CHAPTER 7

SMOKING CONTROL POLICIES

CONTENTS

INTRODUCTION

This Chapter describes and evaluates policy measures that have affected, have been intended to affect, or might be expected to affect, smoking behavior. For current purposes, the term policy refers to a set of rules that guide the present and future behavior of individuals and organizations to achieve a specific goal. Smoking control policies encompass a diverse group of actions in both the public and private sectors. They share the common potential for reducing the burden of tobacco-induced illness by decreasing the prevalence and intensity of cigarette smoking in the United States.

The smoking control policies discussed here interact with and often complement nonpolicy activities, such as smoking cessation and prevention programs, described in Chapter 6. The distinction made here is that policies primarily involve the setting of rules, whereas nonpolicy activities are usually offered on a voluntary basis to smokers or potential smokers and attempt to influence directly the decision to smoke. The notion of policymaking is often associated primarily with government, but private sector organizations, such as schools, businesses, and health care facilities, have also set policies that influence smoking. Conversely, nonpolicy actions, such as voluntary smoking cessation programs, may be undertaken by Government units like Federal agencies or the Armed Forces, although most such activities are conducted by private organizations.

This Chapter covers tobacco control policies that have been adopted or seriously considered by Federal, State, and local governments and by the private sector, focusing on developments since the release of the first Surgeon General's Report in 1964. Each section reviews the history and rationale for adopting a particular policy, analyzes what is known about its impact on smoking behavior, and discusses related policies under serious consideration. While it would be ideal to determine the independent effect of each policy on public knowledge and smoking behavior, in many cases this is difficult to assess. Smoking control policies occur in a context of multiple social influences on smoking; individual policies overlap in time with each other and with the nonpolicy influences on smoking described in Chapter 6. Because relatively few studies adequately control for potentially confounding influences on smoking, it is often difficult to identify the effect of an individual policy on smoking behavior or knowledge. Chapter 8 considers the aggregate impact of antismoking activities and changing social norms over the past 25 years, including both policy and nonpolicy actions, on smoking.

The focus of the Chapter is necessarily on cigarettes; they are the predominant form of tobacco use, the cause of the overwhelming majority of tobacco-related diseases, and the subject of most policy efforts. Nonetheless, the Chapter also includes policies that target other forms of tobacco use. As with the rest of this Report, the Chapter's scope is limited to the United States; smoking control policies outside the United States have been reviewed by Roemer (1982, 1986). Furthermore, the Chapter does not cover tobacco trade policy, because it has limited relevance to smoking prevalence in the United States.

The targets of smoking-related policies are diverse; they include not only consumers (smokers) or potential consumers of tobacco products, but also suppliers, growers,

manufacturers, distributors, and vendors. To summarize the array of tobacco control policies that have been considered or adopted, this review follows a classification proposed by Walsh and Gordon (1986): (1) educational and persuasive efforts, (2) economic incentives, and (3) direct restraints on tobacco use, manufacture, or sales (Table 1). Policies in the first category aim to inform the public about the health risks of smoking and persuade individuals to stop, or not to start, smoking. The second group of policies involves market mechanisms that increase the costs of smoking to the manufacturer, the vendor, or the consumer of tobacco products. The third category includes public policies that directly reduce opportunities to smoke by limiting the sale or use of tobacco products or that attempt to reduce the toxicity of tobacco products by regulating their contents. In many instances, policies that are educational for consumers have a regulatory nature for suppliers. An example is the Federal Government's requirement that all cigarette packages carry a Surgeon General's warning. In these cases, policies are categorized according to their influence on consumers or potential consumers.

Although broad in its coverage, the Chapter is limited to policies that have been adopted or seriously considered for adoption in the near future. Considerations of space and emphasis have forced the exclusion of a few policies that have been discussed in both the news media and the academic literature. Perhaps most conspicuously, this Chapter includes no discussion of tobacco farm policy. In particular, the tobacco price support and allotment system (better known as the tobacco "subsidy") is not considered. The impact of this policy on smoking and health is indirect (Warner 1988). Similarly, no attempt is made in this Report to examine the issue of how governments might facilitate tobacco farmers' transition to other crops or careers (Warner et al. 1986b).

Furthermore, this Chapter does not discuss other activities that might have a substantial impact on smoking but are not properly categorized as policies. A prominent example is tobacco product liability suits, which seek to establish the legal liability of tobacco manufacturers for the tobacco-related illnesses of smokers (Daynard 1988). The lawsuits themselves are private matters, not policy issues, and while there are policy issues relevant to the lawsuits, the lack of a significant body of literature on the issues of interest precludes coverage of them. Finally, the Chapter does not treat in detail the strongest potential policy: a total ban on tobacco sales and use. Given the addictiveness of tobacco, the unique history of tobacco use (which was widespread and culturally accepted long before the hazards were fully appreciated) and the Nation's experience with alcohol prohibition, a total ban on tobacco is at present neither widely discussed nor likely to be adopted.

TABLE 1.-Past, present, and proposed tobacco control policies

Information and education	Economic incentives	Direct restraints on tobacco use
1. Require health warnings A. Packages B. Advertising	1. Increase tobacco taxation (e.g., excise tax)	1. Restrict smoking in certain places (e.g., public places, workplaces, schools, hospitals)
2. Require disclosure of constituents of tobacco products or smoke A. Tar, nicotine, carbon monoxide B. Tobacco product additives	2. Mandate insurance incentives A. Premium price differentials (smoker-nonsmoker) B. Cover smoking cessation treatment costs	2. Restrict distribution (sales) A. By age (minors) B. Via certain outlets (e.g., vending machines)
3. Mandate educational programs A. Schools B. Mass media	3. Reduce or eliminate tobacco price supports[a]	3. Regulate product composition
4. Issue Government reports	4. Establish legal liability of producer[a]	4. Ban manufacture, sale, or use[a]
5. Fund smoking research and programs		
6. Restrict or ban advertising and promotion		

[a]Not discussed in this Report.

SOURCE: Modified from Walsh and Gordon (1986).

PART I. POLICIES PERTAINING TO INFORMATION AND EDUCATION

The majority of Government activity on smoking and health has consisted of providing information and education to the public (Walsh and Gordon 1986). This encompasses a broad range of policies whose primary aim is to warn the public about the health risks of smoking. This information might discourage individuals from starting or continuing to smoke, or at minimum permit them to be informed smokers. The informational message on smoking and health has broadened considerably since 1964, when the first Surgeon General's Report stimulated efforts to educate the public about the health effects of cigarette smoking. As further scientific knowledge accumulated on related topics, the content of information conveyed to the public expanded to include the health effects of using other tobacco products (US DHHS 1986c), the health consequences of involuntary tobacco smoke exposure (US DHHS 1986b), the addictive nature of smoking behavior (US DHHS 1988), and methods for quitting smoking (US DHEW 1979; US DHHS 1988).

Government efforts to warn the public about the dangers of tobacco use have included these activities: (1) requiring that some information about health risks be placed on packages of cigarettes and smokeless tobacco products and on advertisements; (2) requiring that schools teach curricula on smoking and health; (3) reducing the influence of prosmoking messages by regulating or restricting some types of cigarette advertising and promotion; (4) mandating the broadcast of antismoking messages on the electronic media in the late 1960s under the Federal Communication Commission's Fairness Doctrine; and (5) requiring the preparation of reports that summarize information on smoking and health and review public and private tobacco control activities. In addition, the Federal Government has encouraged and monitored the tobacco industry's testing and disclosure of the levels of certain tobacco smoke constituents.

In the private sector, information and education on smoking behavior and the health consequences of smoking have been provided by voluntary actions of health organizations, schools, health professionals, the mass media, and other groups and individuals. These efforts are described in Chapter 6.

This Section covers Federal, State, and local government actions whose goals are to inform and educate. It describes public policies of the past 25 years in the United States, summarizes available data on their effectiveness, and reviews the current status of policies under consideration. Finally, because funding levels have influenced the extent of Government's educational efforts, this Section also reviews the magnitude of Government expenditures on smoking and health.

Warning Labels on Tobacco Products

For the purpose of this Report, the term labeling is used to refer to the provision of health-related information on packages and in advertising. Warning labels could include either brief statements printed on tobacco packages or more detailed information placed on package inserts, similar to those required for pharmaceutical products.

History and Current Status

One of the earliest and best known mechanisms that the Federal Government used to inform the public about the health hazards of smoking was requiring that a warning label be placed on cigarette packages. Warning labels developed largely as a consequence of policy initiatives originated by the Federal Trade Commission (FTC) and subsequently modified by congressional action. This effort began shortly after January 11, 1964, when the Surgeon General released the Report of the Advisory Committee on Smoking and Health (US PHS 1964). Eleven days after the release of the Report, the FTC proposed three rules that would have required health warnings on cigarette packages and advertisements and imposed certain restrictions on cigarette advertising (FTC 1964a). The proposals were notable both for their comprehensiveness and for the speed with which they were published following the release of the Advisory Committee's Report. The FTC's proposed Rule 1 would have required that every cigarette advertisement and every pack, box, carton, and other container in which cigarettes were sold to the public carry one of the following warnings:

> CAUTION: CIGARETTE SMOKING IS A HEALTH HAZARD: The Surgeon General's Advisory Committee on Smoking and Health has found that "cigarette smoking contributes substantially to mortality from certain specific diseases and to the overall death rate."
>
> CAUTION: Cigarette smoking is dangerous to health. It may cause death from cancer and other diseases.

After a 6-month comment period and public hearings, the FTC issued its final rule on June 22, 1964; this was published in the *Federal Register* on July 2, 1964 (FTC 1964b). The final rule resembled Proposed Rule 1; it required that all cigarette advertising and every container in which cigarettes were sold to consumers disclose clearly and prominently that cigarette smoking is dangerous to health and may cause death from cancer and other diseases. However, the final rule did not specify the exact wording of the warning, which was left up to the tobacco companies to determine. January 1, 1965, was set as the effective date for the package warning, and July 1, 1965, for the warning on advertisements. The effective date for the package label was later delayed until July 1, 1965, in response to a congressional request (Fritschler 1969).

The FTC regulation was preempted before it took effect by the Federal Cigarette Labeling and Advertising Act of 1965 (Public Law 89-92), which was approved by Congress on July 1, 1965, and signed into law on July 27. This Act was the outcome of lengthy congressional debate in 1964 and 1965 about cigarette labeling requirements and advertising restrictions (Ernster 1988). The law, which became effective on January 1, 1966, was the first of a series of Federal statutes enacting labeling requirements for tobacco products (Table 2). Overall, the provisions of the law were less stringent than the FTC regulations they replaced. The law required that all cigarette packages contain the health warning "Caution: Cigarette Smoking May Be Hazardous to Your Health." However, it required no label on cigarette advertisements and temporarily (through June 1969) prohibited any government body, such as Federal regulatory agencies or States, from requiring a health warning in cigarette advertising. The Act also prohibited any health warning on cigarette packages other than the statement re-

quired by the Act itself. According to the Act's "Declaration of Policy," the warning was required so that "the public may be adequately informed that cigarette smoking may be hazardous to health." The day after the Act was signed into law, the FTC issued an order vacating its trade regulation rule (FTC 1965).

The Federal Cigarette Labeling and Advertising Act also required that the FTC transmit annually to Congress a report on the effectiveness of cigarette labeling, current cigarette advertising and promotion practices, and recommendations for legislation. In its first report to Congress, submitted in June 1967, the FTC recommended that the health warning be extended to cigarette advertisements and be strengthened to read: "Warning: Cigarette Smoking Is Dangerous to Health and May Cause Death from Cancer and Other Diseases" (FTC 1967). On May 20, 1969, just before expiration of the congressionally imposed moratorium on its action, the FTC announced a proposed rule that would have required all cigarette advertisements "to disclose, clearly and prominently, . . . that cigarette smoking is dangerous to health and may cause death from cancer, coronary heart disease, chronic bronchitis, pulmonary emphysema, and other diseases" (FTC 1969a).

During this time, hearings were being held in Congress on cigarette labeling and advertising issues. On April 1, 1970, the Public Health Cigarette Smoking Act of 1969 (Public Law 9l-222), which banned cigarette advertising on television and radio, was signed into law. The labeling provisions of this law, like its predecessor's, were less stringent than the FTC regulations they preempted. The Act (effective November 1, 1970) did strengthen the health warning on cigarette packages to read: "Warning: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health." However, it continued to prohibit any other health warning requirement for packages and to prohibit the FTC (through June 1971) from issuing regulations that would require a health warning in cigarette advertising.

In late 1971, after the second congressionally mandated moratorium on its actions had expired, the FTC announced its intention to file complaints against cigarette companies for failure to warn in their advertising that smoking is dangerous to health. Subsequent negotiations between the FTC and the cigarette industry resulted in consent orders on March 30, 1972, requiring that all cigarette advertising display "clearly and conspicuously" the same warning required by Congress on cigarette packages (FTC 198lb).

The 1972 consent order specified the type size of the warning in newspaper, magazine, and other periodical advertisements of various dimensions. For billboard advertisements, the size of the warnings was specified in inches (FTC 1972). In 1975, the U.S. Government filed a complaint in the U.S. District Court for the District of Columbia for alleged violations of the consent order, including failure to display the health warning in some advertising, billboard warnings in letters smaller than required, and improper placement of the warning in some advertisements (FTC 1982). This action ultimately led to judgments in 1981 by the U.S. District Court for the Southern District of New York against the six major cigarette companies *(U.S.A. v. Liggett et al.* 1981; *U.S.A. v. R.J. Reynolds* 1981). Among other things, these judgments required the cigarette companies to use larger lettering in billboard advertisements. Under this settlement, the format and size of the warning for advertisements of various dimensions

TABLE 2.--Major legislation related to information and education about tobacco and health in the United States

Law	Date	Major provisions and Federal agency affected			
		Labeling requirements	Advertising	Congressional reporting requirements	Other
Federal Cigarette Labeling and Advertising Act (PL 89-92)	1965	Health warning on cigarette packages Preempted other package warnings Temporarily preempted any health warning on cigarette advertisements (FTC)		Annual report to Congress on health consequences of smoking (DHEW) Annual report to Congress on cigarette labeling and advertising (FTC)	
Public Health Cigarette Smoking Act (PL 91-222)	1969	Strengthened health warning on cigarette packages Preempted other warnings on packages Temporarily preempted FTC requirement of health warning on cigarette advertisements[a] (FTC)	Prohibited cigarette advertising on television and radio (DOJ) Preempted any State or local requirement or prohibition based on smoking and health with respect to cigarette advertising or promotion	Annual report to Congress on health consequences of smoking (DHEW) Annual report to Congress on cigarette labeling and advertising (FTC)	
Little Cigar Act (PL 93-109)	1973		Extended broadcast ban on cigarette advertising to "little cigars" (DOJ)		

TABLE 2.--Continued

Law	Date	Major provisions and Federal agency affected			
		Labeling requirements	Advertising	Congressional reporting requirements	Other
Comprehensive Smoking Education Act (PL 98-474)	1984	Replaced previous health warning on cigarette packages and advertisements[a] with system requiring rotation of four specific health warnings Preempted other package warnings		Biennial status report to Congress on smoking and health (DHHS)	Created the Federal Interagency Committee on Smoking and Health (DHHS) Cigarette industry must provide a confidential list of cigarette additives[c] (DHHS)
Comprehensive Smokeless Tobacco Health Education Act (PL 99-252)	1986	Rotation of three health warnings on smokeless tobacco packages and advertisements (in circle-and-arrow format on advertisements) Preempted any other health warning on smokeless tobacco packages or advertisements (except billboards)	Prohibited smokeless tobacco advertising on television and radio (DOJ)	Biennial status report to Congress on smokeless tobacco (DHHS) Biennial report to Congress on smokeless tobacco sales, advertising, and marketing practices (FTC)	Required public information campaign on health hazards of using smokeless tobacco (DHHS)[b] Smokeless tobacco companies must provide a confidential list of additives and a specification of nicotine content in smokeless tobacco products (DHHS)[c]

NOTE: DHEW, Department of Health, Education, and Welfare (now the Department of Health and Human Services (DHHS)); FTC, Federal Trade Commission: DOJ, Department of Justice.

[a]The requirement for a health warning on cigarette packages was extended to cigarette advertisements by an FTC consent order in 1972 (see text).

[b]No funds have been appropriated to carry out this campaign.

[c]List of additives does not identify company or cigarette brand. No public disclosure of additives on packages or advertisements required and no other public disclosure allowed.

were specified in acetate exhibits that are maintained on file at the FTC. The Comprehensive Smoking Education Act of 1984 (Public Law 98-474) again increased the size of the letters, but in the case of billboard ads, it did so only by requiring that all letters be uppercase. This Act was the first to codify into law the requirement for and the sizes of the warnings on ads.

In 1981, the FTC sent a staff report to Congress that concluded that the warning appearing on cigarette packages and in advertisements was no longer effective. The report noted that the warning did not communicate information on the significant, specific risks of smoking and concluded that the warning had become overexposed and "worn out" (FTC 1981b). The report recommended changing the shape of the warning to a circle-and-arrow format (for example, see Figure 1), increasing the size of the warning, and replacing the existing warning with a system of short rotational warnings.

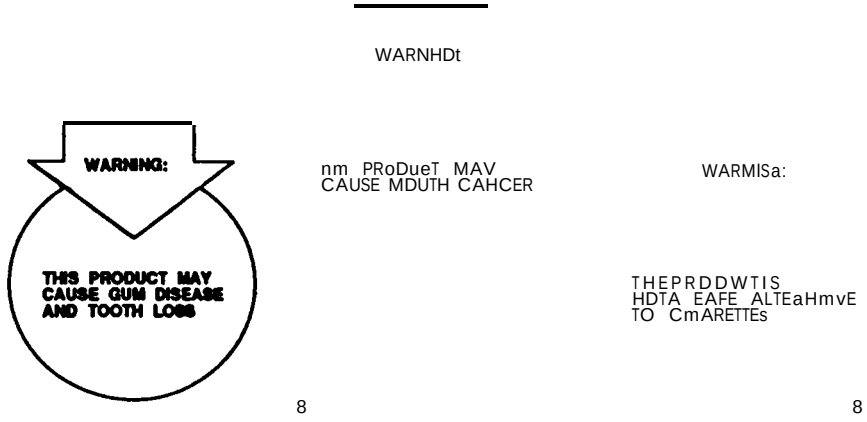


FIGURE 1.--Health warnings required for smokeless tobacco advertisements (except billboards)

Some of these recommendations were enacted by Congress as part of the Comprehensive Smoking Education Act (Public Law 98-474), which was signed into law on October 12, 1984. Effective October 12, 1985, it required cigarette companies to rotate four warnings on all cigarette packages and in advertisements (see Table 3). This was the first time that health warnings on cigarette advertisements were the result of legislative rather than regulatory action. The four warnings mandated for cigarette advertisements on outdoor billboards were slightly shorter versions of the messages required in other advertisements and on packages. The Act did not amend the existing prohibition of any other health warnings on cigarette packages and the preemption of State action, but it did not impose a similar preemption of other health warnings by Federal authorities in cigarette advertising.

