid, Sav-On and Walgreens) representing 1,743 or 58% of these and grocery stores representing only 383 or 12% of blended pharmacies that continue to sell tobacco products in California.

Detailed Breakdown of Pharmacies in California as of January 2003

Type of Pharmacy	# of Specific Chains	Total # in California	% of Tobacco Free Pharmacies
Independent (Too large to list)		2,338	75-78% = 1,764
Hospitals/Clinics (including Kaiser)	**205**	**324**	**100% = 324**
Discount/Warehouses			
Costco	86		
Kmart	36	289	Appro. 13% = 38
Wal-mart	119		(All Targets)
Target	38		
Grocery (Larger Chains)			
Raley's	**59**		
Raph's	**67**	**371**	**0% = 0**
Safeway/Vons	**227**		
Small Chains (Select Few)			
CVS	09		
Drug Emporium	25		
Horton & Converse	13	211	Appro. 70% = 149
Leader	17		
Medicine Shoppe	77		
Owens	08		
Large Chains			
Longs Drugs	**356**		
Rite Aid	**576**	**1719**	**Appro. 1.16% = 20**
Sav-On (Albertson's)	**505**		
Walgreens Drug	**282**		
Totals Pharmacies		5,252 Licensed in CA	2,255 Tobacco Free

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23

25

Consumer/Public Support for Tobacco Free Pharmacies and Drugstores

- 72.3% of California consumers are not in favor of tobacco products being sold in drugstores.[1]
- Nearly one-half of California smokers (49.7%) disagree or strongly disagree that tobacco products should be sold through drug stores and only a small minority of smokers (9.8%) of smokers strongly favor the sale of tobacco products through drugstores.[2]
- A majority (64.4%) of California consumers do no believe it is appropriate for pharmacies and drug stores to display ads and promotions for tobacco products.[2]

Pharmacist Support for Tobacco Free Pharmacies and Drugstores

- Overall, 80.6% of chain drugstore pharmacists "disagree" or "strongly disagree" that it is appropriate for pharmacies and drugstores to carry tobacco products.[1]
- The overwhelming majority (81.8%) of chain drugstore pharmacists "disagree" or "strongly disagree" that it is appropriate for pharmacies and drugstores to display ads and promotions for tobacco products in pharmacies and drugstores.[1]
- Only 15.2% of chain drugstore pharmacists are in favor of tobacco products being sold in drugstores.[1]

Notable Quotes

- *"Since we stopped selling cigarettes, we've replaced them by other goods and I must say, at my own expense, that this has worked out well. It's been a good thing because sales volumes have risen and, you know, even if we were a bit stubborn about it, there is, undeniably, something incompatible between the role of pharmacist and that of cigarette seller. The results have been surprising, and better than I expected... I must say we probably should have done it sooner...."* Jean Coutu, head of the large pharmacy chain in Quebec that lobbied against and sued over the ban on the sale of tobacco products in Quebec pharmacies.[5]
- *"The bottom line is that pharmacies and chain drugstores should be helping to improve people's health, not selling them products that can hurt or kill them,"* Rolland C. Lowe, MD., chair of the CMA Foundation.[3]
- *"We're trying to promote health,"* said Eugene [illegible], owner of Home Drug Co., in San Francisco, explaining his decision to stop selling tobacco products in 1996. *"How could we in good conscience sell tobacco?"*[4]

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1. Roberson, G. Chain Drugstore Pharmacists' Attitudes about Tobacco Sales and Promotions. Phase I – Executive Summary. California Medical Association Foundation, Pharmacy Partnership Project. San Francisco, CA: CMA Foundation, Pharmacy Project, 2000.
2. Roberson, G. California Adult Consumer Survey: Pharmacies and Drugstores Selling Tobacco Products – Phase II Executive Summary, 1997-2000. California State University Fullerton, Social Science Research Center; California Medical Association Foundation, Pharmacy Partnership Project. California State University Fullerton, Social Science Research Center, California Medical Association Foundation, 2000.
3. CMA Press Release, April 10, 2000.
4. [illegible], S. Tobacco [illegible] drugstore sales. Sacramento Bee, November 12, 1996, pg. [illegible].
5. Television interview, [illegible], April 17, 1999 reported in Tobacco News Online July 1, 1999 by [illegible], Council of the Canadian [illegible] [illegible].

Prescription for Change

How Californians Really Feel About TOBACCO in PHARMACIES...