The Comprehensive Smoking Education Act of 1984 required each cigarette manufacturer to obtain FTC approval for its plans to implement the rotational warning

TABLE 3.--Health warnings required on tobacco packages and advertisements in the United States.

CIGARETTES

Warning(s)	Effective dates	Applicability	
		Packages	Advertise-ments
CAUTION: Cigarette Smoking May Be Hazardous to Your Health.	January 1, 1966-October 31, 1970	X	
WARNING: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health.	November 1, 1970-October 11, 1985	X	
	1972-October 11, 1985		X[a]
SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy.	October 12, 1985-present	X	X[b]
SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health.			
SURGEON GENERAL'S WARNING: Smoking by Pregnant Women May Result in Fetal Injury, Premature Birth, and Low Birth Weight.			
SURGEON GENERAL'S WARNING: Cigarette Smoke Contains Carbon Monoxide.			

SMOKELESS TOBACCO

Warnings	Effective dates	Applicability	
		Packages	Advertise-ments
WARNING: This product may cause mouth cancer.	February 27, 1987-present	X	X[c]
WARNING: This product may cause gum disease and tooth loss.			
WARNING: This product is not a safe alternative to cigarettes.			

[a]Required by Federal Trade Commission consent order. All other warnings required by Federal legislation.

[b]The four warnings mandated for cigarette advertisements on outdoor billboards are slightly shorter versions of the same messages.

[c]The warnings on advertisements must appear in a circle-and-arrow format (see Figure 1). No warnings are required on outdoor billboards.

system. Legislation was subsequently enacted that permitted certain smaller manufacturers and importers to display simultaneously all four warnings on packages instead of by quarterly rotation (Nurse Education Amendments of 1985, Section 11, amending section 4(c) of the Federal Cigarette Labeling and Advertising Act, 15 U.S.C. 1333(c)). This practice is now followed by 20 to 25 small manufacturers and importers.

More recently, Congress has extended requirements for warning labels to smokeless tobacco products. In early 1986, two national review groups, a National Institutes of Health Consensus Development Conference (US DHHS 1986a) and the Surgeon General's Advisory Committee on the Health Consequences of Using Smokeless Tobacco (US DHHS 1986c), issued reports concluding that smokeless tobacco can cause oral cancer and a number of noncancerous oral conditions. Between 1985 and 1986, the State of Massachusetts adopted legislation requiring warning labels on packages of snuff, and 25 other States considered similar legislation (Connolly et al. 1986).

The Massachusetts law was preempted before it took effect by the Federal Comprehensive Smokeless Tobacco Health Education Act of 1986 (Public Law 99-252), which was signed into law on February 27, 1986. The Act requires one of three warnings to be displayed on all smokeless tobacco packages and advertisements (except billboards) (Table 3). It requires that the three package warnings "be randomly displayed . . . in each 12-month period in as equal a number of times as is possible on each brand of the product and be randomly distributed in all parts of the United States in which such product is marketed." On advertisements, the law requires rotation of each warning every 4 months for each brand. The warnings on advertisements are required to appear in the circle-and-arrow format recommended earlier by the FTC for cigarette warnings (FTC 1981b) (Figure 1). The Act prohibits Federal agencies or State or local jurisdictions from requiring any other health warnings on smokeless tobacco packages and advertisements (except billboards). No other Federal, State, or local actions were preempted by the Act. The FTC issued regulations implementing the law on November 4, 1986 (FTC 1986b).

Package inserts provide the opportunity to present more detailed information to the consumer than is possible with a warning label. They are a standard way of providing consumers with information about pharmaceutical products, but they have not been proposed for tobacco products in the United States. When used for prescription pharmaceuticals, patient package inserts have been generally effective in providing patients with information (US DHHS 1987d; Morris, Mazis, Gordon 1977) but have not been demonstrated to be effective in altering behavior (Dwyer 1978; Morris and Kanouse 1982). Information about smoking risks is included in the package insert for one class of pharmaceutical agents marketed in the United States. After several studies published between 1975 and 1977 reported that smoking increases the cardiovascular disease risks associated with oral contraceptive use (US DHEW 1978), the Food and Drug Administration (FDA) issued a regulation on January 31, 1978 requiring that as of April 3, 1978, packages of oral contraceptives contain a printed leaflet with the following boxed warning:

> Cigarette smoking increases the risk of serious adverse effects on the heart and blood vessels from oral contraceptive use. This risk increases with age and with heavy smoking (15

or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should not smoke (FDA 1978).

The information provided to consumers of another nicotine-containing product contrasts with the information provided to consumers of tobacco products. The patient package insert for nicotine polacrilex gum, a nicotine-containing product approved by the FDA as an adjunct to smoking cessation programs, informs users of the addictiveness of nicotine and its potential effects on the fetus (US DHHS 1988). The product insert does not mention the risks of cigarette smoking, but it does state: "Warning to female patients: Nicorette contains nicotine which may cause fetal harm when administered to a pregnant woman. Do not take Nicorette if you are pregnant or nursing." The insert also warns that dependence on Nicorette "may occur when patients who are dependent on the nicotine in tobacco transfer that dependence to the nicotine in Nicorette gum."

Effectiveness of Cigarette Warning Labels

In May 1987, the Assistant Secretary for Health, Department of Health and Human Services, transmitted a report to Congress on the effects of health warning labels (US DHHS 1987d). Based on a review of the research literature, the report reached three major conclusions. First, health warning labels can have an impact on consumers if designed to take account of factors that influence consumer response to warning labels (e.g., a consumer's previous experience with the product, previous knowledge of the risks associated with product use, and education and reading levels). Second, health warning labels can have an impact upon the consumer if the labels are designed effectively (e.g., visible format and providing specific rather than general information). Third, studies that have examined the impact of health warning labels in "real world" situations have concluded that the labels did have an impact on consumer behavior. The report cautioned, however, that the results of these studies "cannot be regarded as conclusive evidence that health warning labels are necessarily effective in all situations." This Section reviews evidence related to the effectiveness of cigarette warning labels in the United States.

As noted above, the Federal Cigarette Labeling and Advertising Act of 1965 (Public Law 89-92), which required the first warning label on cigarette packages, stated that the health warning was required so that "the public may be adequately informed that cigarette smoking may be hazardous to health." More specific communications objectives were not set by legislation mandating warning labels. Generally, however, the goal of warning labels has been to increase public knowledge about the hazards of cigarette smoking. Such knowledge might deter individuals from starting or continuing to smoke.

Despite the fact that cigarette warning labels have been required since 1966, there are few data about their effectiveness in meeting any objective. As described below, empirical evidence is available about the cigarette warnings' visibility to consumers, and it is consistent with analyses based on communications theory. However, there are no controlled studies to permit a definitive assessment of the independent impact of

cigarette warning labels on knowledge, beliefs, attitudes, or smoking behavior. In particular, there has been little evaluation of the impact of the rotating warning labels required since 1985.

If warning labels are to have any effect, they must actually appear on packaging and in advertising as required by law. Available evidence indicates that the tobacco industry has complied with disclosure obligations. For example, a study examining health warnings in magazine ads as an indicator of the industry's compliance with the 1984 labeling legislation found that the industry complied with the law (Davis, Lyman, Binkin 1988). The U.S. Department of Justice is empowered to enforce the disclosures required by the various labeling laws. According to the FTC (FTC 1967, 1969b, 1974, 1982, 1986a, 1988a,b) no actions have been brought by the Department of Justice for violations of labeling regulations, and the Commission has brought no action for failure to include the warnings in advertising (with the exception of the billboard and transit advertising enforcement proceedings discussed above). As of October 1988, no action had been sought against a cigarette manufacturer for a violation of the Comprehensive Smoking Education Act of 1984.

Despite the industry's compliance with the required warning labels, there is empirical evidence that the public did not pay much attention to the pre-1985 labels in advertisements; little information is available about the visibility of warning labels on packaging. In a Starch Message Report Service test of 24 different magazines in 1978, only 2.4 percent of the adults exposed to the cigarette ads read the pre-1985 Surgeon General's warning in those ads (FTC 1981b). Similarly, a study of seven Kool ads conducted in 1978 for the Brown and Williamson Tobacco Company found that only 2.4 percent of the respondents read the entire warning; the average time spent examining the warning was less than 0.3 seconds. In an advertising copy test conducted for the Liggett and Meyers Tobacco Company in 1976, no respondents read the entire warning (FTC 1981b). More recent studies of later cigarette and smokeless tobacco advertisements suggest that little attention is paid to the post--1984 health warnings. An eye-movement study examined the rotational cigarette warnings in magazine ads in a sample of 61 adolescents. Over 40 percent of the subjects did not view the warning at all; another 20 percent looked at the warning but did not read it (Fischer et al. 1989). Similarly low levels of warning recall were found for the recently introduced smokeless tobacco warnings (Popper and Murray 1988).

These findings are consistent with analyses of the visual imagery of tobacco advertising, which note that the structures of the ads draw consumers' attention away from the warnings contained in the ads (Richards and Zakia 1981; Zerner 1986). It has also been argued that the sheer volume of cigarette advertising, all applying the basic themes of product satisfaction, positive image associations, and risk minimization (Popper 1986b), overwhelm the in-advertisement warnings (Schwartz 1986).

In some advertising media, the cigarette warnings may not be readable. In a study of cigarette advertisements on 78 billboards and 100 taxicabs, Davis and Kendrick (1989) compared the readability of the Surgeon General's warning with recognition of the content of the cigarette advertisement. Under typical driving conditions, they found that a passing motorist could read the warning in about half of street billboard advertisements and in only 5 percent of highway billboard advertisements. The warn-

ing could not be read by a stationary observer in any of the taxicab advertisements. In contrast, the brand name could be read and notable imagery in the advertisements could be identified in almost all cases. Cullingford and coworkers (1988), using a model to assess the optical limits of the eye, showed that only about half of the health warnings on 37 billboard cigarette advertisements in Australia were legible to passing motorists; on the other hand, 98 percent of the brand names were legible.

Despite these findings, a national survey conducted by Lieberman Research, Inc. (1986) showed moderate recall of the post-1984 warnings 9 months after they began to appear on packages and advertisements. In this random survey of 1,025 Americans 18 years of age and older, 64 percent of all respondents and 77 percent of cigarette smokers said they recalled seeing one or more of the new warnings on cigarette packages. Lieberman concluded that this "represents a high level of penetration in a relatively short time period."

Respondents were also asked whether they recalled seeing each of the four warnings as well as the pre-1985 warning and a fictitious warning ("Smoking reduces life expectancy by an average of 6 years"). Recall of the true warnings ranged from 28 to 46 percent of all respondents (40 to 55 percent of smokers); recall of the carbon-monoxide warning was lowest among the four. Recall of the pre-1985 warning was substantially higher (85 percent of all respondents, 94 percent of smokers). Recall of the fictitious warning was 10 percent for the total sample as well as for smokers. Because the fictitious warning differed in style from the true warnings by presenting quantitative information, it is possible that stated recall of the fictitious warning was lower, at least in part, because of inferences made by respondents (as opposed to genuine differences in recall). The proportion who believed that a particular warning was "very" or "fairly" effective in convincing people that smoking is harmful ranged from 40 percent for the carbon-monoxide warning to 76 percent for the warning about lung cancer, heart disease, emphysema, and complications of pregnancy (the corresponding proportion for the pre-1985 warning was 56 percent).

Analyses of the wording and format of mandated health warnings have identified reasons why their impact may be limited even if they are noticed and read. Use of conditional words such as "can" or "may" anywhere in the warning can dramatically reduce the effect of the entire warning (Linthwaite 1985). Two of the current rotational warnings include the word "may." The other two warnings ("Quitting Smoking Now Greatly Reduces Serious Risks to Your Health" and "Cigarette Smoke Contains Carbon Monoxide") are not warnings but statements of fact; linguistically, consumers might be expected to minimize their impact (Dumas, in press). Furthermore, information in the current warnings is presented technically and abstractly rather than in a concrete and personal manner. A reader is more likely to read and learn information that is made personally relevant as opposed to that which is abstract and technical (Fishbein 1977). Researchers who have addressed the format of warnings have found that consumers' attention will be most effectively caught by novel formats (Cohen and Srull 1980). This line of study has suggested that the communications effectiveness of the post-1984 warnings may have been diminished because the same rectangular shape of the pre-1985 warnings was maintained (Bhalla and Lastovicka 1984).

The analysis of time trends in national survey data provides an opportunity to assess the effect of health warning labels on public knowledge of the health risks of smoking. As described in Chapter 4, public knowledge of these health effects has increased since 1966, when the first health warning label was required. Because warning labels were only one of a number of educational influences during this period, most researchers have concluded that it is impossible to isolate the effect of the warnings from other information sources (US DHHS 1987d; FTC 1974; Murphy 1980). Similarly, it is impossible to determine any independent effect of health warnings on aggregate cigarette sales (FTC 1967, 1969b). In sum, there are insufficient data to determine either the independent contribution of cigarette warning labels to changes in knowledge or smoking behavior or the precise role played by warning labels as part of a comprehensive antismoking effort.

Perhaps the most powerful indirect index of the effect of health warnings, along with other sources of information, is the number of smokers and consumers in general who remain unaware of the health risks of smoking. After a comprehensive review of studies on health risk awareness, including publicly generated studies and those conducted by the tobacco industry, the FTC concluded that significant numbers of consumers in general and even higher numbers of smokers were unaware of even the most rudimentary health risk information about smoking (FTC 1981b). It was this lack of consumer awareness that led the FTC to call for revised and expanded rotational warnings for cigarettes. More recent data reveal that a substantial minority of smokers still does not believe that smoking causes lung cancer, heart disease, emphysema, and other diseases, and the majority of smokers underestimate the degree of increased health risk posed by smoking. (See Chapter 4.)

Summary

As a result of policies described in this Section, a system of rotating health warning labels is currently required for all cigarette and smokeless tobacco packaging and advertisements in the United States. This system, established by congressional legislation in 1984 (for cigarettes) and 1986 (for smokeless tobacco products), achieves a portion of one of the Health Objectives for the Nation for 1990:

> By 1985, the present cigarette warning should be strengthened to increase its visibility and impact, and to give the consumer additional needed information on the specific multiple health risks of smoking. Special consideration should be given to rotational warnings and to identification of special vulnerable groups.

The 1984 Act provided the consumer with some of that "needed information," although the four mandated warnings provide less information than would have been provided by the 16 warnings described to the U.S. Congress in the 1981 FTC Report (FTC 1981b; Keenan and McLaughlin 1982). There is no legislated mechanism for monitoring the visibility or communications effectiveness of existing warning labels, and there are insufficient data to determine whether the visibility and impact of the warnings have increased as a result of the 1984 Act. Furthermore, current legislation does not provide a mechanism for updating the content of labels to reflect advances in

knowledge about health effects and smoking behavior. One example of changing knowledge is the growing scientific awareness of the addictive nature of tobacco use, which was the subject of the 1988 Surgeon General's Report (US DHHS 1988). In that Report, the Secretary of Health and Human Services, the Assistant Secretary for Health, and the Surgeon General recommended that a new health warning label on the addictive nature of tobacco use be required on cigarette and smokeless tobacco packages and advertisements. On the day of the Report's release (May 16, 1988), legislation was introduced in the U.S. Senate that would require a warning to read: "Smoking is addictive. Once you start, you may not be able to stop" (S. 2402). Other bills that include provisions calling for a warning label on addiction have also been introduced in Congress. As of November 1988, this legislation was not enacted.

Currently, labels are not required on cigarettes made for export or on cigarettes manufactured abroad by U.S. tobacco companies. Federal law does not require warning labels on other tobacco products, such as cigars, pipe tobacco, and roll-your-own cigarette tobacco, despite the established health risks associated with cigar and pipe smoking (US DHEW 1979; US DHHS 1982a, 1984; Chapter 2). During the early 1970s there was particular concern about the health risks for individuals who smoke "little cigars" (US DHEW 1973). In its 1974 report to Congress (FTC 1974), the FTC recommended that the following warning be required on little-cigar packages: "Warning: Smoking Little Cigars May be Dangerous to Your Health if Inhaled and Smoked in the Same Quantities as Cigarettes." The Little Cigar Act of 1973 (Public Law 93-109) extended the broadcast advertising ban for cigarettes to little cigars, but neither this Act nor subsequent legislation extended requirements for health warnings to little cigars (Table 2).

A warning label will appear on cigars and pipe tobacco sold in California, as a result of an agreement reached on October 18, 1988, between tobacco manufacturers and the State of California. Twenty-five tobacco manufacturers, along with eight retailers, had been sued by California's Attorney General for failing to comply with the State's Safe Drinking Water and Toxic Substances Enforcement Act, which requires warnings on all consumer products containing chemicals known to cause cancer or reproductive toxic effects (Wilson 1988a; Kizer et al. 1988). Because existing distribution systems for cigars do not easily permit the labeling of cigars destined only for California, the president of the Cigar Association of America indicated that most cigars sold in the United States would carry warning labels (Wilson 1988a). As of October 1988, the effect of the settlement on warning labels for pipe tobacco sold outside California was unknown.

Tobacco labeling requirements in other countries (Roemer 1982, 1986) provide comparisons for current labeling practices in the United States. Outside the United States, six countries (Finland, Iceland, Ireland, Norway, Sweden, and the United Kingdom) have enacted a rotational warning requirement. A Swedish law, adopted in 1976, requires the rotation of 16 warning statements on cigarette packages. Ireland requires the rotation of three brief, direct statements on cigarette packages and advertisements: "SMOKING CAUSES CANCER," "SMOKERS DIE YOUNG," and "SMOKING KILLS!" In the United Kingdom, one of six rotated warnings indicates smoking-attributable mortality: "More than 30,000 People Die Each Year in the UK from Lung

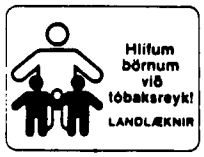
Cancer." Since 1985, Iceland has required the rotation of pictorial warnings (Figure 2). Several countries also require health warnings on packages of cigars and pipe tobacco. On packages of cigars, cigarillos, and pipe tobacco, for example, Ireland requires the warning: "SMOKING SERIOUSLY DAMAGES YOUR HEALTH." On June 29, 1988, Canada's House of Commons enacted a new labeling law as part of a comprehensive package of smoking restrictions, the Tobacco Products Control Act (House of Commons of Canada 1988). Canada's current cigarette warning labels will be replaced by a mandatory package insert that details all known health risks of smoking.

1. Smoking during pregnancy endangers the health of mother and child.

DIRECTOR GENERAL OF PUBLIC HEALTH.

2. Smoking may damage your arteries and cause heart attack.

DIRECTOR GENERAL OF PUBLIC HEALTH.



3. Protect children from tobacco smoke.

DIRECTOR GENERAL OF PUBLIC HEALTH.

4. If you stop smoking you improve your health and increase your life expectancy.

DIRECTOR GENERAL OF PUBLIC HEALTH.

5. Smoking is a health problem you can help to solve.

DIRECTOR GENERAL OF PUBLIC HEALTH.

6. Hundreds of Icelanders die each year due to smoking.

DIRECTOR GENERAL OF PUBLIC HEALTH.

7. Tobacco smoke pollutes the air and is a health hazard.

DIRECTOR GENERAL OF PUBLIC HEALTH.

8. Snuff and chewing-tobacco may damage the mucous membranes.

DIRECTOR GENERAL OF PUBLIC HEALTH.

Cigarettes, labels no. 1,2,3,4,5 and 6
Cigars and pipe tobacco, labels no. 3 and 7
Snuff and chewing tobacco, label no. 8

FIGURE 2.—Health warnings on tobacco packages in Iceland according to regulation no. 499/1984

SOURCE: Blondal and Magnusson (1985).

Disclosure of Tobacco Product Constituents

History and Current Status

The FTC has also been concerned with the disclosure, on packaging and in advertising, of information about the constituents of tobacco smoke (e.g., tar, nicotine, and carbon monoxide). More recently, there has also been growing interest in the identity and amounts of other ingredients added to tobacco products during the manufacturing process.

The first industrywide regulation occurred even before the release of the first Surgeon General's Report. In the mid- to late 1950s, many cigarette advertisements made conflicting claims for the tar and nicotine levels of various brands. This period became known as the "Tar Derby" (Wagner 1971a; Whiteside 1971). On September 15, 1955, after a year of conferences with the cigarette industry, the FTC promulgated cigarette advertising guidelines "for the use of its staff in the evaluation of cigarette advertising" (FTC 1964b). These guidelines, among other things, sought to prohibit cigarette advertising that made unsubstantiated claims about the level of nicotine, tars, or other substances in cigarette smoke. By 1960, the FTC obtained agreements from the leading cigarette manufacturers to eliminate from their advertising unsubstantiated claims of tar and nicotine content (FTC 1964b).

As the previous section noted, the FTC proposed three rules addressing cigarette labeling and advertising shortly after the release of the 1964 Surgeon General's Report (FTC 1964a). The third proposed rule provided that:

> No cigarette advertisement shall contain any statement as to the quantity of any Cigarette-smoke ingredients (e.g., tars and nicotine) which has not been verified in accordance with a uniform and reliable testing procedure approved by the FTC.

This recommendation was not among the final regulations promulgated by the FTC nor in subsequent congressional legislation.

Shortly after passage of the Federal Cigarette Labeling and Advertising Act of 1965, the FTC identified a uniform testing system for measuring the tar and nicotine yield of cigarettes (Pillsbury et al. 1969; see Chapter 5). The FTC determined that meaningful disclosure of tobacco product constituents required the availability of accurate information obtained by standardized testing methods. In 1966, the Commission sent a letter to U.S. cigarette manufacturers approving their factual statements of tar and nicotine content in advertising, if based on tests conducted using the approved method. In 1967, the FTC activated its own laboratory to analyze the tar and nicotine content of cigarette smoke. At the request of the Chairman of the Senate Commerce Committee, the FTC began to test and report periodically to Congress the tar and nicotine content of various cigarette brands (FTC 1981a). In 1981, the FTC first published carbon monoxide yields, based on its own laboratory tests, along with data on tar and nicotine yields (FTC 1981a).

In 1983, the determined that its testing procedures may have "significantly underestimated the level of tar, nicotine and carbon monoxide that smokers received from smoking" certain low-tar cigarettes and sought comments pursuant to modifying its testing procedures (FTC 1988a). One cigarette brand, Barclay, manufactured by the

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Brown and Williamson Tobacco Company, was permanently enjoined from including in its advertising, packaging, or promotion the tar rating the brand received using the FTC test methods because of problems with the testing methodology and consumers' possible reliance on that information *(FTC v. Brown and Williamson* 1983).

On April 15, 1987, the FTC announced the closing of its in-house laboratory that tested cigarettes for tar, nicotine, and carbon monoxide levels. The FTC attributed its decision to the cost of running the laboratory and the fact that the information was available from the cigarette industry's laboratories, whose methodology was identical to that used by the FTC. The FTC stated that it would collect tar, nicotine, and carbon monoxide ratings from the industry for inclusion in its annual report to Congress pursuant to the Federal Cigarette Labeling and Advertising Act (FTC 1987; MacLeod 1987).

As a result of these actions, a mechanism has been in place whereby information about tar, nicotine, and carbon monoxide yields of cigarettes becomes part of the public record. However, this information is not as readily accessible to consumers as it would be if it were disclosed on all packages of tobacco products or in advertising. Recommendations for uniform disclosure of cigarette constituents have been made previously by the FTC and the Department of Health and Human Services, and a specific goal was set by the Public Health Service's 1990 Health Objectives for the Nation (US DHHS 1986d):

> By 1985, tar, nicotine, and carbon monoxide yields should be prominently displayed on each cigarette package and promotional material.

In 1981, the Department of Health and Human Services (DHHS) recommended that "manufacturers should list yields of 'tar', nicotine and other hazardous components on their packages and in their advertising with appropriate explanatory information on the health significance of these measurements" (US DHHS 1981a (transmittal letter)). As early as 1969, the FTC (FTC 1969b) recommended that disclosure of tar and nicotine yields be required on cigarette packages as well as in advertisements. The next year, the FTC proposed a regulation requiring cigarette companies to disclose the tar and nicotine content of cigarette brands in their advertisements, based on the most recent FTC test results (FTC 1970). The FTC suspended this proceeding to allow the major manufacturers to implement a voluntary plan for such disclosure. Since 1971, all manufacturers have complied with this plan and voluntarily disclose the tar and nicotine content of cigarette brands in advertisements (FTC 1981b).

There is no industrywide disclosure of tar and nicotine content on cigarette packages; such disclosure is often made voluntarily for cigarettes yielding 8 mg or less of tar but rarely for higher tar brands (unpublished data, Office on Smoking and Health 1988). Carbon monoxide yields are neither required nor voluntarily disclosed on packages or in advertising, despite a 1982 FTC recommendation that they be required on cigarette packages (Muris 1982). Currently, there are no government requirements for the disclosure of tobacco smoke constituents to consumers, although, as noted above, levels of some constituents are disclosed voluntarily in advertisements and on some packages by cigarette manufacturers.

In addition to tobacco, tobacco products contain other ingredients added in the process of manufacture. The identity of these additives is regarded as confidential information by manufacturers. The Comprehensive Smoking Education Act of 1984 and the Comprehensive Smokeless Tobacco Health Education Act of 1986 required, for the first time, that the manufacturers, packagers, and importers of cigarettes and smokeless tobacco products provide annually to the Secretary of Health and Human Services a list of additives used in the manufacture of these products. The Secretary is required to treat the lists as "trade secret or confidential information," but may report to Congress on research activities about the health risks of these additives and may call attention to "any ingredient which in the judgment of the Secretary poses a health risk to cigarette smokers" (Public Law 98-474, Public Law 99-252). However, the Secretary is granted no specific authority to regulate any such hazardous products. Regulations describing the procedures for protecting the confidentiality of this information have been published (US DHHS 1985a). Analysis of the information on cigarette additives is in progress.

Federal legislation on smokeless tobacco (Public Law 99-252) now requires that manufacturers provide to the Secretary of Health and Human Services a specification of the nicotine content of smokeless tobacco products, but it does not require that nicotine content be listed on packages or in advertisements. Currently, one brand of smokeless tobacco is marketed as "light" snuff, and the nicotine content is disclosed on its packaging and advertising.

Effects of Disclosure of Tobacco Product Constituents

Current Federal law neither requires the disclosure of tobacco product or tobacco smoke constituents on packages and advertising, nor provides for the monitoring of communications effects of voluntary disclosures. The principal public health rationale for requiring disclosure is to inform consumers about the amount of hazardous substances to which they are exposed, so that consumers will be better informed and so that those who do not abstain completely may be able to reduce their health risks by selecting a brand with a lower concentration of hazardous substances.

There is some information that this has occurred. As noted in Chapter 5, the rapid growth in the market share of cigarettes with reduced tar and nicotine yields during the 1970s indicates that consumers can and will make choices based on information about tobacco constituents (US DHHS 1981a). However, there is no clear evidence of substantial health benefits to consumers who switch to lower tar and nicotine cigarettes. The potential health benefit to smokers of making such discriminations is at best limited, because there is no known safe level of tobacco product consumption (US DHHS 1981a). As mentioned in Chapter 5, concerns about low-yield cigarettes center around: (1) compensatory smoking behavior among smokers who switch to low-nicotine brands, which might even increase total tobacco smoke intake in some smokers; (2) the increased use of additives with possible adverse health effects in low-yield cigarettes; and (3) the possibility that some smokers who believe these cigarettes to be safe or less hazardous will be less inclined to quit.

It is also possible that if smokers saw a more complete listing of the harmful constituents of tobacco on packages or in ads, some would stop smoking rather than mere-

ly choosing a different brand. Evidence to test this hypothesis has not been collected. The impact of informing smokers about the identity of tobacco product additives, about which consumers know little, is unknown. It is possible that this information might encourage smokers to stop smoking, or at least to reduce their daily cigarette consumption.

Mandated Education About Health Risks

Government activities to educate the public on smoking and health are not limited to product-oriented warnings to the tobacco consumer. Government policy has required schools to educate students and teachers about the health hazards of tobacco use. Educational messages in the broadcast media were also mandated by Federal policy from 1967 through 1970.

School Education

Current Status

Both public and private efforts to reduce the initiation of smoking by children have targeted schools. Education on tobacco and health may be provided voluntarily in school curricula or may be required by legislation or regulation. For the purposes of this review, such education is considered voluntary if it is based on a decision of the individual teacher or on an action taken by an individual school or school district. A "policy" refers to Federal or State legislation or regulation mandating instruction on tobacco and health. Voluntary initiatives on school education on smoking and health are considered in Chapter 6. Policies restricting smoking in schools by students and teachers are reviewed in Part III of this Chapter.

The Federal Government has taken no action to mandate education on tobacco in the Nation's schools. Federal legislation was introduced in the 100th Congress (Adolescent Tobacco Education and Prevention Act, H.R. 3658; Atkins 1987) that would require tobacco to be included in drug abuse and education programs established under Sections 4124-4125 of the Drug-Free Schools and Communities Act of 1986 (Public Law 99-750), but this legislation was not enacted. The Surgeon General, the Secretary of Health and Human Services, and the Assistant Secretary for Health have recommended that prevention of tobacco use be included, along with instruction on illicit drug use, in school health education curricula (US DHHS 1988).

A number of States have enacted laws mandating education about smoking and health in schools. The usual content of mandated instruction is the health effects of tobacco use, often included as a component of general health education or a drugs-and-alcohol curriculum. Few school-based educational programs provide education on cessation methods for students who have already started to smoke (Chapter 6). Policies may require the education of either students or teachers, the latter sometimes as a prerequisite to receiving a teaching certificate.

TABLE 4.--State requirements for school health education on drugs/alcohol/tobacco (1974-81) and on tobacco use prevention (1987)

State	State requirement for instruction in drugs/alcohol/tobacco[a]			State requirement for instruction in tobacco prevention
	1974	1977-1978	1981	1987
Alabama		M	M	M
Alaska				
Arizona	O	O	O	M
Arkansas	M	M	M	M
California	M	M	M	
Colorado	M	M	M	
Connecticut	M	M	M	
Delaware	M	M	M	M
District of Columbia	M	M	M	M
Florida	M	M	M	
Georgia	M	M	M	M
Hawaii	M	M	M	M
Idaho	M	M	M	
Illinois	M	M	M	M
Indiana	M	M	M	
Iowa	M	M	M	
Kansas				
Kentucky		M	M	
Louisiana	M-S	M-S	M	
Maine				M
Maryland	M	M	M	
Massachusetts				
Michigan	M	M	M	
Minnesota	M	M	M	
Mississippi			M	
Missouri	M	O	O	
Montana	M-S			
Nebraska			M	M
Nevada				M
New Hampshire	M	M	M	
New Jersey	M-S	M-S	M-S	
New Mexico	M	O	M	
New York	M	M	M	M

TABLE 4.--Continued

	State requirement for instruction in drugs/alcohol/tobacco[a]			State requirement for instruction in tobacco prevention
	1974	1977-1978	1981	1987
North Carolina	M	M	M	M
North Dakota	M	M	M	
Ohio	M	M	M	M
Oklahoma				
Oregon		M	M	
Pennsylvania	M	M	M	
Rhode Island		M	M	M
South Carolina	M	M	M	
South Dakota				
Tennessee	M	M	M	M
Texas	M	M	M	M
Utah	M	M	M	M
Vermont	M	M	M	
Virginia	M	M	M	M
Washington	M	M	M	
West Virginia				M
Wisconsin	M	O	M	
Wyoming				
TOTAL (mandatory)	35	35	39	20

NOTE: Thirty-four States required instruction in drugs/alcohol/tobacco in 1985. The individual States were not identified in the report (ASHA 1987).

[a]M, mandated; O, optional/permissive; S. secondary school level. Unless otherwise noted, policies refer to both elementary and secondary levels.

SOURCE: ASHA (1976, 1979, 1981); Lovato, Allenworth, Chan, in press.

Surveys of State requirements for school health education for the years 1974, 1977, 1978, 1981, 1985, and 1987 have been conducted by the American School Health Association (ASHA 1976, 1979, 1981, 1987; Lovato, Allensworth, Chan, in press). Questionnaires were sent to State school health consultants, when identifiable, or to State commissioners of education or health. Between 1974 and 1985, the number of States (including the District of Columbia) mandating school education in the category labeled "drugs/alcohol/tobacco" varied from 34 to 39, with no clear trend over time (Table 4; data not shown for 1985, for which only the total number of States--34--was provided). In fact, several States apparently weakened or repealed preexisting requirements. In most jurisdictions, the requirement pertained to both elementary and secondary school levels. The extent to which education in this broad category specifically

required tobacco education is unknown. The results do not suggest that the number of States requiring instruction on the health effects of tobacco use is increasing. In the 1987 survey, mandated curriculum on tobacco use was reported separately from curricula on drug and alcohol use. The prevention of tobacco use is mandated curriculum in 20 States (Lovato, Allensworth, Chan, in press).

A separate survey of State legislation enacted as of December 1985 reported similar findings. It found that 18 of 21 States providing data required elementary and secondary schools to include instruction on the dangers of using tobacco as part of their health education programs (Table 5) (US DHHS 1986e).

Several States also require teacher training. Three States (Alabama, Connecticut, and Oklahoma) have directed their departments of education to establish and implement in-service training programs to educate teachers, school administrators, and other school personnel about the effects of nicotine or tobacco use. All educational institutions in Minnesota that provide teacher training must offer programs on the use of and dependence on tobacco. Connecticut law requires universities that train teachers to provide instruction on the effects of nicotine and tobacco use and on the best methods for instructing students on these topics. To receive a certificate to teach or supervise in any public school in Connecticut, a person must pass an examination on the effects of nicotine and tobacco use (US DHHS 1986e).

Compliance and Effects

Little is known about the level of compliance with these State regulations. A 1986 survey of a random sample of 2,000 school districts conducted by the National School Boards Association found that 61, 64, and 62 percent of school districts provide anti-smoking education in elementary school, middle or junior high school, and high school, respectively (NSBA 1987). The generalizability of the survey is limited by a low response rate (36 percent). It is unclear to what degree this instruction is voluntary or the result of a State requirement.

Even less is known about the content or quality of curricula developed to comply with government mandates. Evaluations of voluntary school-based smoking prevention programs (Chapter 6) suggest that they can be effective if done well. The extent to which government-mandated school education programs match these results is unknown. Consequently, it is impossible to determine the extent to which government-mandated school education has contributed to greater awareness by children of the health consequences of smoking or to reductions in the initiation of smoking.

TABLE 5.--States requiring school health education on tobacco use effects

State	School health education	In-service teacher training	Instruction required for teacher certification	Instructional material must be accurate	Other
Alabama	X	X			
Alaska	X				
Arizona	X				
California				X	
Connecticut	X	X	X		X[a]
Florida				X	X[b]
Georgia	X				
Idaho	X				
Illinois	X				
Indiana	X				
Iowa	X				
Massachusetts	X				
Michigan	X				
Minnesota			X		
Nebraska	X				
Ohio	X				
Oklahoma	X	X			
Oregon	X				
Utah	X				
Vermont	X				
Wisconsin	X				

[a]Connecticut law provides that no certificate to teach or supervise shall be granted to any person who has not passed a satisfactory examination on the effects of nicotine and tobacco. Conn. Gen. Stat. Ann.. Section 10-145a (West Supp. 1964).

[b]Florida's Cancer Control and Research Act provides that proven causes of cancer, including smoking, should be publicized and should be the subject of educational programs for the prevention of cancer. Fla. Stat. Ann., Section 381.2712(2)(c)(West Supp. 1965).

SOURCE: US DHHS (1986e).

Broadcast Media

History

In 1949, the U.S. Federal Communications Commission (FCC) promulgated its Fairness Doctrine (FCC 1949). Under this doctrine, which the FCC repealed in August 1988, licensed broadcasters were obligated

> to encourage and implement the broadcast of all sides of controversial public issues over their facilities, over and beyond their obligation to make available on demand opportunities for the expression of opposing views (FCC 1987).

This meant that, as a condition of retaining the required license, broadcasters were required to air both sides of a controversial issue if one side was presented. Subsequent decisions by the FCC indicated that the Fairness Doctrine could require a station to grant free time, even when one viewpoint was presented under paid sponsorship. The FCC did not, however, require that a broadcaster provide equal time for opposing views; only a "reasonable opportunity" for the presentation of opposing views was required (Columbia Law Review 1967).

In January 1967, John Banzhaf, an attorney acting as a private citizen, petitioned the FCC to apply the Fairness Doctrine to cigarette advertising. On June 2, 1967, the Commission ruled that the doctrine applied to cigarette advertising on television and radio and required broadcasters who aired cigarette commercials to provide "a significant amount of time" to citizens who wished to point out that smoking "may be hazardous to the smoker's health" (FCC 1967). In a subsequent press interview, the FCC's chief counsel gave his informal opinion that a ratio of one antismoking message to three cigarette commercials seemed to him to constitute "a significant amount of time" (Whiteside 1971).

The ruling applying the Fairness Doctrine to cigarette advertising went into effect on July 1, 1967. Thereafter, broadcasters began to air an array of antismoking public service announcements (PSAs), developed primarily by voluntary health organizations and government health agencies (Whiteside 1971). The time "donated" for the antismoking spots amounted to approximately 75 million dollars (in 1970 dollars) per year from 1968 through 1970 (Lydon 1970). As discussed in the next section, subsequent Federal legislation, the Public Health Cigarette Smoking Act of 1969, banned cigarette advertising on television and radio, effective January 2, 1971. Once this occurred and cigarette ads were removed from radio and television, the Fairness Doctrine basis for requiring broadcasters to carry antismoking PSAs was eliminated. Antismoking messages then had to compete for public service advertising time donated by broadcasters. As a result, the frequency of the antismoking spots declined dramatically. According to Lewit, Coate, and Grossman (1981), the number of antismoking PSAs declined by almost 80 percent after 1970, relative to the number aired in 1969, and they were shown at times when youths in particular were not likely to be watching television.