Prescription for Change (formerly the Pharmacy Partnership) conducted several statewide surveys of pharmacists, pharmacy managers/owners and consumers on the issue of tobacco in pharmacies and chain drug-stores. Here are a few of the findings:

- Four out of five or 80% of Californians surveyed OPPOSE advertising of tobacco products in drugstores & pharmacies and over two-thirds or 68% are AGAINST drugstores carrying tobacco products at all!
- Pharmacies and chain drugstores say they sell tobacco products as a "convenience" for their customers, yet only one in ten smokers or 9.8% strongly agree with the sales of tobacco products in drugstores.
- 96.8% of Adult California Consumers surveyed indicated that they would continue to patronize their pharmacy or drugstore as often or more often if it stopped selling tobacco products.
- The majority (78%) of California's independently-owned pharmacies do not carry tobacco products, yet almost all (98%) of the chain drugstores in California DO sell tobacco.
- Of the independently-owned pharmacies that have gone tobacco-free, 88% reported that they had experienced either NO LOSS or AN INCREASE in business since removing tobacco from their shelves.

All surveys conducted for Pharmacy Partnership by Cal State Fullerton Foundaiton, Social Science Research Center

Revised: October 2000

Funded by the California Department of Health Services
Tobacco Control Section, Grant No. 00-90381.
For more information: (415) 882-5126.

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Finding #32

(a) The display of cigarette packages functions much like cigarette advertising in the minds of children, increasing their perception that cigarettes are easy to obtain and facilitating their recall of brand names. This study suggests that the presence of cigarette displays at the point-of-sale, even in the absence of cigarette advertising, has adverse effects on students' perceptions about ease of access to cigarettes and brand recall, both factors that increase the risk of taking up smoking. Furthermore, the study suggests that cigarette advertising has similar effects, and may also weaken students' firm intentions not to smoke in the future, a measure that also strongly predicts smoking commencement. These findings make a case for eliminating cigarette advertising at the point-of-sale, and also for placing cigarettes out of sight in the retail environment. [According to Wakefield et al. (2006)];[36]

32 Wakefield M, Germain D, Durkin S, Henriksen L. An experimental study of effects on schoolchildren of exposure to point-of-sale cigarette advertising and pack displays. *Health Education Research* 2006; 21(3):338-347.

An experimental study of effects on schoolchildren of exposure to point-of-sale cigarette advertising and pack

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By creating a sense of familiarity with tobacco, cigarette advertising and bold packaging displays in stores where children often visit may help to pre-dispose them to smoking. A total of 605 ninth-grade students were randomly allocated to view a photograph of a typical convenience store point-of-sale which had been digitally manipulated to show either cigarette advertising and pack displays, pack displays only or no cigarettes. Students then completed a self-administered questionnaire. Compared with those who viewed the no cigarettes, students either in the display only condition or cigarette advertising condition perceived it would be easier to purchase tobacco from these stores. Those who saw the cigarette advertising

perceived it would be less likely they would be asked for proof of age, and tended to think a greater number of stores would sell cigarettes to them, compared with respondents who saw no tobacco products. Respondents in the display only condition tended to recall displayed cigarette brands more often than respondents who saw no cigarettes. Cigarette advertising similarly influenced students, and tended to weaken students' resolve not to smoke in future. Retail tobacco advertising as well as cigarette pack displays may have adverse influences on youth, suggesting that tighter tobacco marketing restrictions are needed.

Finding # 28

(a) Cigarette companies spend more of their marketing dollars in stores than in any other venue. In 2005, they spent 88% of a total of $13.1 billion to advertise and promote product sales in stores. The results indicate increasing use of stores to market and promote cigarette sales [E C Feighery 2008];[37]

RESEARCH PAPER

Tobacco point of sale advertising increases positive brand user imagery

R J Donovan, J Jancey*, S Jones†

An examination of trends in amount and type of cigarette advertising and sales promotions in California stores, 2002-2005.

Feighery EC, **Schleicher NC**, **Boley Cruz T**, **Unger JB**.