Effectiveness

The antismoking messages mandated by the Fairness Doctrine might have been expected to increase public knowledge and change public attitudes about smoking. Indirectly, they might reduce smoking prevalence and tobacco consumption by stimulating cessation and retarding initiation. The degree to which the messages achieved these goals has been assessed by measuring trends in public beliefs concerning the health hazards of smoking, in smoking prevalence, and in cigarette sales before, during, and after the 1968-70 period. PSAs were only one of a number of societal influences on smoking during that period. Because of the broad reach of the mass media, it is impossible to control for these concurrent influences by examining a group that was not exposed to PSAs. Consequently, changes in these indices cannot be unequivocally attributed to the presence of PSAs. Nonetheless, they offer strong circumstantial evidence for an effect of the PSA campaign.

Survey data indicate that PSAs were in fact seen and recalled by large numbers of Americans. O'Keefe (1971) surveyed 621 students below 21 years of age and 300 adults in Central Florida. Ninety percent of the sample recalled seeing at least one antismoking PSA, and about half of them were able to recall a specific commercial. When asked about the effect of PSAs on their own smoking behavior, 32 percent of smokers reported that they had cut down, 37 percent said they thought more about the effects of smoking than before, and 11 percent said they stopped smoking temporarily as a result of the commercials. This study, based on the self-reported smoking behavior of a small sample, does not provide definitive evidence for an effect of PSAs on knowledge or cigarette consumption.

Analysis of trends in national survey data provides a stronger quality of evidence for the effects of PSAs on knowledge or behavior. National survey data collected before, during, and after the 1968-70 period show consistent but small increases in public knowledge of the health hazards of smoking (see Chapter 4). According to the Adult Use of Tobacco Surveys (AUTSs), the proportion of adults who believed that smoking is hazardous to health was already high before the airing of PSAs. It increased slightly during and after the period when PSAs were shown, from 85 to 87 to 90 percent in 1966, 1970, and 1975, respectively. Similar trends were seen for public beliefs concerning the causal relationship between smoking and specific diseases, including lung cancer, heart disease, and chronic obstructive lung disease (Chapter 4). One might expect that the personal and emotional messages in many of the PSAs (Whiteside 1971) would have a particularly salient effect on personalized acceptance of health risks from smoking (Chapter 4). AUTS data show a larger increase in this factor, coincident with the PSAs. The percentage of smokers who were concerned about the effects of smoking on their own health increased from 47 percent in 1966, before the Fairness Doctrine, to 69 and 68 percent in 1970 and 1975, respectively. One must be cautious in attributing these changes solely to the PSA campaign, because increases in public knowledge sometimes continued after the campaign ended and because other informational activities, such as cigarette warning labels, occurred concurrently in both the public and private sectors.

The effect of PSAs on smoking behavior has been assessed by analyzing trends in cigarette sales and smoking prevalence. Analyses of temporal trends in tobacco consumption, as measured by cigarette sales, provide evidence for an effect of PSAs in restraining smoking, at least temporarily. For the 3-year periods before (1965-67), during (1968-70), and after (1971-73) the Fairness Doctrine PSAs, per capita cigarette sales increased by 2.0 percent, decreased by 6.9 percent, and increased by 4.1 percent, respectively (Chapter 5). Warner (1977) compared actual sales figures for the Fairness Doctrine period to projected sales figures (for the same years) based on the trend in sales during the period 1947-67. He predicted that in the absence of PSAs and subsequent publicity, consumption would have been 19.5 percent higher than it actually was by 1975. In a regression analysis of the effects of both cigarette ads and the Fairness Doctrine PSAs, Hamilton (1972) found that the antismoking messages retarded per capita cigarette consumption by 530.7 cigarettes per year, while the cigarette ads boosted it by 95.0 per year. Schneider, Klein, and Murphy (1981) concluded that the PSAs reduced per capita tobacco consumption by 5 percent. Findings from these and related studies are reviewed in Chapter 8.

If PSAs had motivated large numbers of smokers to quit smoking, one would expect to have observed a decline in the prevalence of cigarette smoking, as well as in tobacco consumption, during the period when they were shown. Prevalence data have some limits compared with cigarette consumption data. Estimates of smoking prevalence are based on individuals' self-reported behavior in national surveys, which is a less objective measure than consumption estimates based on sales data. Furthermore, data on prevalence are collected less frequently than are sales data, making prevalence a less sensitive index of short-term effects. Data on the self-reported prevalence of cigarette smoking from 1965-85 show a highly consistent linear trend downward during the entire period (Chapter 5). These data do not provide evidence for an independent effect of the PSA campaign on overall smoking prevalence and contrast with the cigarette consumption data cited above. However, Lewit, Coate, and Grossman (1981), who analyzed the effect of PSAs on the smoking prevalence of teenagers, reported an effect in that age group. They found that the teenage smoking rate was 3.0 percentage points lower during the Fairness Doctrine period than during the 16-month period prior to the Doctrine; most of this effect occurred during the time when PSAs were shown.

Warner (1978) compared cigarette sales data to self-reported cigarette consumption for the years 1964-75. He found that the ratio of self-reported cigarette consumption to cigarette sales ("consumption ratio") decreased from a level of 72 and 73 percent in 1964 and 1966, to 66 percent in 1970, and to 64 percent in 1975. The decrease between 1966 and 1970, years spanning the Fairness Doctrine period, was statistically significant. Between 1966 and 1970, actual aggregate sales dropped 1 percent, while reported consumption dropped 9.5 percent. One explanation for this decline is a greater underreporting of current smoking because of growing awareness of the health hazards of smoking and the declining social acceptability of smoking (Chapter 5). Warner suggested that the Fairness Doctrine PSAs, by causing changes in knowledge and attitudes, may have been responsible for increased underreporting. More recent data from 1974-85 show that the consumption ratio has remained stable at approximately 72 percent, despite further reductions in the social acceptability of smoking (Chapter

5). As mentioned in Chapter 5, the decrease in the consumption ratio reported by Warner may be related to the fact that the self-reported data for 1970 and 1975 were collected by telephone surveys, while the 1964 and 1966 data were collected by in-person interviews; the latter technique generally provides slightly higher smoking prevalence estimates than do telephone surveys.

In summary, both per capita cigarette consumption changes and regression studies comparing actual cigarette sales to projected sales based on prior trends are consistent with the conclusion that the Fairness Doctrine PSAs affected smoking behavior, at least in the short term. Changes in public knowledge about the health effects of smoking as assessed in national surveys also occurred during the period PSAs were aired. Because of other social influences on smoking during this period, it is impossible to attribute changes in cigarette consumption or public knowledge solely to the airing of PSAs. However, as described further in Chapter 8, they were a prominent component of antismoking activities, which in the aggregate had marked effects on smoking prevalence and tobacco consumption in the 25 years since the release of the 1964 Surgeon General's Report. It is unclear whether and to what degree any short-term effects could have been sustained with an ongoing campaign. If PSAs had continued, it is possible that their short-term effects could have been sustained only with the types of message variation, pulsed media placement patterns, and ongoing communications measurement

TABLE 6.--Cigarette advertising and promotional expenditures, 1970-86 ($ millions)

Year	Advertising	Promotional	Total	Total in constant (1986) dollars	Advertising as percentage of total
1970	314.7	46.3	361.0	1019.4	87.2
1971	251.6	NA	NA	NA	NA
1972	257.6	NA	NA	NA	NA
1973	247.5	NA	NA	NA	NA
1974	306.8	NA	NA	NA	NA
1975	366.2	125.1	491.3	1000.9	74.5
1976	430.0	209.1	639.1	1231.0	67.3
1977	552.0	247.5	799.5	1446.6	69.0
1978	600.5	274.5	875.0	1470.6	68.6
1979	749.0	334.4	1083.4	1636.6	69.1
1980	829.9	412.4	1242.3	1653.0	66.8
1981	998.3	549.4	1547.7	1865.9	64.5
1982	1040.1	753.7	1793.8	2037.6	58.0
1983	1081.0	819.8	1900.8	2091.9	56.9
1984	1097.5	997.7	2095.2	2211.7	52.2
1985	1075.0	1401.4	2476.4	2524.1	43.4
1986	931.8	1450.6	2382.4	2382.4	39.1

NOTE: NA, not available.
SOURCE: Warner (1986b); Federal Trade Commission (1988b)

and tracking characteristics of ongoing national advertising campaigns (Aaker and Meyers 1987), including those of the cigarette companies themselves.

Restrictions on Tobacco Advertising and Promotion

Cigarettes are one of the most heavily marketed consumer products in the United States (FTC 1981b; Davis 1987). Cigarette advertising and promotional expenditures totaled 2.4 billion dollars in 1986 (FTC 1988b). In both actual and constant dollars, these expenditures increased consistently between 1975 and 1985 but fell slightly in 1986, the last year for which data are available (Table 6). A study reviewing 1985 data found that cigarettes were the most heavily advertised category of products in the outdoor media (e.g., billboards), the second most heavily advertised category in magazines (after passenger cars), and the third most heavily advertised subcategory in newspapers (after passenger cars and airlines) (Davis 1987). All six of the major cigarette manufacturers were included among the 100 companies with the highest advertising expenditures in 1985 (Davis 1987). According to FTC reports to Congress for the years 1982 and 1983, the major advertising themes associated cigarette smoking with high-style living, healthy activities, and economic, social, and professional success (FTC 1985).

Tobacco advertising includes both traditional advertising (in newspapers and magazines, on billboards, and in transit facilities) and promotional activities. Promotional activities are diverse and include the distribution of free product samples, coupons for price reductions, and offers for discounted products (often bearing the name of the cigarette brand). Promotional activities also encompass industry sponsorship of cultural, sporting, and entertainment events, and sponsorship of community or political organizations. Incentives paid to distributors or retailers are another form of tobacco promotion. Over the past decade, the balance of expenditures has shifted from traditional advertising to promotional activities (Davis 1987), so that by 1986, promotional expenditures accounted for 60 percent of the tobacco marketing dollar, compared with only 25 percent of the total in 1975 (FTC 1988b) (Table 6).

This Section reviews previous, current, and proposed government policies to regulate tobacco advertising and promotion. It considers the central public health issue--whether advertising and promotion increase tobacco consumption--and reviews available evidence on this question. The focus of this review is on cigarette advertising and promotion because cigarettes account for the vast majority of both tobacco use and advertising/promotional expenditures. The effects of advertising for other tobacco products have not often been studied. The discussion includes coverage of the smaller body of information about promotional activities beyond traditional advertising because of their growing importance in tobacco marketing.

Effects of Tobacco Advertising and Promotion

Public health concern about tobacco advertising and promotion is based on the premise that these activities encourage the initiation of smoking and stimulate tobacco consumption, especially by children, while retarding cessation efforts, particularly by adults. It has been suggested that ads promoting low-tar and -nicotine cigarettes may

allay the anxiety of current smokers, shifting their attention away from the decision to stop smoking by presenting the option of switching to an ostensibly less hazardous brand (Davis 1987). It has also been suggested that tobacco advertising interferes with efforts to inform the public of the health hazards of smoking because media that accept tobacco advertising provide less coverage about the health hazards of tobacco use. Proponents of this view contend that restricting tobacco advertising would reduce both the number of prosmoking messages and their alleged restraining influence on the flow of antitobacco information from the media, thereby making antismoking efforts more visible and potentially more effective (Warner 1985).

By contrast, both tobacco products manufacturers and representatives of the major associations of advertisers have consistently denied that advertising and promotion encourage smoking and the use of other tobacco products. They claim that the purpose and effect of marketing are merely to provide information and to influence brand selection among current users of tobacco products (Waterson 1982; O'Toole 1986; Weil 1986). The statement might also be made that cigarette advertising has permitted tobacco companies to successfully market new brands with reduced tar and nicotine yields and will allow for the future promotion of new products with reduced tar and nicotine. However, because of considerable controversy about the health effects of low-tar and low-nicotine cigarettes (US DHHS 1981a, 1988), the public health benefit of switching to these products remains in doubt (See Chapters 2 and 5).

Mechanisms by Which Advertising and Promotion May Affect Consumption

From a marketing perspective, advertising and promotion have different roles (Popper 1986a; Davis and Jason 1988). Conceptually, both tobacco advertising and promotion could increase tobacco consumption through several direct and indirect mechanisms (Warner 1986b; Warner et al. 1986a). Direct mechanisms all relate to the immediate impact of marketing techniques on the consumer or potential consumer. Indirect mechanisms are those that influence some factor other than the consumer (e.g., the behavior of other institutions such as the news media), which in turn affects the use of tobacco products.

Four direct mechanisms by which tobacco advertising and promotion may increase tobacco consumption have been suggested.

1. Advertising and promotion could encourage children or young adults to experiment with tobacco products and initiate regular use. This is the central focus of the public health concern about advertising and promotion. Initiation could be encouraged when the images presented in cigarette advertising change children's and young adults' attitudes about cigarettes (in general and about specific brands) in a way that makes them more likely to start using tobacco products (McCarthy 1986). Promotion could directly lead to experimentation via the distribution of free samples and the creation of environments (cigarette-sponsored concerts and sporting events) where sample distribution is facilitated and cigarette trial is actively encouraged (Popper 1986b).
2. Advertising and promotion could increase tobacco users' daily consumption of tobacco products. Advertising could serve as a cue to tobacco use by creating

attitudes and images that reinforce the "desirability" of smoking and remind smokers of occasions that are associated with smoking (Glosser 1984; Warner 1986b; Davis 1987). Promotion could act as an economic incentive to increase tobacco users' daily consumption (Popper 1986b). Coupons (either for price reductions or free products) reduce the financial cost of smoking for the consumer, which can encourage increased consumption via the price elasticity of demand (see Part II).

3. Advertising and promotion could reduce current tobacco users' motivation to quit. Tobacco ads, with their attractive imagery and implicit alleviation of fears (Altman et al. 1987), could diminish users' cessation intentions. Advertising of low-tar and -nicotine cigarettes may, in particular, have this effect (Popper 1988; Davis 1987). Promotion could weaken current tobacco users' resolve to quit by reducing the financial cost of smoking (Popper 1986b).
4. Advertising and promotion could encourage former smokers to resume smoking. Quitters experience both physiological and psychological withdrawal (US DHHS 1988). Advertising presents smokers with images reminding them of the reasons and situations in which they smoked, thereby increasing the difficulties associated with withdrawal. Promotional events (sponsored sporting events or concerts) create environments where former smokers are encouraged to resume smoking. They provide cues to smoke in the social situations in which former smokers had been likely to smoke. This effect may be enhanced by the distribution of free cigarette samples that often occurs at tobacco-sponsored events (Popper 1986b; Davis and Jason 1988).

Three indirect mechanisms by which advertising and promotion might increase tobacco consumption have also been suggested.

1. Media dependence on advertising revenues from the tobacco companies may discourage full and open discussion of the hazards of tobacco use. Reduced media attention may reduce the extent of public understanding of the health hazards. This might reduce the public's understanding of the risks of tobacco use and thereby increase tobacco use relative to what it would be in an environment in which media coverage was more extensive and was influenced solely by the inherent interest and importance of the subject (Warner 1985).
2. A number of institutions have to some degree become financially dependent on the promotional, charitable, and public relations spending of the tobacco industry, including professional sports, cultural institutions, and minority organizations. This institutional dependence on tobacco spending may create political support for, or mute opposition to, the industry's marketing and policy objectives (Taylor 1984; Warner 1986b). In turn, this may reduce public knowledge about the risks of tobacco and indirectly, encourage initiation and maintenance of tobacco use.
3. Still more broadly, the ubiquity and familiarity of tobacco advertising and promotion may contribute to an environment in which tobacco use is perceived by users to be socially acceptable, or at least less socially objectionable and less hazardous than it is in fact. Smokers might interpret the legality of tobacco advertising and promotion as an implicit message that "Smoking can't really be

all that dangerous; otherwise the government would ban cigarette advertising." Presented with that statement in a British Government survey, 44 percent of smokers agreed (Chapman 1986). This environment may contribute to the initiation of tobacco use by children and the maintenance of use by adults.

Evidence

Evidence pertaining to the effects of tobacco advertising and promotion on the consumption of tobacco products is diverse in its nature and conclusions. The research includes formal empirical analysis, informal empirical observations, and logic. Although some evidence specifically addresses issues of direct or indirect impact, much of it applies generally to the overall effect of tobacco advertising on consumption. Promotion has received less attention in the research published to date. In the following sections, the evidence cited applies to the overall effect, except as indicated. Most of the existing evidence, both analytical and experiential, relates to cigarettes and advertising. Little work has examined the effects of other promotional techniques or addresses the advertising of tobacco products other than cigarettes.

Formal Empirical Analysis

Formal empirical analysis is primarily of two types: (1) statistical studies of the relationship between aggregate cigarette advertising expenditures and aggregate cigarette consumption, using the method of regression analysis, and (2) survey research and experimental studies of smokers' and potential smokers' reactions to and recall of cigarette ads.

Regression Analyses

More than a dozen studies using regression analysis have evaluated the statistical correlation between cigarette advertising expenditures and cigarette sales in at least four western countries. Several of these analyses have found no statistically significant correlation (Schmalensee 1972; Lambin 1976; Metra Consulting Group 1979; Schneider, Klein, Murphy 1981; Johnson 1985; Baltagi and Levin 1986). At least two studies have raised the possibility that advertising expenditures are a function of cigarette sales, rather than the reverse; that is, manufacturers devote a relatively fixed proportion of revenues to advertising, and ad expenditures rise or fall as company sales increase or decrease (Schmalensee 1972; Schneider, Klein, Murphy 1981). Other analyses have identified a statistically significant relationship and concluded that, in the aggregate, increased advertising expenditures do lead to increased sales, although typically the estimated effect of advertising expenditures on consumption is small (Peles 1971; McGuinness and Cowling 1975; Lewit, Coate, Grossman 1981; Reuijl 1982; Porter 1986; Radfar 1985; Roberts and Samuelson 1988; Chetwynd et al. 1988). Still other researchers have reported consistently finding a small positive effect, but one that is not generally statistically significant (Hamilton 1972).

Only one regression study has addressed the relationship between cigarette advertising and smoking by teenagers (Lewit, Coate, Grossman 1981), despite the fact that adolescence is the period in which the vast majority of smokers initiate cigarette use

(Chapter 5). As discussed above, Lewit and colleagues examined the issue in the context of the broadcast ad ban, estimating that teenagers' smoking prevalence fell by 0.6 percent from 1970 to 1974 as a result of the ban. Although not a quantitatively substantial effect in percentage terms, it was a statistically significant finding. Given the large population of teenage smokers, even a small percentage change in smoking translates into substantial absolute numbers.

The regression studies vary considerably in methods, sophistication, and quality. Most of the studies rely on time series analysis, introducing the inherent methodological risk of unstable parameter estimates due to correlations among variables over the time periods studied. Findings may also vary because of differences in the time period studied, differences among countries, and variability in functional form specification. The better studies attempt to control for other variables that might influence the movement of both advertising expenditures and consumption, but this is handled inconsistently. Some of the studies treat advertising as having an impact only in the year of expenditure, whereas others examine both current and later (residual) effects of advertising expenditures (Peles 1971). A few use a measure of cumulative advertising expenditures, rather than single-year expenditures, in constructing the principal independent variable (Schneider, Klein, Murphy 1981). A recent study found that quarterly data produced more meaningful results than annual data; the authors speculated that "the longer time period [i.e., annual data] may mask significant relationships" (Chetwynd et al. 1988). At least one study has adopted a nondollar measure of advertising (Lewit, Coate, Grossman 1981), recognizing that the assumption of homogeneity over time in the dollar measure may not hold (Calfee 1986).

None of the studies has properly distinguished between and incorporated both conventional advertising and other promotional expenditures. This omission is particularly germane to the late 1980s the first period in which tobacco product promotional expenditures exceeded conventional advertising (FTC 1988b) (Table 6). Moreover, regression studies have not taken into account other means of interbrand competition besides advertising and promotion. The one exception is a recent study by Roberts and Samuelson (1988), who simultaneously analyzed the effects of advertising expenditures and numbers of brands sold on the market shares of rival manufacturers. In analyses of the low-tar and high-tar U.S. cigarette markets during 1971-82, they found that firms' advertising primarily affected the level of market demand, while individual firms' market shares depended upon the number of brands sold.

Methodological differences and problems such as these restrict the meaningful interpretation and comparison of findings. Furthermore, inherent limitations in the method of regression analysis diminish the ultimate value of these analyses in addressing the two fundamental questions of interest: How much, if at all, do advertising and promotion affect the level of tobacco consumption? Would restrictions or a ban on advertising and promotion affect the level of consumption? Regression analysis is designed to assess the statistical relationship between marginal changes in an independent variable and marginal changes in the dependent variable, controlling for other factors for which data are available. Regression results do not assess the effect of large (or complete) changes in the independent variable. Consequently, the findings of regression studies, pertaining to small changes in ad expenditures, may not relate at all to the change con-

ternplated in a ban--the complete elimination of all advertising and promotion (Cox 1984).

There is a second theoretical reason why regression analysis might not be expected to find a sizable, significant relationship between advertising and consumption. If advertising both expands the overall market and helps firms capture existing market share from competitors, the rational level of advertising expenditure will exceed that which increases aggregate consumption alone. Thus, on the margin, the function of advertising dollars will be to compete for existing market share, not to expand the overall market. Hence, regression analyses, examining marginal effects, would not be expected to demonstrate a strong correlation between advertising expenditures and aggregate consumption (Warner et al. 1986a). In these circumstances, the fact that several of the regression studies have found statistically significant correlations has been interpreted as evidence that advertising does increase consumption (Tye, Warner, Glantz 1987).

Survey Research and Experimental Studies of Reactions to Advertisements

The second category of empirical analysis includes studies testing the hypothesis that advertising encourages children to try tobacco products and initiate related behaviors. Two types of studies fall in this category: surveys assessing recall of and reaction to cigarette ads and experimental analysis of subjects' responses to ads.

Among the surveys, the most direct approach to assessing the relationship between advertising and cigarette consumption has been to ask children or adults about the factors that influenced them to smoke. These studies typically find that advertising is ranked quite low on the list of relevant factors. Marketing experts have questioned the validity of this approach because conscious response to advertising is deemed to be a poor index of actual response (Bergler 1981; Chapman 1986). As such, studies with a similar method and opposite findings also offer little insight into the actual effects of advertising. An example is a study by Fisher and Magnus (1981), which found that most children believe that cigarette ads encourage children to smoke.

An alternative approach that employs both surveys and experiments is to assess reactions to ads and their imagery, often (then or later) correlated with subjects' reported smoking behavior. Analyses of this type range from studies asking subjects to recall cigarette brands and ad themes to experiments measuring subjects' eye contact with magazine ads (Fischer et al. 1989). Several studies have associated recognition and approval of cigarette ads with subsequent propensity to smoke (O'Connell et al. 1981; Chapman and Fitzgerald 1982; Alexander et al. 1983; McCarthy 1986; Goldstein et al. 1987). These studies are representative of the research methods used by the cigarette companies themselves to test the communications effects of their advertising (see advertising-related research presented in *Cippolone v. Liggett Group* 1988 and *FTC v. Brown and Williamson* 1983).

Collectively, these latter studies present data suggesting that cigarette ads are effective in getting children's attention and that they are recalled. In these studies, recall of prominent cigarette brand names and of ad themes is usually high. (By contrast, attention paid to the Surgeon General's health warnings and recall of them are much lower (Fischer et al., in press).) The studies find that strength of interest in the ads correlates with smoking behavior, either current or anticipated. However, the studies do not ex-

amine the causal links between this recall and smoking behavior. It is possible that smoking, or an interest in smoking, might affect awareness of ads, rather than ads encouraging smoking, a point acknowledged by the authors of some of these studies (e.g., Goldstein et al. 1987),but this possibility has not been examined with regard to cigarette advertising. The hypothesis is supported by the well-documented psychological phenomenon of perceptual vigilance (Spence and Engel 1970), whereby consumers are more aware of advertising for products they use. The opposite phenomenon, perceptual defense or selective perception (Spence 1967), helps explain why smokers avoid perceiving the warning labels and other risk-related information (FTC 1981b).

Additional Empirical Observations and Logical Arguments

The principal evidence for evaluating the role of tobacco advertising and promotion derives from the experience of advertising industry professionals and from logical analyses. Some of the latter are empirical, while others are not.

At the core of the argument that tobacco advertising affects only brand share among competitors and does not increase consumption is the contention that the market for tobacco products is a mature market, one in which market expansion cannot be achieved (O'Toole 1986). Advertising professionals who disagree have argued that market expansion is invariably a purpose of advertising. Furthermore, they have observed that it is principally in connection with two industries "under siege," tobacco and alcohol, that both producers and advertisers have made the brand-share-only argument (Foote 1981; Sharp 1986).

Proponents of the mature market argument have noted that adult per capita cigarette consumption has fallen annually since 1973; aggregate consumption has fallen each of the last 6 years (Tobacco Institute 1988); and per capita tobacco consumption is at an all-time low for this century (Grise 1984). The prevalence trends accounting for this change are particularly evident in cohort analyses that show younger birth cohorts taking up smoking in much smaller percentages than their predecessors (Chapter 5). Even in a mature market, however, the role of cigarette advertising could play a role in market maintenance, in addition to vying for brand share. In a mature or declining market, one standard strategy is to retain customers through defensive advertising and promotion (Kotler 1988). This strategy would be particularly important in the case of the cigarette market, in which an estimated 5 percent of its adult consumers are lost each year due to smoking cessation or death (from diseases related or unrelated to smoking) (Warner 1986b). It has been argued that such defensive strategies can be seen in the tobacco industry's advertising of low- and "ultra-low-tar" brands, where the goal of the campaign is not simply a shift between brands but a shift to a lower tar brand as opposed to total cessation (Popper 1988).

In opposition to the mature market argument, analysts have emphasized that although the market as a whole may be declining, segments of it appear to be actual or potential growth markets, including young women, children, blue-collar workers, and certain minority groups (Sharp 1986; Davis 1987). Industry advertising and promotion trends show increases in the relative shares of marketing budgets devoted to several of these subpopulations (Englander 1986; Albright et al. 1988).

Analysts have cited the past decade's growth in smokeless tobacco use as evidence that tobacco companies believe that advertising and promotion can be used to attract new consumers, at least for smokeless tobacco products (Connolly et al. 1986; Tye, Warner, Glantz 1987). Consequently, the mature market concept does not apply to smokeless tobacco products. Industry documents describing the marketing strategy for one smokeless tobacco product demonstrate that the company designed the low-nicotine product to serve as a "starter" product. Advertising for the product was concentrated in publications that have a high teenage male readership (Connolly 1986; Feigelson 1983). In other documents, the smokeless tobacco industry has referred to the "graduation" process from the low-nicotine starter products to more "full-flavored" products, that is, those higher in nicotine (Connolly 1986). In addition, advertisements for smokeless tobacco products have provided detailed instructions on how to use the products (Christen 1980), evidence that the marketing campaigns have been intended to attract new users.

Opponents of the position that tobacco advertising serves only to increase or maintain market share have also argued that this position is not financially consistent with the tobacco industry's marketing expenditures. A study of the economics of tobacco advertising concluded that advertising and promotion were unlikely to make financial sense if they served only brand-share function (Tye, Warner, Glantz 1987). Fewer than 10 percent of smokers change brands in any given year (Marketing and Media Decisions 1985). The current advertising and promotion expenditures of the domestic cigarette companies are greater than the sales revenues represented by those brand switchers (Popper 1986b). Furthermore, two companies, Phillip Morris and R.J. Reynolds, control more than two-thirds of the American cigarette market. Much of the limited brand switching that occurs is necessarily between brands of the same company. Based on such observations, it has been argued that the behavior of the tobacco industry itself supports the conclusion that the industry perceives a positive association between advertising and consumption (Warner 1986b).

Much of the empirically based evidence pertaining to the effects of advertising comes from international comparisons. Support for the view that cigarette advertising serves to expand the market comes from the observation that in several countries in which cigarettes are a state monopoly, the state enterprise advertises. If advertising served solely to redistribute smokers among brands, there would be no reason to advertise in such countries (Chapman and Vermeer 1985). Support for the view that advertising does not influence consumption levels has been sought in the experience of countries that have never permitted cigarette advertising, such as the Communist bloc countries, where cigarette consumption is high and has grown rapidly in the absence of advertising (Waterson 1982; Boddewyn 1986). The relevance of this observation has been challenged, however, on the ground that the issue is not whether advertising is the only, or even the most important, determinant of smoking trends. The relevant question, which these comparisons of countries do not and cannot address, is whether the rate of increase in tobacco consumption would have been affected by advertising (Warner et al. 1986a).

Indirect Mechanisms: Media Coverage of Smoking

The variety of potential indirect influences of tobacco advertising and promotion reflects the magnitude and diversity of expenditures (Taylor 1984; Warner 1986b; FTC 1988b). A substantial body of evidence exists only in one case: the relationship between cigarette advertising revenues and coverage of smoking and health in the media, especially in magazines. The public health relevance of this relationship is based on the assumption that discussion of the hazards of tobacco alters public knowledge of and opinions about tobacco use. Through a complex set of social and individual response mechanisms, knowledge and attitude changes evolve into reductions in smoking. Thus, if the media have restricted coverage of the hazards of tobacco for fear of losing advertising revenue, the public has been deprived of information that might have improved knowledge or changed social opinion more rapidly or extensively, thereby leading to reduced levels of smoking and the associated disease toll (Warner 1985).

Most of the evidence linking the level of cigarette advertising revenue to the degree

TABLE 7.--Cigarette advertising revenues and coverage of smoking and health, selected magazines

	Years surveyed	Percentage of health articles discussing smoking	Cigarette advertising revenue as percentage of total ad revenue
Reader's Digest	1965-81	34.4	0
Good Housekeeping	1965-81	22.1	0
Prevention	1967-78	15.4	0
Vogue	1965-81	11.7	5.1
U.S. News and World Report	1965-81	7.4	14.6
Ladies' Home Journal	1968-81	7.1	16.3
Time	1965-81	6.9	17.2
Harper's Bazaa	1968-81	4.5	7.1
McCall's	1969-80	4.5	15.1
Newsweek	1969-81	2.9	15.8
Cosmopolitan	1971-81	2.3	9.4
Mademoiselle	1966-81	1.9	7.3
Ms.	1972-81	0	14.8
Redbook	1970-81	0	16.1

NOTE: Magazines listed included a minimum of 60 health-related articles in the years surveyed
SOURCE: Dale (1982).

of media coverage of smoking and health has been developed recently; some of it, however, dates back half a century (Seldes 1941). Formal analytical studies of the phenomenon that control for potential confounding influences are limited in number;

existing analyses are based primarily on correlations between magazines' cigarette advertising revenues and their coverage of smoking and health (Whelan et al. 1981; Dale 1982; Jacobson and Amos 1985; White and Whelan 1986; Warner and Goldenhar, in press).

One of these studies found that between 1967 and 1979, there were a total of 8 feature articles that seriously discussed quitting or the dangers of smoking in 10 prominent women's magazines that carry cigarette advertisements. Of the 10 magazines, 4 carried no antismoking articles in the entire 12-year period. By contrast, 2 prominent magazines that do not accept cigarette advertising, *Good Housekeeping* and *Seventeen*, ran 11 and 5 such articles, respectively. On average, the magazines that accepted cigarette advertisements published from 12 to 63 times as many articles on individual topics such as nutrition, contraception, stress, and mental health as they did on the antismoking theme. The ratio was much smaller for *Good Housekeeping* and *Seventeen* (Whelan et al. 1981). In another empirical study by the same organization, researchers examined coverage of smoking and health in prominent magazines recognized for their general interest in health matters. Publications selected for study published at least 60 articles on health topics between 1965 and 1981. The proportion of health articles devoted to smoking was compared with the proportion of advertising revenues derived from cigarette advertisements. Only four of the magazines had as many as 10 percent of their health-related articles devoted to smoking. Of these four, the top three did not accept cigarette advertising. The fourth had the lowest proportionate share of advertising income derived from cigarette ads of the remaining magazines. There was no substantial correlation between the volume of advertisements and smoking coverage within the remaining magazines (Dale 1982; Table 7).

A more recent study compared changes over time in coverage of smoking and health by 39 national magazines that published cigarette ads and 11 magazines that did not. The study also compared these changes with those found in coverage by *The New York Times* and *The Christian Science Monitor*, as well as with the collective cigarette advertising revenue of the first group of magazines. The two newspapers were selected as measures of the "inherent newsworthiness" of the subject. Comparing two 11-year periods, one preceding the broadcast media ban on cigarette advertising (1959-69) and the other following it (1973-83), the authors found that (1) the magazines that included cigarette ads experienced an increase in real cigarette ad revenues, controlling for inflation, of 727 percent (cigarette ads rose from 1.9 percent of total magazine ad revenues in the first period to 11.0 percent in the second); (2) these magazines decreased their coverage of smoking and health by 65 percent, while the magazines that did not carry cigarette ads decreased their coverage by 29 percent, a statistically significant difference; (3) the two newspapers' coverage fell by 21 percent (the *Times*, which accepts cigarette advertising) and 3 percent (the *Monitor*, which accepts no cigarette advertising). Both decreases were significantly smaller than that of the magazines that included cigarette ads, but not significantly different from that of the magazines not including cigarette ads (Warner and Goldenhar, in press).

In addition to these correlational studies, there is extensive anecdotal evidence about the influence of advertising revenues on magazine coverage of smoking and health. Writers, editors, and publishers have described numerous instances of purported cen-

sorship attributed directly to publications' fears of alienating cigarette advertisers (Smith 1978; Whelan et al. 1981; Bagdikian 1983; Warner 1985; Okie 1985; Magnus 1986). Although the anecdotal evidence pertains mainly to magazines, it includes other media, including newspapers (ABC News 1983; Gitlitz 1983) and the broadcast media prior to the removal of cigarette ads (Bagdikian 1983). Furthermore, there are allegations of advertising-induced censorship related to other tobacco products, such as smokeless tobacco (Connolly 1986).

Federal Advertising Restrictions

The Federal agency responsible for regulating the advertising of tobacco and other consumer products is the FTC. The Federal Trade Commission Act of 1914, amended in 1938, empowers the FTC "to prevent persons, partnerships, or corporations . . . from using unfair or deceptive acts or practices in commerce" (Wagner 1971b).

The FTC's efforts to regulate unsubstantiated claims in tobacco advertisements began well before 1964. From the 1930s through the 1950s, many cigarette advertisements made claims that smoking the advertised brand improved health or at least offered health benefits compared with smoking other brands (Neuberger 1963; Tye 1986). Between 1938 and 1968, the Commission invoked its adjudicatory (quasi-judicial) authority 25 times with respect to cigarette advertising (Fritschler 1969). Between 1945 and 1960, the Commission completed seven formal cease-and-desist order proceedings against cigarette manufacturers involving medical or health claims made in advertising (FTC 1964b). For example, according to Wagner (1971b):

> A 1945 complaint lodged against R.L. Swain Tobacco prohibited representations that respondent's cigarettes were endorsed or approved by the medical profession; that they would soothe the nose, throat, or mouth; that they contained no irritating properties; and that they produced little or no stain on fingers and teeth. In 1950, the FTC moved successfully to curb R.J. Reynolds Tobacco Company from claiming that Camels aided digestion; did not impair the wind or physical condition of athletes; would never harm or irritate the throat or leave an aftertaste; were soothing, restful, and comforting to the nerves; and contained less nicotine than any of the four other largest selling brands. A 1942 complaint against Brown and Williamson Tobacco Company prohibited claims that Kools would keep the head clear in winter and give extra protection against or cure colds.

Because the adjudicatory judgments obtained by the FTC applied only to the parties to the case, other cigarette companies engaging in the same or similar deceptive acts were not immediately affected. Fritschler (1969) concluded that "in the case of cigarette advertising, the Commission found itself putting out brush fires of deception while the inferno raged on." The FTC first promulgated industrywide cigarette advertising guidelines in September 1955. These guidelines were "for the use of its staff in the evaluation of cigarette advertising" (FTC 1964b), as opposed to formal trade regulation rules, which would have the force of law. The guidelines, among other things, sought to prohibit: (1) representations in cigarette advertising of medical approval of cigarette smoking in general or of smoking a particular brand; (2) advertising claims that referred either to the presence or absence of any physical effects relating to cigarette

smoking in general or smoking a particular brand, or relating to filters or filtration; and (3) unsubstantiated advertising claims relating to tar and nicotine levels.

In June 1962, the FTC announced the adoption of general rule-making procedures, which it used on three occasions the following year to regulate various nontobacco products (Fritschler 1969). As noted in the section on warning labels, 11 days after the release of the 1964 Report of the Surgeon General's Advisory Committee on Smoking and Health, the FTC announced three proposed trade regulations on cigarette labeling and advertising (FTC 1964a). Rule 2 would have strictly regulated the imagery and copy of cigarette ads in order to prohibit explicit or implicit health claims. However, the proposed rule was vacated (FTC 1965) after the Federal Cigarette Labeling and Advertising Act of 1965 (Public Law 89-92) was signed into law. In the meantime, in April 1964, the major U.S. cigarette manufacturers had adopted their own Cigarette Advertising Code, intended to apply to broadcast advertising. It prohibited making health claims in advertisements and directing advertising to young people. Cigarette manufacturers agreed to avoid ads that represented "cigarette smoking as essential to social prominence, distinction, success, or sexual attraction" and to avoid showing smokers engaged in activities "requiring stamina or athletic conditioning beyond that of normal recreation" (Ernster 1988; Friedman 1975).