Public Health Institute, Oakland, California, USA. feighery@pacbell.net

BACKGROUND: Cigarette companies spend more of their marketing dollars in stores than in any other venue. In 2005, they spent 88% of a total of $13.1 billion to advertise and promote product sales in stores. AIM: The purposes of this study were to identify how the amount and types of cigarette advertising and sales promotions have changed in stores in California between 2002 and 2005, and to assess neighbourhood influences on cigarette marketing in stores. METHODS: Four observational assessments of cigarette advertising were conducted in approximately 600 California stores that sold cigarettes from 2002 to 2005. Trained observers collected data on the amount and type of cigarette advertising, including signs, product shelving and displays and functional items, and presence of sales promotions on these items. Longitudinal analyses were performed to estimate trends over time and identify correlates of change in the amount and type of tobacco advertising. RESULTS: The mean number of cigarette advertisements per store increased over time from 22.7 to 24.9. The percentage of stores with at least one advert for a sales promotion increased from 68% to 80%. The amount of advertising and proportion of stores with sales promotions increased more rapidly in stores situated in neighbourhoods with a higher proportion of African-Americans. CONCLUSION: The results indicate increasing use of stores to market and promote cigarette sales. Further, these increases are disproportionately accelerating in neighbourhoods with more African-Americans. Legislative strategies should be pursued to control the marketing of tobacco products and promotional strategies used to reduce prices in stores.

FINDING # 29

(a) Point of Purchase (POP) advertising exposes and potentially affects everyone: The young who grow up seeing tobacco as a benign cultural commonplace in the market on a par with milk and bread and come to underestimate its risks; the adult smoker who is reminded and cued to smoke now and more often; the occasional smoker who is cued to consume more; the would-be quitter whose intentions to quit are undermined; and the ex-smoker tempted to relapse and resume smoking. Regulation of both the amount (size) and character (brand imagery) of POP advertising is, therefore, a legitimate and important component of the tobacco control strategy, with substantial potential for advancing public health, particularly in jurisdictions where it is the predominant mode of sale promotion [Richard W. Pollay 2007];[34]

[34] Pollay, R. 2007. More Than Meets the Eye: On the Importance of Retail Cigarette Merchandising. Tobacco Control 16, 270-274

SPECIAL COMMUNICATION

More than meets the eye: on the importance of retail cigarette merchandising

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ABSTRACT

Point-of-sale activity is important enough to get the attention of the senior management of transnational firms and to be the subject of sophisticated research aimed to realise "intrusive visibility" better through creative design, command attention and convey brand imagery. The result of this is the promotional "positioning" of

products, and the creation of both friendly familiarity and perceived popularity. The intended results include increased sales of cigarettes as a product or "category growth".

Abbreviations: BAT, British American Tobacco; ITL, Imperial Tobacco Company Ltd; POP, point of purchase; POS, point of sale; POPAI, Point of Purchase Advertising International, Washington DC, USA

Lavack and Toth1 called our attention to the importance of point-of-purchase (POP) promotion or retail merchandising, the total cost of which now commands an impressive 85% of the whopping total of over US$15 billion spent in promoting cigarettes in the US. Like them, I have reviewed corporate documents in the course of preparing expert opinion for the governments of Canada,2 UK3 and Ireland.4 My experience supplements theirs as I reviewed many British American Tobacco (BAT) documents from around the world, and also reviewed the retail merchandising textbook and trade literature. Although not in major disagreement, I fear that Lavack and Toth might leave the erroneous impression that competition for market share is the sole intent and effect of retail promotion. On the contrary, point-of-scale (POS) promotions, like other forms of advertising, are carefully crafted, creatively executed, well-financed, well-researched promotional efforts supervised by senior management and aimed at realising intrusive visibility to convey brand imagery (to the extent allowed) with the goals of enhancing category image and category growth.

DEFINITIONS AND FUNCTIONS OF POS

POS or POP merchandising displays and signage are clearly a medium of advertising and are explicitly referred to as such in the title of the relevant global trade association, the Point of Purchase Advertising International (POPAI). One text comments that "Displays should accomplish the five steps of selling, just as advertising and personal selling should". The five steps mentioned are as follows: (1) attract attention, (2) arouse interest, (3) create desire, (4) build confidence and (5) direct action.5 Industry documents offer similar ideas.

The purposes of POS are multiple. On one level, POS materials are designed to attract attention and to enhance brand images. On another level, they are used to convey the "presence" of the brand to consumers, to create the perceived popularity of brands, and hence of smoking. These serve the ultimate strategic goals of differentiating brands from one another so as to minimise competitive substitution and the associated price competition that squeezes profitability.

The purpose of POS promotion, like other advertising, is to sell, *not* to convey material information, contrary to common claims in litigation. The functional purposes of POS materials were articulated in one 1979 BAT document: (1) to inform the consumer of the presence of the brand; (2) to promote recognition of the brand; (3) to generate interest and excitement about the brand; and (4) to stimulate trial purchase and re-purchase.6 It is noteworthy that the provision of information about the physical properties of the product, its

ingredients or the performance characteristics of the brand, much less its risks or probable health consequences, was not an objective of POS marketing.

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More than meets the eye: on the importance of retail cigarette merchandising

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SENIOR MANAGEMENT ATTENTION AND INTERNATIONAL STANDARDS

As Lavack and Toth noted, the management of cigarette-selling firms has been spurred to pay closer and closer attention to retail promotion by regulation. In-store activity has been of ever-growing importance since at least 1970, as a consequence of restrictions on other means of promoting sales. For example, BAT took the view in 1970 that a "key sales executive" needed to study merchandising:

[T]he role of merchandising is likely to become increasingly important in the event of ad restrictions, and considerably more attention is, therefore, being given to this activity, both in Millbank and a number of

associated companies. ... The main purpose of these activities are ... (c) to create conditions which give an immediate stimulus to purchase at point-of-sale ... It is therefore recommended that a key sales executive should be appointed to study the subject of merchandising ...[7]

Twenty years later, in 1991, senior BAT executive Paul Bingham stated:

So in a market where no promotion of cigarettes is allowed, you could expect to see the following ... more efficient use of the trade, and in-store communications, i.e. permanent merchandising material and point of sale temporary material (e.g. stickers). The aim is to create a better impact—to let the retail environment communicate the values of the product more effectively.[8]

Note that this refers to the product (cigarettes) not to the brand (eg, Marlboro). Two new transnational positions were created in 1993, presumably within each operating region, in support of in-store marketing: Regional Trade Marketing & Distribution Manager and Regional Merchandising Manager (see Pedlow, [8] at 500316641).

A multivolume manual was developed in the early 1990s, for the entire global operation of BAT that "selected the best practices from the field of in-store marketing and applied it to the tobacco industry. It can be used as a tool to train and develop personnel as well as provide guidelines to implement more effective in-store marketing".[9] The manual consisted of four books covering in-store marketing, merchandising, promotion and providing a catalogue of BAT-approved merchandising. The first three books had "full distribution to all operating companies and field forces" (see BAT,[9] at 500316629). Despite this wide distribution, to my knowledge, not one of these three books has yet been produced in litigation, even that focused on POS issues.

HIGH-TECH POS RESEARCH

BAT suggested three types of research to evaluate POS effects, before, during and after an operation, and suggested that measurements and targets could include awareness, trial, brand usage, believability, comprehension, interest, attitudes and over-the-counter sales.[10] In 1972, BAT felt the need to do its own practical research effort. "Merchandising and promotions. The biggest problem in this area is to measure and assess the effectiveness of merchandising, in terms of cost and obtaining objectives, and this must be a priority area for further work".[11] BAT stated in 1979:

Maximum perceptual recognition should be achieved at point-of-sale by the appropriate pack style and design, by dynamic display layout, and by point-of-sale advertising materials ... All these factors should be the subject of continuous research. To this end, we should seriously consider the merits of setting up experimental in-stores so that, for example, label designs, pack sizes, POS materials, etc. can be evaluated. (see BAT,[6] p 6)

Two very high-tech devices have long been used to research displays by BAT on behalf of its operating companies: (1) a tachistiscope to flash visuals at high speed (short duration) to study how readily displays could be apprehended and (2) an eye gaze camera to monitor eyeball movement when encountering displays. In 1982, BAT's Project Bristol used eye gaze monitoring equipment to study how "consumers visually interact with their environment". The planned analysis included the effects of shop window displays.[12] In 1986, BAT used a tachistiscope to assess the eye-catching qualities of various designs when amassed. It was judged, in the executive summary, that "... the style of tachistiscopic testing reported here represents a high time/cost effective addition to the process of pack development. It allows the assurance that the various symbolism carried by the pack is achieving the desired effect in terms of impact".[13]

The Psychology Group of BAT's Market Research operation contracted at least 18 months of research on the efficacy of POS, further adapting the eye gaze equipment. "This technique makes use of an eye-gaze monitor to make the measurements and an infra-red technology and computorised [sic] digitization to analyze the results. By examining the routes of tracking over the display the output of the analysis provides a cumulated picture of the visual hot spots on the display. With this information it is possible to better position our brands on the gantry in order to receive the maximum amount of visual attention". Because the technique was complex, this research was conducted by Charter Research Associates, with the aim to produce "a handbook providing guidelines on maximizing the potential of the POS display" for use by all operating companies in diverse jurisdictions. Subjects were drawn from both the UK and the Far East to understand better whether reading styles affected eye patterns while shopping and to help make this relevant to Asian as well as to Western cultures.[14] Like the merchandising manuals, this research by Charter Research Associates has not yet been located despite considerable effort.