In its 1968 report to Congress, the FTC recommended a ban on cigarette advertising on television and radio (FTC 1968). In February 1969, the FCC announced a proposed trade regulation rule that would have banned cigarette commercials from television and radio (FCC 1969). On July 8, 1969, the National Association of Broadcasters announced a plan to phase out all cigarette advertising on the air over a 3-year period beginning January 1, 1970 (Whiteside 1971). At a Senate subcommittee hearing 2 weeks later, the cigarette industry offered voluntarily to end all cigarette advertising on television and radio by September 1970, provided that Congress would grant the companies immunity from antitrust laws to allow them to act in concert (Whiteside 1971). Ultimately, Congress approved the Public Health Cigarette Smoking Act of 1969, which was signed into law on April 1, 1970. The Act prohibited cigarette advertising in the broadcast media effective January 2, 1971.

Subsequent Federal legislation extended the ban on advertisements in the broadcast media to little cigars and to smokeless tobacco products. In September 1973, the Little Cigar Act of 1973 (Public Law 93-109) banned broadcast advertising of "little cigars," defined as "any roll of tobacco wrapped in leaf tobacco or any substance containing tobacco. . . as to which one thousand units weigh not more than three pounds." Over a decade later, smokeless tobacco advertising in the broadcast media was banned by the Comprehensive Smokeless Tobacco Health Education Act of 1986 (Public Law 99-252). The ban took effect on August 27, 1986.

In recent years, the FTC has again had its attention drawn to the content of print advertising. As discussed in a prior section, the FTC successfully obtained an injunction against one manufacturer for incorrectly stating the tar yield of one cigarette brand, Barclay, in packaging and advertising *(FTC v. Brown and Williamson* 1983). In addition, the Tobacco Institute (Tobacco Institute 1983) and R.J. Reynolds (RJR) have advertised in national print media with statements that challenged the link between smoking (active and involuntary) and disease.

During 1985, RJR published an advertisement (R.J. Reynolds 1985a) entitled "Of Cigarettes and Science," which discussed, among other things, the procedures that scientists use to test scientific hypotheses, and presented information about the Multiple Risk Factor Intervention Trial (MRFIT) (MRFIT Research Group 1982). In April 1985, the American Heart Association, the American Cancer Society, and the American Lung Association, acting through the Coalition on Smoking OR Health, petitioned the FTC with regard to this ad. On June 16, 1986, the FTC issued a complaint alleging that the advertisement falsely and misleadingly represented that the purpose of the MRFIT study was to determine whether heart disease is caused by smoking, that the MRFIT study provides credible scientific evidence that smoking is not as hazardous as the public has been led to believe, and that the MRFIT study tends to refute the theory that smoking causes coronary heart disease. The complaint also charged that in light of the representations made in the ad, the advertisement failed to disclose certain material facts about the study, specifically, that the men in the study who quit smoking had a significantly lower rate of coronary heart disease than men who continued to smoke and that the study results are consistent with previous studies showing that those who quit smoking experience a substantial decrease in coronary heart disease mortality.

On June 26, 1986, RJR moved to dismiss the complaint on the grounds that the advertisement was noncommercial speech that was fully protected by the first amendment, even if it was false and deceptive. An Administrative Law Judge agreed and dismissed the complaint on August 4, 1986. In an order and decision dated March 4, 1988, the FTC reversed the judge's order, holding that "the content of the Reynolds advertisement includes words and messages that are characteristic of commercial speech." RJR unsuccessfully appealed this decision to the U.S. Court of Appeals of the District of Columbia; trial before an FTC Administrative Law Judge on this matter is set for January 30, 1989. (Also see White 1987.) (As of October 1988, all documents related to this administrative matter were maintained in FTC Docket No. 9206.)

State and Local Advertising Restrictions

The preemption clause of the Public Health Cigarette Smoking Act of 1969 (Public Law 91-222) prevents States from regulating or prohibiting cigarette advertising or promotion for health-related reasons. The Act defines "State" to include "any political division of any State." This preemption was left intact by subsequent congressional legislation, including the 1984 Comprehensive Smoking Education Act (Public Law 98-474), which amended other sections of the original law, such as the requirement for warning labels. The stated purpose of the preemption was "to avoid the chaos created by a multiplicity of conflicting regulations" (U.S. Senate 1970). There is no preemption of State and local advertising restrictions for smokeless tobacco in the Comprehensive Smokeless Tobacco Health Education Act of 1986 (Public Law 99-252), although the Act does prevent States from requiring additional warning labels on smokeless tobacco products or advertisements.

States and localities may have some jurisdiction in regulating the location of advertising when the medium is not national in scope. For example, cities may be able to prohibit tobacco advertising on their transit systems. The extent of such jurisdiction is

not clear from the preemption clause itself, and there is no body of case law. Several States and local jurisdictions have adopted statutes or regulations banning certain types of purely local cigarette advertising or promotion. The most common restrictions, described below, are bans on transit advertising and on the distribution of free cigarette samples. In some cases, these regulations apply to all tobacco products. None of these policies has been challenged in court.

The strongest State law has been adopted in Utah, where tobacco advertisements are banned on "any billboard, streetcar sign, streetcar, bus, placard, or on any other object or place of display" (Utah 1978). Bans on tobacco advertising in public transit systems have been adopted in several cities. In August 1984, the Board of Directors of the Regional Transportation District in the Denver, CO, area voted to prohibit transit advertising for tobacco products and alcoholic beverages on its buses and in its two downtown transit centers (Schmitz 1984). Similarly, the Massachusetts Bay Transportation Authority (MBTA) in the Boston metropolitan area adopted an administrative policy prohibiting tobacco advertisements on buses and trollies and in stations, effective October 1986 (Boston Herald 1986). The town of Amherst, MA, enacted a bylaw prohibiting tobacco advertising "on or in any bus, taxicab, or any other vehicle used for public transportation" within the town in 1987 (Amherst 1987). The Bay Area Rapid Transit (BART) District in the San Francisco Bay Area of California has eliminated the advertising of tobacco products and alcoholic beverages from its trains and stations. BART covers San Francisco, Alameda, and Contra Costa counties. Based on a vote of the BART Board of Directors, the policy was phased in between May 1987 and May 1988 to allow existing advertising contracts to expire (Collier 1987).

In Minnesota, the Metropolitan Sports Commission voted in January 1988 to end tobacco advertising in Minneapolis' professional sports stadium, the Hubert H. Humphrey Metrodome. The new policy will take effect after expiration of the existing l0-year cigarette advertising contract in 1992. Cigarette advertising revenue under this contract has been approximately 300,000 dollars per year (Marty 1987).

Cities and States have also acted to restrict or ban the distribution of free tobacco product samples, a major form of tobacco promotion. At least 14 cities have banned all distribution of free samples; these include Minneapolis, St. Paul, and Albert Lea, MN; Boston, Newton, Cambridge, Amherst, Somerville, and Worcester, MA; Honolulu, HI; Bowie, MD; Atlanta, GA (Davis and Jason 1988); Austin, TX (Austin 1988); and Cincinnati, OH (Smith 1988). The earliest of these ordinances were adopted by Minneapolis and St. Paul in 1979. Two States (Utah and Minnesota) have prohibited the distribution of free smokeless tobacco samples (Davis and Jason 1988). A larger number of States and cities have banned the distribution of free samples to minors, although the success in enforcing these selective sampling restrictions is uncertain. (See Part III, section on minors' access to tobacco.)

Effects of Government Actions to Restrict Tobacco Advertising

In general, there has been little formal evaluation of the impact of government actions concerning tobacco advertising and promotion.

The relationship between government policy and tobacco consumption has been studied only in the case of the Fairness Doctrine and the subsequent ban on cigarette advertising in the broadcast media. Evaluation of the effectiveness of the broadcast ad ban is complicated by three factors. First, the ban removed the obligation of stations to air the Fairness Doctrine PSAs. To the extent that the PSAs were effective in discouraging smoking, their disappearance serves to undermine any positive effect from the broadcast advertising ban. Second, the savings from reduced advertising in the short term may have allowed the cigarette companies to hold down the price of cigarettes temporarily, which in turn would have served to increase sales (Schneider, Klein, Murphy 1981). Third, after several years of reduced advertising expenditures following the broadcast advertising ban, the cigarette industry dramatically increased expenditures for print media advertising (especially billboards) and for promotional activities (Warner 1986b; Popper 1986a; Davis 1987). To the extent that cigarette advertising in these media and other promotional activities may increase total sales, this also may have served to decrease the net effectiveness of the broadcast ban.

As mentioned in the previous section on the broadcast media, per capita cigarette sales decreased by 6.9 percent during the 3-year period (1968-70) when PSAs were mandated by the Fairness Doctrine, but increased by 4.1 percent during the 3-year period (1971-73) following the end of Fairness Doctrine PSAs and the beginning of the broadcast advertising ban. This suggests that any beneficial effects of the broadcast ad ban may have been outweighed by disappearance of the PSAs, at least in the short run. In a regression analysis of the effects of both cigarette ads and the Fairness Doctrine PSAs, Hamilton (1972) found that the antismoking PSAs retarded per capita cigarette consumption far more than the cigarette ads boosted it. In an analysis taking into account cigarette price, advertising, and counteradvertising, Schneider, Klein, and Murphy (1981) concluded that the net effect of the broadcast advertising ban was to increase cigarette consumption. However, Hamilton (1972) and Warner (1979) both suggested that the net effect of the two policies may have been to increase cigarette consumption in the short term, although they cautioned that the net effect in the long term is difficult to gauge.

It is difficult to evaluate the effect on smoking behavior of FTC actions to regulate the content of advertising. FTC rulings did block misleading advertising, but as the MRFIT case demonstrates, the regulatory process is slow. Delays inherent in the regulatory process limit the impact of the ultimate decisions.

The effect on smoking behavior of State and local restrictions on cigarette advertising and promotion is not known because no evaluations have been conducted. No data are available regarding the effectiveness of sampling bans in reducing the availability of cigarettes. Even if such policies have no direct influence on smoking, however, these restrictions (and the publicity surrounding their enactment) may promote increased public awareness of the issue of smoking and health and may serve as important symbols of social disapproval of tobacco use.

More is known about the financial impact of local advertising bans on transit authorities, for whom the bans result in lost advertising revenue. Information from two of the four jurisdictions that have enacted transit tobacco advertising bans indicates that transit authorities have been able to recoup lost advertising revenue in a relatively short

time. Cigarette advertisements accounted for approximately 800,000 dollars, or 36 percent, of MBTA's 2.2 million dollars in advertising revenue in 1985 (Boston Herald 1986; AdEast 1986). According to MBTA, it regained its previous (1985) level of advertising revenue in 1987 (Grealy 1988). Similarly, in San Francisco, BART officials reported only a minimal, temporary advertising revenue loss during the year of implementation (Healy 1988). The effect, if any, of transit and sampling bans on national advertising and promotional expenditures by tobacco companies is unknown.

Policies Under Consideration

Currently, as reviewed above, the Federal Government bans tobacco advertising in the broadcast media and regulates the content of tobacco advertising by FTC actions and by the requirement that warning labels appear on cigarette and smokeless tobacco advertisements. A number of proposals that would further restrict tobacco advertising and promotion are now under consideration by the public health community, State legislatures, and Congress. Some of the proposals are mutually exclusive and should be considered as alternatives, whereas others could coexist. Nationally prominent proposals are mentioned here. Their major strengths and weaknesses are considered in detail elsewhere (Warner et al. 1986a).

One group of proposals would have the Government more stringently regulate the imagery and content of advertising, either by developing and enforcing an advertising and promotion code or by severely restricting the permissible format of advertisements; the latter is so-called "tombstone advertising." With the former approach, a code defining permissible imagery in advertisements and a mechanism to ensure monitoring of and compliance with the code would have to be developed and implemented. For such a code to be effective, it would have to encompass both advertising and nonadvertising forms of promotion, the latter of which now represents over half of total cigarette advertising and promotional expenditures (FTC 1988b). The advantages and disadvantages of such a code have been discussed (Taylor 1984; FTC 1981b; Warner et al. 1986a). An alternative proposal would limit the imagery and graphics of tobacco advertisements to so-called "tombstone advertising," with no models, slogans, scenes, or colors permitted. The tombstone proposal does not address other forms of promotion. The merits of this proposal are considered elsewhere (e.g., FTC 1981b; Warner et al. 1986a).

A second set of proposals would restrict the availability of tobacco advertising and promotion. These range from a total ban on all advertising and promotion to more limited policies that would prohibit advertising in certain media; prohibit certain promotional techniques, such as the distribution of free tobacco product samples (Davis and Jason 1988); or ban advertising and promotion accessible to children. Currently, the most widely discussed proposal is to ban all forms of advertising and promotion for all tobacco products. The proposal's prominence reflects its advocacy by organizations such as the American Medical Association, American Cancer Society, American Heart Association, American Lung Association, and American Public Health Association, and the fact that it has been the basis of several bills before Congress (e.g., H.R. 1272, 100th Congress, 1st Session) and the subject of congressional hearings (Subcommittee

on Health and the Environment 1986). A total ban on tobacco advertising and promotion was enacted in Canada in June 1988, scheduled to go into effect in stages beginning January 1, 1989 (Bums 1988; House of Commons of Canada 1988).

The ad ban proposal raises a wide range of complex issues whose full discussion is beyond the scope of this Report and has been covered elsewhere (Warner et al. 1986a). The most visible and fundamental is the question of commercial free speech: What is the right of the producers of a legal product to advertise and what is the right of consumers to have access through advertisements to information on legal products (White 1984; Miller 1985; Weil 1986; Neuborne 1986; Reimer 1986; Covington and Burling 1986; Blasi and Monaghan 1986, 1987)? Among the more pragmatic issues is concern that withdrawal of cigarette advertising and tobacco company sponsorship might jeopardize the existence of some publications, advertising agencies, and sports and arts institutions (Warner 1986b). From a public health perspective, the central issue is one of effectiveness: Would an advertising ban in fact achieve its desired end--reductions in smoking prevalence? If so, would a less restrictive policy achieve the same effect without raising first amendment concerns?

A third set of proposals seeks to neutralize the influence of advertising by mandating the publication or broadcast of antitobacco messages by the media. An example of this so-called "counteradvertising" was the FCC requirement for antismoking PSAs in the broadcast media under the Fairness Doctrine from 1967 through 1970; these were discussed in a previous section. The apparent effectiveness of these PSAs led to proposals for the Government to establish a source of substantial and continuous funding for an antitobacco advertising campaign (Warner 1986b,c). Several mechanisms have been proposed to raise the resources for a paid campaign. One would require tobacco advertisers to pay for an amount of counteradvertising space that is equivalent to or some fraction of what they devote to protobacco advertising. Another proposal would earmark a proportion of the Federal cigarette excise tax to fund a paid counteradvertising campaign (Warner 1986c).

A fourth approach seeks to create an economic disincentive for tobacco manufacturers to advertise by eliminating their ability to deduct tobacco advertising and promotional expenditures as business expenses for income tax purposes. This proposal has also been put into the form of congressional legislation (S. 446, 100th Congress, 1st Session, and H.R. 1563, 100th Congress, 1st Session) and its merits have been debated in congressional hearings (Weil 1986; Stark 1986; Bradley 1986).

The majority of proposals to restrict tobacco advertising and promotion are designed for action at the Federal level, because current Federal legislation preempts States from regulating cigarette advertising. Repeal of the Federal preemption clause has been proposed as a means of encouraging State and local regulatory actions (Bailey 1986; Warner et al. 1986a).

Summary

There is no scientifically rigorous study available to the public that provides a definitive answer to the basic question of whether advertising and promotion increase the level of tobacco consumption. Given the complexity of the issue, none is likely to be

forthcoming in the foreseeable future. The most comprehensive review of both the direct and indirect mechanisms concluded that the collective empirical, experiential, and logical evidence makes it more likely than not that advertising and promotional activities do stimulate cigarette consumption. However, that analysis also concluded that the extent of influence of advertising and promotion on the level of consumption is unknown and possibly unknowable (Warner 1986b). This influence relative to other influences on tobacco use, such as peer pressure and role models, is uncertain. Although its effects are not wholly predictable, regulation of advertising and promotion is likely to be a prominent arena for tobacco policy debate in the 1990s. In part this reflects the high visibility of advertising and promotion; in part it reflects the perception that these activities constitute an influence on tobacco consumption that is amenable to government action.

Reporting Requirements

Current Federal legislation mandates that DHHS and the FTC issue reports to Congress on tobacco-related subjects at regular intervals. By virtue of the extensive media coverage and wide dissemination of many of these reports, they often provide information not only to Congress but also to the general public, journalists, other policymakers, health professionals, and researchers.

Surgeon General's Reports

As discussed in Chapter 1, the Federal Cigarette Labeling Act of 1965 and the Public Health Cigarette Smoking Act of 1969 require that the Secretary of Health, Education, and Welfare (now the Secretary of Health and Human Services) transmit an annual report to Congress on current information about the health consequences of smoking and such recommendations for legislation as he or she may deem appropriate. This Report is the 20th in the series of reports on the health consequences of smoking, generally referred to as Surgeon Generals' Reports, which began with the 1964 Report of the Surgeon General's Advisory Committee on Smoking and Health. The 1986 Report of the Advisory Committee to the Surgeon General, *The Health Consequences* of *Using Smokeless Tobacco* (US DHHS 1986c), was not produced in response to a specific legislative mandate.

Biennial Status Reports

The Comprehensive Smoking Education Act of 1984 requires the Secretary of Health and Human Services to transmit a report to Congress biennially containing the following information about smoking control efforts: (1) an assessment of Federal activities to inform the public; (2) a description of the extent of public knowledge about the health consequences of smoking; (3) a report of the activities of the Federal Interagency Committee on Smoking and Health, the research and educational activities of DHHS relating to smoking, and State and local laws relating to the use and consumption of cigarettes; (4) information on private actions taken to reduce the effects of smoking on

health; and (5) recommendations for legislation and administrative action that the Secretary deems appropriate. The first such report, entitled *Smoking and Health: A National Status Report*, was released in November 1986 (US DHHS 1986e).

A similar reporting requirement exists for smokeless tobacco. The Comprehensive Smokeless Tobacco Health Education Act of 1986 requires that the Secretary of Health and Human Services transmit a report to Congress biennially on (1) the effects of health education efforts on the use of smokeless tobacco products, (2) the public's use of smokeless tobacco products, (3) the health effects of smokeless tobacco products and areas appropriate for further research, and (4) appropriate legislation and administrative action. The first report pursuant to this requirement was released in May 1987 (US DHHS 1987a).

Federal Trade Commission Reports

The Federal Cigarette Labeling and Advertising Act of 1965 and the Public Health Cigarette Smoking Act of 1969 require the FTC to transmit an annual report to Congress concerning (1) the effectiveness of cigarette labeling, (2) current practices and methods of cigarette advertising and promotion, and (3) such recommendations for legislation as it may deem appropriate. The first provision was eliminated by the Comprehensive Smoking Education Act of 1984. FTC Reports have been submitted annually to Congress since 1967. These reports generally include data on aggregate and per capita cigarette sales, domestic market share of filter and nonfilter cigarettes and menthol and nonmenthol cigarettes, domestic market share by cigarette length and tar and nicotine yields, and cigarette advertising and promotional expenditures broken down by type of advertising or promotion and type of cigarette (FTC 1988b). The tar, nicotine, and carbon monoxide yields of all cigarettes are to be provided in future reports.

The Comprehensive Smokeless Tobacco Health Education Act of 1986 requires that FTC report to Congress every other year on current sales, advertising and marketing practices, and recommendations for legislative or administrative action.

Effectiveness

One method for assessing the effectiveness of reporting requirements as a means of disseminating information is to evaluate the quantity and quality of information made available and the extent to which policymakers and the public are aware of the reports or their contents. The information in these reports may influence policy development, tobacco use, and public awareness of the health effects of smoking, but these relationships are difficult to measure. In fact, there has been little formal evaluation of reporting requirements or the reports themselves on any of these outcomes.

There is some empirical evidence that the Surgeon General's Reports, or at least the first Report in 1964, may have had a direct or indirect effect on cigarette consumption. Adult per capita consumption of manufactured cigarettes in the United States (total cigarettes consumed annually divided by the population 18 years of age and older) reached an all-time high of 4,345 in 1963. After the release of the 1964 Report of the

Surgeon General's Advisory Committee on Smoking and Health (US PHS 1964) and the attendant publicity, per capita consumption fell to 4,195 in 1964 before increasing to 4,259 in 1965 (Chapters 5 and 8). In an analysis comparing actual cigarette consumption to projections based on previous trends, Warner (1977, 1981, 1989) estimated that the Advisory Committee's Report and associated publicity induced a 5-percent decrease in cigarette consumption in 1964. Schneider, Klein, and Murphy (1981) estimated that the 1964 Report decreased per capita consumption of tobacco by 39 percent during the 1964-78 period. Similarly, British researchers (Russell 1973; Peto 1974) have credited the Royal College of Physicians' 1962 Report on Smoking and Health with decreasing cigarette consumption 4.6 to 9 percent that year. No published studies have evaluated the effects of other Surgeon General's Reports upon tobacco use. The impact of the 1964 Surgeon General's Advisory Committee Report may be unsurpassed, compared with that of subsequent reports, because of the widespread publicity surrounding the first Report and the "newness" of its findings.

Public knowledge of the health hazards of tobacco use has increased substantially since 1964 (Chapter 4). Because of the many factors that may have affected public knowledge and attitudes about smoking, it is difficult to estimate the degree to which the Surgeon General's Reports have by themselves influenced beliefs, attitudes, and opinions. Despite the lack of empirical data, it is widely acknowledged that the Surgeon General's Reports have become recognized as authoritative documents and summaries of the literature on the health consequences of smoking (Walsh and Gordon 1986). The quality of the reports can be attributed, at least in part, to the large number of expert contributors and an extensive peer review process (summarized in the acknowledgments of this and previous reports). Because of the large and expanding literature on tobacco and health, there is no doubt that the Surgeon General's Reports have served a useful purpose by providing detailed and current reviews of information on tobacco and health.

One of the principal intended audiences of the 1988 Surgeon General's Report on Nicotine Addiction (US DHHS 1988) was physicians. Two weeks after the release of the Report, Lakeside Pharmaceuticals sponsored a telephone survey of 159 randomly selected physicians from three primary care specialities. Ninety-one percent of physicians interviewed knew about the Report, and 70 percent thought that the conclusions of the Report would alter the way physicians treat patients for smoking (Ad Factors/Millward Brown 1988). These data suggest that the Report was effective in conveying information on smoking to health care providers.

The findings of the Surgeon General's Reports have often been cited as the scientific basis for public and private policies designed to reduce tobacco use. Similarly, the findings and legislative recommendations of FTC reports have been cited in support of strengthening existing cigarette warning labels. For example, in the legislative history of the Public Health Cigarette Smoking Act of 1969, the Senate Report (U.S. Senate 1970) recommended a stronger cigarette warning label by citing the findings of previous Surgeon General's Reports, the conclusion of the 1967 FTC Report that the original warning label was ineffective, and the legislative recommendation of the 1969 FTC Report for a stronger warning label. Thus, although empirical data are lacking, anecdotal reports suggest that the mandated Federal Government documents have played an important role in providing a knowledge base to support the development of smoking control policies.

Government Expenditures and State Smoking Control Plans

Government activities on smoking and health have, for the most part, been informational and educational. The extent of these activities is determined in part by the availability of funds to support them. Funding, in turn, reflects broad government priorities. Consequently, government decisions about expenditures on smoking and health can be considered as "policies" and will be reviewed in this Section.

Federal Expenditures

There are two sources of information about Federal expenditures on smoking and health. The Office on Smoking and Health (OSH), the successor of the National Clearinghouse for Smoking and Health (NCSH), is the only Federal office wholly devoted to smoking control. Its activities (Chapter 6) include providing information and education to health professionals, policymakers, and the general public and sponsoring national surveys of smoking behavior. Its budget is an index of categorical appropriations for activities related to smoking and health. In addition, since 1979, agencies within DHHS have reported their expenditures in 15 prevention priority areas, including smoking and health, to the Office of Disease Prevention and Health Promotion. This information has been published for fiscal years 1979 through 1981 and 1983 through 1986 (US DHHS 1981b, 1982b, 1985b, 1987b) and includes a list of projects funded by each reporting agency.

The budgets of OSH and NCSH are shown in Table 8 for fiscal years 1966 through 1988. Congressional appropriations designated for "smoking and health" have increased from 2.0 million dollars in 1966 to 3.5 million dollars in 1988. Expressed in constant 1966 dollars, the 1988 appropriation is 0.95 million dollars, 48.5 percent of the 1966 appropriation. For the past 5 years, the annual budget of OSH in current dollars has been approximately 3.5 million dollars.

Expenditures on smoking and health reported by agencies within DHHS for fiscal years 1979 through 1981 and 1983 through 1986 (US DHHS 1981b, 1982b, 1985b, 1987b) are shown in Table 9. Reported expenditures increased from approximately 21 million dollars in fiscal year 1979 to approximately 40 million dollars in fiscal year 1986. Increased expenditures by several agencies contributed to this change, but it is primarily attributable to sharply increased allocations by the National Cancer Institute (Chapter 6). Expenditures on smoking and health have accounted for a growing share of all DHHS prevention efforts, but remain a small proportion of the total prevention budget. In fiscal year 1986, smoking and health activities accounted for 1.0 percent of the DHHS prevention budget (4.1 billion dollars) and 1.2 percent of the Public Health Service's prevention budget (3.3 billion dollars) (US DHHS 1987b).

The data on expenditures reported by DHHS agencies should be interpreted with caution. These figures may vary slightly from figures contained in other documents because each agency applied its own criteria, within general guidelines, for identifying these expenditures. In addition, some prevention expenditures within certain block grants or certain programs (e.g., medicaid) are not accessible by current reporting systems and thus may not be included in these figures.

It should also be noted that these data do not include possible expenditures on smoking and health by other Federal departments or agencies. For example, the Department of Defense (DOD) has recently funded approximately 97,000 dollars in publications and 324,000 dollars in radio and television messages relating to smoking and health. Many of the radio and television spots are being used in the Armed Forces Radio and Television Network overseas (US DOD 1987). DOD has received assistance from voluntary health agencies in disseminating information and materials to military service members (US DOD 1987) (Chapter 6). These data also do not include Federal agency expenditures on tobacco where the goal is not smoking control. Examples of this are the Department of Agriculture's tobacco agriculture program (Warner 1988) and efforts by the Office of the U.S. Trade Representative to secure freer access to foreign markets for American cigarette manufacturers (Connolly 1987).

TABLE 8.--Appropriated funds and positions for the Office on Smoking and Health (OSH) (1978-87) and its predecessor, the National Clearinghouse for Smoking and Health (NCSH) (1966-77)

Fiscal year	Appropriated funds[a] (millions of dollars)[b]	Positions[C]
1966 (NCSH)	1.955	30
1967	2.144	37
1968	2.075	37
1969	2.100	35
1970	2.250	35
1971	2.156	29
1972	2.380	43
1973	1.600 (+0.306)[d]	43
1974	0.986 (+1.862)[d]	36
1975	1.028 (+0.813)[d]	35
1976	0.825 (+0.295)[d]	12
1977	1.200	12
1978	1.200	12
1979 (OSH)	2.500	12
1980	2.519[e]	25
1981	2.062[e]	25
1982	1.944	23
1983	2.098	21
1984	3.521	21
1985	3.538	17
1986	3.375[f]	17
1987	3.471	18
1988	3.466	18

[a]The difference between these figures and those in Table 9 reflect the fact that the figures in Table 9 may exclude salaries and other "overhead" expenditures (travel, postage, photocopying, etc.).

[b]Figures not adjusted for inflation.

[c]Beginning in 1980, the number of allocated "positions" was redefined as the number of allocated "full-time equivalents (FTEs)." FTEs allow the hiring of more than one person for a given FTE (e.g., two half-time employees for one RTE), which was not possible under the previous system.

[d]Additional funds transferred from other agencies.

[e]An additional 10 million dollars was appropriated to support a smoking and alcohol demonstration grant program for children and adolescents. This money was later transferred from the Office on Smoking and Health (which at that time was within the Office of the Assistant Secretary for Health) to the Centers for Disease Control.

[f]A total of 3.526 million dollars was originally appropriated, but 174,000 dollars were withheld ("sequestered") pursuant to Section 515 of Public Law 99-190.

SOURCE: Office on Smoking and Health (unpublished data).

TABLE 9.--Expenditures on smoking and health by DHHS, fiscal years 1979-81 and 1983-86

Agency	Fiscal year expenditures[a] (in thousands of dollars)						
	1979	1980	1981	1983	1984	1985	1986
ADAMHA	153		1,184	1,579	2,024	2,353	2,796
CDC[b]	213	4,400	445		50	380	755
HRSA[c]	377	457	386				
NIH[e]	18,550	16,150	12.931	13,810	21,520	26,850	33,112
NCI	12,845	13,235	10,182	9,476	16,721	21,131	27,099
NHLBI	2,550	2,900	2,637	2,210	2,700	3,375	3,360
OASH	1,853	2,074	1,555	2,024	3,273	2,503	2,862
OSH[bd]	1,706	1,961	1,555	1,895	3,148	2,495	2,857
TOTAL[e] (smoking and health)	21,146	23,081	16,501	17,413	26,867	32,086	39,525
TOTAL of all prevention activities	2,971,171	3,530,405	3,571,060	3,577,069	3,823,993	3,908,524	4,088,465
Smoking and health, as % of all prevention activities	0.7	0.7	0.5	0.5	0.7	0.8	1.0

NOTE: ADAMHA, Alcohol, Drug Abuse, and Mental Health Administration (includes National Institute on Drug Abuse); CDC, Centers for Disease Control; HRSA, Health Resources and Services Administration; NIH, National Institutes of Health; NCI, National Cancer Institute (part of NIH); NHLBI, National Heart, Lung, and Blood Institute (part of NIH); OASH, Office of the Assistant Secretary for Health, OSH, Office on Smoking and Health.

[a]Figures not adjusted for inflation.

[b]OSH was transferred administratively from OASH to CDC in September 1986.

[c]For fiscal years 1979-81, expenditures were reported separately for the Health Resources Administration and the Health Services Administration, but are combined in this table under HRSA, which now subsumes these two agencies.

[d]The difference between these expenditure figures for OSH and those in Table 8 reflect the fact that the figures in this table may exclude salaries and other "overhead" expenditures (e.g., travel, postage, photocopying).

[e]Figures differ slightly from published data because of revised NCI figures.

SOURCE: US DHHS (1981b, 1982b, 1985b, 1987b). The figures in this inventory may vary slightly from figures contained in other documents because each agency applied its own criteria, within general guidelines, for identifying these expenditures. Some prevention expenditures within certain block grants or certain programs (e.g., medicaid) are not available with current reporting systems and thus may not be included in the figures in this table. Figures for NCI budget year were provided by the Deputy Director, Division of Cancer Prevention and Control.

State Smoking and Health Plans

Data on expenditures relating to smoking and health by State and territorial health departments were not available for this Report. However, the existence of a State Smoking and Health Plan is an indicator of a well-developed State smoking control program.

State smoking control plans may be produced by a State health department acting alone or in conjunction with other public and private organizations in the State that are interested in smoking and health. They may also be produced by an advisory committee or "citizens' panel" on smoking and health appointed by the Governor or State health officer. Table 10 provides a list of selected State Reports on smoking and health. The most comprehensive reports provide State-specific information on tobacco use, smoking-attributable mortality and economic costs, current tobacco control activities, and recommendations for tobacco control programs and policies and for information collection. A similar report has also been produced by the City of New York (New York City Department of Health 1986).

The Minnesota Plan for Nonsmoking and Health (Minnesota Department of Health 1984, 1987b) is often cited as a particularly well-developed program. In 1983, the Minnesota Commissioner of Health established the Minnesota Center for Nonsmoking and Health. The three-member staff of the Center organized the Minnesota Technical Advisory Committee on Nonsmoking and Health, with representation from a variety of sectors: wholesale-retail sales; labor; medicine; nursing; hotels, resorts, and restaurants; law; large and small business; education; insurance; economics; advertising; State legislature; local government; and community action. In September 1984, the committee issued a 198-page document, *The Minnesota Plan for Nonsmoking and Health* (Minnesota Department of Health 1984), with 39 recommendations. During the same year, nearly 30 public and private organizations joined to form the Minnesota Coalition for a Smoke-Free Society by the Year 2000.

In June 1985, the Minnesota legislature ratified smoking control legislation, several provisions of which were based on recommendations of *The Minnesota Plan*. One of these provisions was a 5-cent increase in the State cigarette excise tax. One cent of the tax increase was earmarked for a public health fund, one-quarter of which was set aside for tobacco use prevention. The revenues have been used to fund special project grants for local smoking control projects, surveillance of adult and teenage use of tobacco in the State, a mass media educational campaign, and evaluation of the impact of these interventions.

Eight Western States (Arizona, Colorado, Montana, New Mexico, North Dakota, South Dakota, Utah, and Wyoming) are cooperating on the first regional tobacco-and-health "plan," the Rocky Mountain Tobacco-Free Challenge. The eight State health departments are coordinating a competition among these States to achieve specific goals by the year 2000. These goals include a 50-percent reduction in the prevalence of tobacco use by adults and youth, a 50-percent reduction in consumption of all tobacco products, and a 25-percent reduction in deaths related to tobacco use. The Governors of these eight States signed a declaration in early 1988 endorsing the competition and the year 2000 goals (Vilnius 1988).

TABLE 10.—Selected State and local reports on smoking and health

State	Year	Origin of report[a]	Information in report			
			Prevalence of smoking	Smoking-attributable mortality	Smoking-attributable costs	Recommendations
Colorado	1986	AC	X	X	X	X
Maine	1983	SHD	X	X	X	X
Massachusetts	1988	SHD	X	X	X	X
Michigan	1980	AC		X	X	X
	1984	SHD		X[b]		
Minnesota	1984	SHD	X	X	X	X
	1987	SHD	X	X	X	X
New Jersey	1988	AC	X	X	X	X
New York City	1986	AC	X	X	X	X
North Dakota	1986	SHD		X[c]		
Pennsylvania	1986	CC	X	X		X

[a]AC, Advisory Committee or Citizens' Panel; SHD, State Health Department; CC, Consensus Conference.
[b]By State Senate district.
[c]State- and county-specific data.
SOURCE: Colorado Department of Health (1986); Maine Department of Human Services (1983); Massachusetts Department of Public Health (1988); Michigan Department of Public Health (1980, 1984); Minnesota Department of Health (1984, 1987b); New Jersey Commission on Smoking or Health (1988); New York City Department of Health (1986); North Dakota State Department of Health (1986); Pennsylvania Plan for Tobacco or Health (1986).

PART II. ECONOMIC INCENTIVES

Economic as well as educational factors can influence tobacco consumption by increasing the costs of manufacturing, distributing, selling, or consuming cigarettes. Direct increases in consumer costs affect consumption patterns directly, but cost increases to suppliers ultimately affect consumers too, to the extent that supplier costs are passed on to consumers. This Section considers two economic instruments, taxation and insurance, and discusses how public and private policies have created economic disincentives for tobacco use.

The simplest economic disincentive to consumption is to raise the price of a product. Governments have done so by imposing a tax on tobacco, usually an excise tax, which offers the benefit of generating public revenue. Insurers' policies work more indirectly to discourage smoking. Premium differentials make insurance more expensive for smokers to purchase; this effectively increases the cost of being a smoker, although its impact is not felt directly at the point of cigarette purchase. Health insurers' decisions about the reimbursability of smoking cessation treatment costs also create economic incentives. For the smoker, reimbursement removes a financial impediment to cessation; for the provider, reimbursement presumably would stimulate the availability of cessation services. Unlike taxation, insurance mechanisms are largely private policies; however, they can be encouraged and supported by government actions. In addition, government acts as a health insurer through publicly funded programs, such as medicare, and theoretically could use insurance mechanisms to promote nonsmoking. It is important to note that taxation and insurance incentives may influence smoking behavior through more than purely economic mechanisms; they also remind smokers that smoking is a harmful and socially discouraged behavior.

Other policies that act via economic mechanisms are not discussed. Chief among these is the Federal policy of tobacco price supports and the allotment system. As an agricultural policy not oriented toward tobacco consumption (although it may have an indirect impact) (Warner 1988; Johnson 1984) it is not within the scope of this Chapter. Also not discussed in this Chapter is a current high-visibility antitobacco activity with potentially important economic effects relevant to consumption: the ongoing efforts to establish the legal liability of tobacco manufacturers for the diseases caused by their products (Daynard 1988). Although product liability suits themselves are not policies, policymaking pertaining to them could influence the number and ultimate impact of these suits. For example, recent legislative action in California attempts to limit the legal liability of tobacco manufacturers and vendors for claims brought in that State. California's Civil Liability Reform Act of 1987 (California Chapter 1498) includes a section specifically exempting manufacturers or sellers of tobacco products from product liability actions.

Economic incentives are not limited to public and private policies. Smoking cessation programs have used economic incentives to encourage participation or success, and employers have offered employees economic incentives not to smoke. These nonpolicy uses of incentives are identified in Chapter 6 and are discussed elsewhere (Warner and Murt 1984).