INTRUSIVE VISIBILITY

BAT stated in 1970:

Tobacco products must be positioned so that they will be easily visible, readily accessible to shop assistants and displayed in such a way as to generate a strong impulse to buy. A special in-store promotion will be most effective if it is positioned so that it can be seen by the customer before he actually reaches it. ... By adjusting shelf-heights and by the use of shelf extenders, shelf-talkers, arrows, etc., it is possible to make facings stand out to give additional impact. ... Directional arrows, day-glow material, flashes, stars and similar eye-catching methods can be used to attract the attention of specific brands or temporary offers. ... With these and other aids, the trained merchandiser can bring an additional attraction quickly and cheaply to his product situated in a market stall, vending machine or in the tobacco department of a large supermarket ... Pictures and slogans should be kept to a minimum and be placed near the product but designed to be clearly visible at a distance from which the customers will normally view it.[15]

Similarly, Philip Morris stated in 1991:

Key Point: We should have Marlboro (and other PM brands) positioned in the store to take advantage of the impulse shopper. ... Where are the best spots for promotional offers, POS, etc.? We are after intrusive visibility.[16]

Similarly:

'Eye Level is Buy Level' because items placed at eye level are more likely to be purchased that those on higher or lower shelves. ... Place posters in line with the main customer flow into the shop. Look for uncluttered locations to gain maximum visual impact for the poster. Place posters at eye level. In-shop, position posters in main traffic flow from point of entry to point of purchase or place in uncluttered position near point-of-purchase or place material above eye level if it can be seen at a distance.[10]

CREATIVE DESIGN

Modes or types of POS advertising include banners, displays, posters, easels, shelf signs, streamers, wall units, window displays and cards, floor stands, dump bins, counter-top units, illuminated signs, cash register tools (eg, change trays, customer merchandise dividers, receipt coupons and message imprints), shopping carts and baskets, end-of-aisle displays, racks, gantries, kiosks, overhead hangers, price cards, interactive units, aisle directories, waste baskets, mechanical product dispensers, ashtrays, closed circuit television and radio broadcasts, electronic scrolling ads, clocks, "hours open" signage, carpets and floor mats, laser projections onto floors and walls, oversized mock-ups of packets, newspaper and magazine racks, etc. New computer and projection technologies are being employed to create displays with interactivity, customisation of messaging, dynamic and vivid illuminated images. For another example, see the video monitors at the ready in fig 1↓.

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Figure 1 Intrusive visibility. Cash register in an unneeded branded box, repeated back lit overhead signage, and two video terminals provided by the tobacco firm. (Ireland 2006)

The creation of advertising within regulatory restraints can serve as a goad to creativity. Prohibitions and limitations "should not be allowed to discourage the cigarette advertiser, but rather exhilarate him to be able to meet the new confining conditions (of 1972) more effectively than one's competitors is a challenge to creativity and ingenuity".[17] In 1998, shortly after the signing of the US Master Settlement Agreement, "RJR provided elegant display racks for Camel, Winston and Doral brands, while B&W splurged on displays for Kool and Lucky Strike, including an elaborate guitar wall display for Lucky Strike".[18] In 1999, POPAI awarded its "Permanent Display of the Year" award to RJ Reynolds Tobacco for its Camel trade store program.[19] New eye-catching technologies are also employed, such as the translucent cigarette packs with lightning dancing inside used by BAT's American subsidiary, Brown & Williamson, for their Kool brand. This "lightning pack"

display won Kool an Outstanding Merchandising Achievement Award from the Point of Purchase Institute.[20] The new "Power Walls" in Canada contain a diversity of design elements as seen in fig 2↓.

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Figure 2 The new "power walls" in Canada displaying a diversity of design elements.

CONVEYING BRAND IMAGERY

With ever more regulations, "agreements" and voluntary restrictions on conventional forms of tobacco advertising, "The biggest promotion issue becomes how to build image with little more than tombstone ads. It is the biggest marketing dilemma of the century, and *the solution will be on-premise promotion*, coupled with highly targeted direct marketing".[18]

In Canada, POS materials were developed in the 1990s by most major brands to convey their brand imagery. The 1996 Communication Plans for the Player's brand specified that "merchandising must reflect youthfulness and be contemporary", and was recognised as having the ability to "aid in the development of a highly image-driven campaign".[21] Historically, the brand image was more fully described as "youthful self-expression of freedom and independence and self-reliance/inner confidence".[22] Similarly, the Belvedere brand was positioned as "youthful, fun, informal, casual, modern and sociable".[23] Therefore, the "Belvedere merchandising 'look' should communicate its desired positioning elements as young, fun, informal and sociable".[24] Imperial Tobacco Company Ltd's Plans for Matinee in 1997 called for merchandising activities "to reflect the desired imagery" with communication that "reinforces the trademark's attributes (modernity, popularity) and maintain current perception of femininity, mildness as well as communicating self-indulgence and relaxation".[25]

Canadian marketing documents, authored while the federal legislation tightened controls on media advertising, show that retail activities sought to use fonts, colours, graphic elements and display design to convey various brand images or brand personality traits, such as classy, elegant, fashionable, informal, sociable, young, fun, distinctive, international, modern, contemporary, high tech, a "wellness" product, masculine, macho, independent and rugged.

The BAT Global Policy was to use POS materials to "strengthen brand image". The entire in-store efforts of BAT were governed by the global standards for consistency and quality in message, signage and brand representation. These standards were to ensure that all BAT efforts around the globe "must reflect, add to and strengthen the brand's image" (see BAT,[9] p 1.13 or 500316640).

PRESENCE AND PERCEIVED POPULARITY

In 1986, Imperial Tobacco, BAT's Canadian operation in Montreal, Quebec, initiated Project HARPO, almost certainly named after the mute Marx Brother. No complete research report for this effort has yet been located, but Project HARPO anticipated regulatory restrictions that "would virtually eliminate our traditional means of expressing lifestyle positioning", as well as the possibility of "the loss of conventional image material in all media (retail included). ... [T]hese interventions would severely impede our ability ... to influence market presence and perceived popularity".[26]

Subsequently, ITL felt that "popularity will take on an even larger role than it has today and the job of communicating it will be located almost exclusively in the retail environment."[27] By 1992, it was noted that "regulatory imposition has also affected the retail environment. By the end of next year, all brand/trademark imagery communication will be disallowed. Consequently, the role of the store as image carrier will change substantially. In future, the store's most vital function will be generating presence".[28]

CATEGORY GROWTH

The POPAI official textbook states: Point-of-purchase promotions have been found to have a significant influence on consumer shopping behavior..". After gaining understanding of consumers, "point-of-purchase professionals can then exploit these consumer decision processes and *increase product category or brand sales*".[29]

The historical role of marketing was to offer "support of smokers and the smoking habit, and try, at least, *to maintain the incidence of smokers in the population*, as well as increase daily consumption". In the conclusion to this document, the following goal is reiterated:

The marketing perspective should be broadened ... specifically towards maintaining the smoking habit at current levels, and if possible to increase those levels. We should not rest content with the traditional role of marketing, which aims to increase market share.[30]

The stated objective of BAT's global policy and practice standards for retail activity circa 1993 includes: "*To achieve long-term dependable growth of the category* and our brands. Use of innovative in-store marketing techniques by trade channels will help achieve our growth objectives" (see BAT,[9] p 1.10). Later POS communication is stated as yielding enhanced brand image and enhanced "category image" and "category growth"—that is, cigarettes as a group look more appealing and more are sold as a result (see BAT,[9] p 1.29).

DISCUSSION

Given the regulation of cigarette advertising in conventional media, cigarette marketing strategy has been paying more and more attention to retailing or POS merchandising. Given its importance and the resources at their disposal, this attention has involved senior management, international coordination and substantial sophisticated research efforts. This has resulted in deploying creative displays, with very substantial budgets spent to buy the continuing cooperation of retailers.

The fact that the retailers are being handsomely paid should not be overlooked. The fact that they need to be paid strongly suggests that the size and nature of the displays and signage that the tobacco firms seek to install are more substantial than the retailers' natural inclination without this financial inducement. This indicates that the racks, gantries and other dispensing equipment are more than what retailers find necessary to handle the logistics of inventory and dispensing. It also suggests that the displays and signage are more than the retailers would normally deploy, given the sales volume and profit margins.

This heavy spending could be the result of indisciplined competitive spending. The difficulty with this explanation is that tobacco is definitely not an indisciplined industry. Also, this sort of heavy spending and massive displays occurs even in markets dominated by one or a few firms characterised by gentlemen's agreements, if not outright collusion. The heavy spending on retail displays by a monopoly or oligopoly is understandable as an investment, however, if this spending assists in the recruitment of new smokers, the future of the industry.

Because consumers use the retail presence as an indicator of how popular products are, a substantial oversized display conveys that many people are smokers. This is in addition to whatever else might be conveyed regarding special offers, pricing, brand imagery, etc. This perceived popularity effect occurs at the

brand level, as consumers discern which brands are the more popular. It also occurs at the product level, as consumers discern the popularity of cigarettes by their centrality and predominance in the retail milieu. This perceived popularity effect would occur even if all firms (for the sake of argument) had only market share intentions for their spending on displays.

Note, also, that this perceived popularity effect and its contribution to the total category sales occur even if regulation restricts the ability of firms to convey brand imagery, but do not otherwise restrict their retail presence. It is constructive to restrict the conveyance of brand imagery in POS advertising, as in other media, lest cigarettes be romanticised and made particularly appealing, but doing only this may be insufficient, however necessary. Similarly, regulation that does not restrict the use of brand elements will be relatively ineffective, even if brand names are banned, as can be seen in fig 3↓.

View larger version (53K):
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Figure 3 Conveying brand image using only brand element. Obviously promoting Marlboro though not babelled as such.

CONCLUSIONS

On the basis of the additional corporate documents and additional trade literature that I have reviewed, I conclude that retail POS merchandising within the tobacco industry has the following traits.

Well researched and financed: Trade research undertakings, while only partially documented, appear to be very sophisticated efforts, designed to create POS materials that are successful in attracting attention and conveying brand imagery. The manufacturing of these items, and their deployment in the retail trade, is fully supported financially.

Crafting brand images, not conveying information: Transmission of information is rarely the objective of marketing plans for tobacco, even incidentally, while establishing a noticeable presence and conveying

brand imagery is almost universally the prime objective. The only exceptions are for brands wanting their low prices to be noticed. POS materials do not yield better-informed consumers.

Intended to reassure and recruit: Tobacco/cigarette advertising, by apparently both intent and consequences, has the function of simultaneously reassuring existing smokers, lest they quit, and recruiting new smokers to start. Recruitment of youth as new smokers is enhanced by POS materials because children are exposed to cigarette promotion throughout their young lives with each and every store visit.

With intrusive visibility: If left unregulated, tobacco merchandising in the retail environment may be vivid in design and intense in density, as the retail venue then becomes the primary advertising medium for the tobacco industry. Firms can seek, can well afford and are readily able to obtain the needed cooperation from retailers. Both design and deployment and retail POS signage make it prominent to the point where it is highly likely to be noticed by a very high proportion of store customers.

Creating perceived popularity: The resulting presence has the intention and effect of influencing perceived popularity. This perceived popularity effect is true for individual brands, and consequently for the product category of cigarettes as a whole. Thus, in addition to whatever might be communicated about the differentiated character of various brands, the size and volume of retail display creates a message to the entire retail traffic—that is to both smokers and non-smokers—about the popularity of cigarette smoking. Beyond this, specific brand images may also convey that smoking is glamorous, part of the good life, enjoyed by people of social status, etc.

POS has enormous reach: A proliferation of POS advertising activity may reach a very large fraction of the population, essentially everyone who goes to market. It would expose all shoppers, regardless of age and smoking status, to what are easily seen as pro-smoking messages and imagery.

What this paper adds

- Supplementing Lavack and Toth (TC, 2006), this paper provides documentary evidence that retail promotions intend to increase total cigarette sales, not just market share for competing brands. This is the result of extensive sophisticated research and well-funded creative efforts conveying brand images (to the extent regulations allow) and the creation of perceived popularity.

POS yields high frequency: Average consumers would be exposed to these messages repeatedly, every time they shop, whether through repeat visits to neighbourhood stores or even if shopping around at various

retail establishments. This would be many, many times a year at the least, and for some people many times a week.

Shaping perceptions: In-store advertising materials serve the same functions as traditional advertising materials: the crafted shaping of perceptions, attitudes and beliefs about the brands within a product category, and hence inevitably about the product category itself. Attitudes will change as a function of mere exposure to branded communications even if these are nominally without substantive content, because of the "friendly familiarity" effect.

In sum: POP advertising exposes and potentially affects everyone: the young who grow up seeing tobacco as a benign cultural commonplace in the market on a par with milk and bread and come to underestimate its risks; the adult smoker who is reminded and cued to smoke now and more often; the occasional smoker who is cued to consume more; the would-be quitter whose intentions to quit are undermined; and the ex-smoker tempted to relapse and resume smoking. Regulation of both the amount (size) and character (brand imagery) of POS advertising is, therefore, a legitimate and important component of the tobacco control strategy, with substantial potential for advancing public health, particularly in jurisdictions where it is the predominant mode of sale promotion.

EPILOGUE: TOBACCO FIRMS DROP POS CASE AGAINST IRELAND

On 31 January 2007, with the trial imminent, the legal challenge to the Public Health (Tobacco) Acts, 2002 and 2004, in Ireland, put forth by a number of tobacco companies and others, was discontinued, at their request, with all costs awarded to the State. This sudden abandonment of the litigation challenge to legislation, knowing the evidence like the above that the judge would see, probably reflected their judgement that victory was very unlikely and that a loss might set an international example. The Irish Office of Tobacco Control can now focus on getting gantries taken out of shops, POS advertising for cigarettes and tobacco products removed, and tobacco products placed in sealed containers and out of view of customers. In their view, this is the most significant development in tobacco control in Ireland since the introduction of the smoke-free workplaces legislation.

FOOTNOTES

Competing interests: I am a university business school scholar and have been called often to testify in tobacco litigation to educate judges and juries in several countries as to the firms' marketing practices and the history thereof.

This research was undertaken while preparing expert reports for the federal governments of Canada, the United Kingdom and Ireland.

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Finding # ~~36~~

(a) Promotions foster positive attitudes, beliefs and expectations regarding tobacco use. In turn, these positive reactions foster intentions to use and increase the likelihood of initiation. Greater exposure to promotion leads to higher risk. This is seen in diverse cultures and persists when other risk factors, such as socioeconomic status or parental and peer smoking, are controlled. Causality is the only plausible scientific explanation for the observed data. The evidence satisfies the Hill criteria, indicating that exposure to tobacco promotion causes children to initiate tobacco use [Joseph R. DiFranza, M.D. et al. 2006];[35]

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The Extent to Which Tobacco Marketing and Tobacco Use in Films Contribute to Children's Use of Tobacco

A Meta-analysis

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Arch Pediatr Adolesc Med. 2006;160:1285-1296.

Objective To quantify the effect of exposure on initiation of tobacco use among adolescents.

Data Sources A systematic literature search of MEDLINE, PsychINFO, ABI/INFORM, and Business Source Premier through October/November 2005 was conducted. Unpublished studies were solicited from researchers.

Study Selection Of 401 citations initially identified, 51 (n = 141 949 participants) met the inclusion criteria: reporting on exposure and tobacco use outcomes and participants younger than 18 years. Included studies reported 146 effects; 89 were conceptually independent effects. Data were extracted independently by 3 of us using a standardized tool. Weighted averages were calculated using a linear mixed-effects model. Heterogeneity and publication bias were assessed.

Main Exposures Exposures (tobacco advertising, promotions, and samples and pro-tobacco depictions in films, television, and videos) were categorized as low or high engagement based on the degree of psychological involvement required.

Main Outcome Measures Outcomes were categorized as cognitive (attitudes or intentions) or behavioral (initiation, tobacco use status, or progression of use).

Results Exposure to pro-tobacco marketing and media increases the odds of youth holding positive attitudes toward tobacco use (odds ratio, 1.51; 95% confidence interval, 1.08-2.13) and more than doubles the odds of initiating tobacco use (odds ratio, 2.23; 95% confidence interval, 1.79-2.77). Highly engaging marketing and media are more effective at promoting use (odds ratio, 2.67; 95% confidence interval, 2.19-3.25). These effects are observed across time, in different countries, with different study designs and measures of exposure and outcome.

Conclusions Pro-tobacco marketing and media stimulate tobacco use among youth. A ban on all tobacco promotions is warranted to protect children.

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