Tobacco Excise Taxation

Excise taxes are sales taxes on specific commodities such as tobacco products. Although accounting for only a small percentage of aggregate tax receipts in the United States today, excise taxes provide revenue for Federal, State, and local governments. The primary fiscal attraction of excise taxes is their low administrative cost relative to the revenue they can generate. In theory, to generate substantial revenue, excise taxes should be placed on commodities with a broad base of consumption that is not substantially reduced by the imposition of the tax. Hence, during the Middle Ages, the salt tax was an important source of revenue. In the United States, tobacco, alcohol, and gasoline have emerged as commodities subject to special excise taxes.

In addition to being an attractive source of revenue, excise taxes on tobacco have a history as measures designed to reflect public morality by taxing "sinful" behaviors. More recently, as attention has focused on the deleterious health effects of cigarette smoking, it has been recognized that excise taxes have the potential to enhance public health by reducing the consumption of tobacco. The capacity to simultaneously raise revenue and enhance public health has made the tobacco excise tax a particularly attractive public policy tool (Lewit 1985; Warner et al. 1986b).

This Section reviews the history and current status of cigarette excise taxation at the Federal, State, and local levels, focusing on the period since 1964. It examines the relationship between changes in taxes on cigarettes and changes in cigarette consumption, with particular attention to the consequences of the doubling of the Federal excise tax in 1983, and it identifies tax-related policies under serious consideration.

History and Current Status

Federal Excise Taxes

Tobacco was one of the first goods to be taxed in North America, first by the British and then by the newly independent Republic in the early 1790s (Tobacco Institute 1988). The early tax on snuff was eliminated in 1804 and revived briefly as a wartime measure in 1814. A number of Federal tobacco taxes, including a tax on cigarettes, were imposed in 1864 as part of a package of taxes to finance the Civil War. Federal excise taxes on tobacco in one form or another have remained a part of the Federal tax system since that time. The tax on tobacco was a particularly important source of revenue to the Federal Government prior to the enactment of the income tax in 1913.

Generally, the Federal tax on cigarettes over the 120-year period from 1864-1983 tended to fluctuate with the revenue requirements of the Government, corresponding to alternating periods of war and peace. The Federal tax on cigarettes, introduced during the Civil War, was raised briefly during the Spanish American War, and again during World Wars I and II. In November 1951, during the Korean War, the Federal excise tax was increased from 7 to 8 cents per pack. It remained at this level for over three decades, until March 1, 1983, when it was temporarily doubled to 16 cents per pack as part of the Tax Equity and Fiscal Responsibility Act of 1982. After several temporary

extensions, Congress made the 16-cent rate permanent in 1986. A Federal excise tax on smokeless tobacco was levied by the Omnibus Budget Reconciliation Act of 1985, which imposed taxes of 24 cents per lb on snuff and 8 cents per lb on chewing tobacco. This is equivalent to a 1.8-cent tax on a 1.2-oz can of snuff and a 1.0-cent tax on a pouch of chewing tobacco.

In the year ending June 30, 1987, Federal tobacco taxes grossed 4.8 billion dollars. Over 98 percent of Federal tobacco tax revenues were provided by the tax on cigarettes (Tobacco Institute 1988). Cigarette excise taxes have provided a declining share of total Federal revenue during the post-World War II period. Accounting for over 3 percent of Federal revenues in 1950, the share of total Federal revenues attributable to cigarette excise taxes fell from 1.76 percent in 1964 to 0.52 percent in 1987 (see Figure 3). This occurred despite a doubling of the tax in nominal terms in 1983 and an increase in total tax receipts of over 2.8 billion dollars between fiscal 1964 and fiscal 1987.

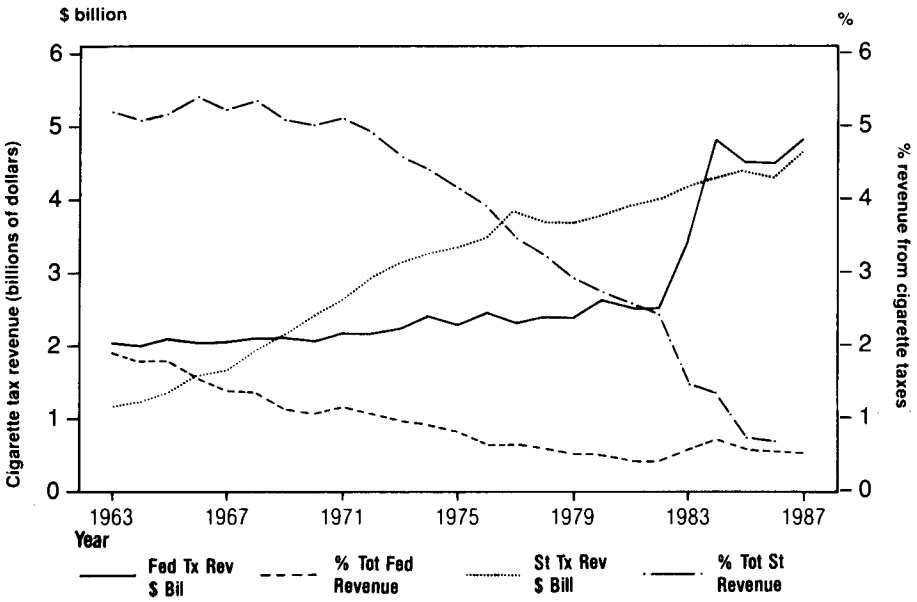

FIGURE 3.—Gross revenue and percentage of total revenue from cigarette tax, State and Federal Governments, 1963–87

NOTE: Figures in current dollars.
SOURCE: Tobacco Institute (1988b). Calculations by OSH.

The Federal excise tax has declined in real terms since 1964, despite the rising concern about the adverse effects of smoking on health that followed the release of the 1964 Surgeon General's Report and the adoption of specific Federal tobacco control policies. One reason for the decline was the lack of legislated increases in the tax rate. Only the prospect of huge Federal budget deficits that accompanied the 1981 tax cuts prompted renewed interest in the cigarette excise tax as a source of funds to help reduce the projected deficits (Toder 1985). Inflation also eroded the real excise tax rate because the excise taxes on cigarettes are unit rather than ad valorem taxes. A unit tax is a constant nominal rate per unit of a well-defined product, whereas the ad valorem tax is a constant fraction of either wholesale or retail price. Current Federal taxes on cigarettes, cigarette papers and tubes, smokeless and smoking tobacco, and small cigars, as well as most State and local taxes on cigarettes, are unit taxes. Federal taxes on large cigars and most State taxes on noncigarette tobacco products are ad valorem taxes.

Cigarette taxes fall relative to the price of cigarettes when cigarette taxes are not changed by at least as much as the rate of general inflation or the rate of increase in cigarette prices. The Federal tax has increased only once since 1951. Accordingly, the real tax (in 1987 value) fell from 30.4 to 9.8 cents per pack of 20 cigarettes between 1964 and 1982. The doubling of the nominal tax from 8 to 16 cents per pack in 1983 caused the tax to nearly double in real terms, to 19 cents (1987 value), between 1982 and 1983. However, inflation since 1983 has gradually eroded the tax to less than 16 cents (1987 value) today. During this same period, the Federal tax as a percentage of average retail price (including taxes) declined from 30.3 to 10.7 percent between 1964 and 1982, increased to 17.8 percent in 1983, and declined again to 13.7 percent in 1987 (Figure 4).

State and Local Excise Taxes

All States, the District of Columbia, and nearly 400 localities currently impose excise taxes on cigarettes in addition to the Federal tax. In 1921, Iowa became the first State to tax cigarettes. By 1964, 49 States had enacted cigarette taxes. The last State to enact an excise tax on cigarettes, North Carolina, did so in 1969. Since then, a number of States have modified their cigarette taxes, as described below. As of June 30, 1988, State excise tax rates ranged from a low of 2 cents per pack in North Carolina to a high of 38 cents in Minnesota. The average State tax was 18.2 cents per pack. In the year ending June 30, 1987, State tobacco taxes generated revenues of 4.8 billion dollars; almost 98 percent was provided by State cigarette taxes. In addition, 40 States and the District of Columbia imposed general sales taxes on cigarettes in 1987. In 35 States, the sales tax value base included the State excise tax. As a result, sales taxes added up to 10 cents per pack to the price of cigarettes in the highest tax States (Connecticut and Washington) in 1987. States have also increased their taxation of smokeless tobacco. In 1964, only 14 States taxed smokeless tobacco. By 1987, this number had nearly doubled to 27 (Tobacco Institute 1988).

During the local fiscal crises that resulted from the Depression of the 1930s municipal governments also began to enact tobacco taxes. The spread of cigarette taxes has not been as rapid or extensive among municipal governments as it was among State

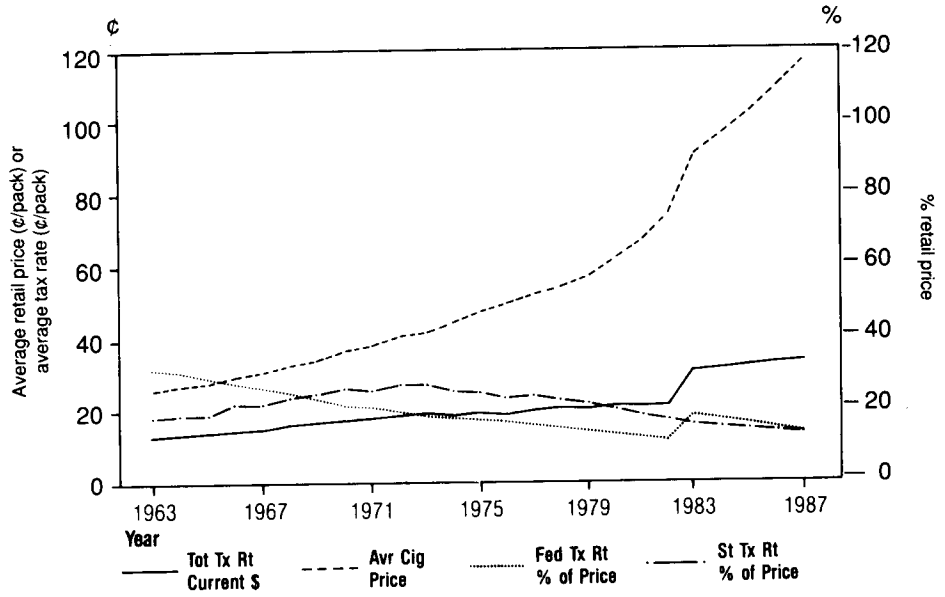

FIGURE 4.—Federal and State cigarette excise tax rates and retail cigarette prices, 1963–87

SOURCE: Tobacco Institute (1988b). Calculations by OSH.

governments. As of 1987, 369 cities and 20 counties in 6 States imposed local taxes on tobacco products. Taxes are levied by communities in Alabama, Illinois, Missouri, New York, Tennessee, and Virginia. In the year ending June 30, 1987, these taxes ranged from 1 to 15 cents per pack and yielded revenues of 197 million dollars. Over 70 percent of local cigarette tax revenues are collected in New York City and Chicago-Cook County, IL, where the local tax rates are 8 and 23 cents per pack, respectively.

During the period following the 1964 Surgeon General's Report, State cigarette excise tax receipts grew much more rapidly than Federal receipts (Figure but their share of total State tax revenue declined. State tax receipts averaged a fairly constant 5 percent of total State revenues during the initial part of the period, but the proportion has declined steadily since 1972. Gross receipts from local taxes on cigarettes have grown from 58 million dollars in 1964 to 197 million dollars in 1987, less than the growth rate of State tax receipts but more rapid than Federal tax receipt change in the same period. The number of local jurisdictions taxing cigarettes has not increased appreciably (Tobacco Institute 1988).

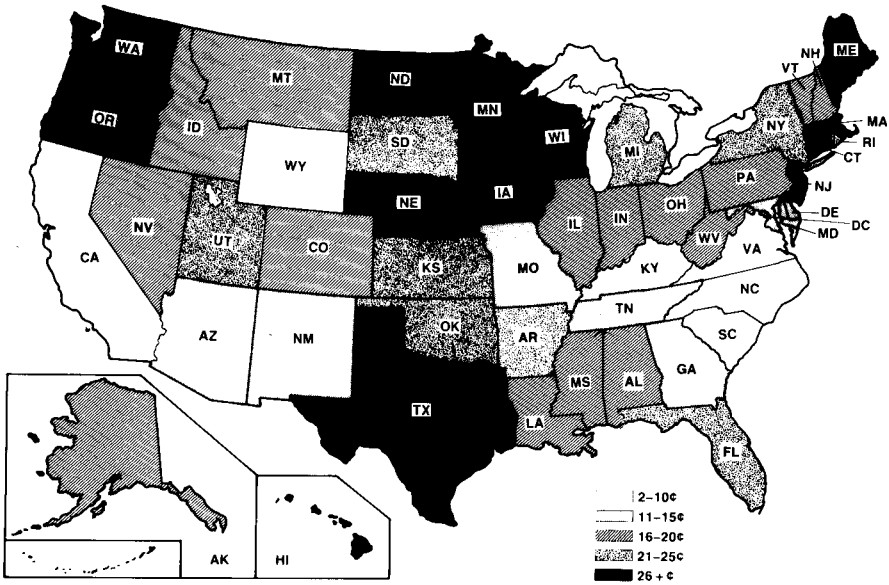

FIGURE 5.—State cigarette excise tax rates (as of June 30, 1988)

SOURCE: Tobacco Institute (1988a).

Between 1963 and 1987, the average State tax on cigarettes in current dollars increased almost annually, but because the rate of increase slowed relative to the rate of inflation after 1972, the real tax rate and the tax rate as a percentage of retail price have each declined by over 40 percent in the past 15 years. The rate of increase in State taxes accelerated after 1980, so that on average, it has kept pace with the general rate of inflation since that time (Figure 4).

Considerable differences in cigarette tax rates among States have persisted over the last 25 years (Figure 5). Not until 1969 did all States tax cigarettes. At that time, the maximum State tax rate was 16 cents, and the difference between the tax rate in the highest and lowest tax States was 14 cents (Table 11). The range of State cigarette taxes in constant dollars was greatest in 1971 and fell steadily through 1981. This decline occurred because the lowest tax State maintained a constant nominal tax rate and taxes in the high-tax States failed to keep pace with inflation. Since 1982, tax increases in high-tax States have tended to keep pace with the rate of inflation. The major tobacco-producing States of North Carolina, Kentucky, and Virginia have maintained low cigarette tax rates since 1964. The largest tax increases have occurred in Oregon, which did not even tax cigarettes in 1964, in Minnesota, and in California in November 1988.

Differences in cigarette tax rates among States and local jurisdictions can create problems with the enforcement of State and local tax laws and can result in lost revenues to some jurisdictions. In particular, large differences in cigarette tax rates among and within States provide an incentive for bootlegging; that is, purchasing of cigarettes in low-tax jurisdictions for consumption or resale in high-tax jurisdictions. A variety of tax evasion activities have been identified: casual smuggling (individuals buying

TABLE 11.--Dispersion in cigarette excise tax rates among States, 1963-87

Year	Number of taxing States[a]	Minimum tax, current dollars (cents/pack)	Maximum tax, current dollars (cents/pack)	Minimum tax, 1987 dollars (cents/pack)	Maximum tax, 1987 dollars (cents/pack)	Range, 1987 dollars (cents/pack)
1963	48	0.0	8.0	0.0	29.6	29.6
1964	49	0.0	8.0	0.0	29.3	29.3
1965	49	0.0	11.0	0.0	39.6	39.6
1966	50	0.0	11.0	0.0	38.5	38.5
1967	50	0.0	13.0	0.0	44.2	44.2
1968	51	0.0	15.0	0.0	49.0	49.0
1969	51	2.0	16.0	6.2	49.5	43.3
1970	51	2.0	18.0	5.8	52.6	46.8
1971	51	2.0	21.0	5.6	58.9	53.3
1972	51	2.0	21.0	5.5	56.9	51.5
1973	51	2.0	21.0	5.1	53.7	48.5
1974	51	2.0	21.0	4.6	48.3	43.7
1975	51	2.0	21.0	4.3	44.3	40.0
1976	51	2.0	21.0	3.9	41.9	37.9
1977	51	2.0	21.0	3.7	39.3	35.6
1978	51	2.0	21.0	3.5	36.5	33.0
1979	51	2.0	21.0	3.2	32.9	29.7
1980	51	2.0	21.0	2.7	28.9	26.2
1981	51	2.0	21.0	2.5	26.2	23.7
1982	51	2.0	25.0	2.4	29.4	27.0
1983	51	2.0	26.0	2.3	29.6	27.3
1984	51	2.0	26.0	2.2	28.4	26.2
1985	51	2.0	26.0	2.1	27.5	25.3
1986	51	2.0	31.0	2.1	32.1	30.0
1987	51	2.0	38.0	2.0	38.0	36.0

[a]Includes District of Columbia.
SOURCE: Tobacco Institute (1988)

cigarettes in neighboring lower tax jurisdictions for their own consumption), illegal organized or commercial smuggling for resale, tax-free mail order purchase of cigarettes (technically illegal since 1949), purchase of cigarettes through tax-free outlets (international ports of entry, military stores, and Indian reservations), and illegal diversion of cigarettes within the traditional distribution system (forged tax stamps and underreporting) (Advisory Commission on Intergovernmental Relations (ACIR) 1977, 1985).

As the differential in State tax rates increased during the late 1960s and early 1970s. the level of cigarette tax evasion increased substantially. Although casual smuggling between neighboring States (e.g., Massachusetts and New Hampshire, Washington and Oregon) had long been a problem, government officials reported a substantial increase in organized smuggling over long distances and in the illegal diversion of cigarettes from the legal distribution system (ACIR 1977). The problem was also reported in the media. In response, the Federal Cigarette Contraband Act was enacted. It prohibited the transportation, receipt, shipment, possession, distribution, or purchase of more than 60,000 cigarettes not bearing the indicia of the State in which the cigarettes were found. Enforcement of this Act was made the responsibility of the Bureau of Alcohol, Tobacco, and Firearms of the U.S. Treasury Department. A second study by the Advisory Commission on Intergovernmental Relations (1985) suggested that this act had been effective in reducing the level of organized smuggling. ACIR (1985) has suggested earmarking a portion of the revenue generated by increases in State cigarette excise taxes for antismoking law enforcement activities.

The law enforcement problems stemming from organized interstate cigarette bootlegging were also a factor in the deceleration of State tax increases in high-tax States (ACIR 1985). In real terms, the difference between the rate in the highest and lowest rate States (53 cents, 1987 value) peaked in 1971. The decline in the range of real prices means that interstate bootlegging has become less profitable since that time. This decline in profitability, combined with the increased Federal enforcement effort, probably accounted for the decline in bootlegging (Warner 1982). More recent increases in State taxes and the resultant widening of real differentials between high- and low-tax States have again increased the incentives for smuggling. In addition, many States and the Federal Government have reduced the level of resources allocated to enforcing State tax laws as the problem of bootlegging abated.

Cigarettes sold on military bases and Indian reservations are exempt from State and local tobacco excise taxes. Tax-exempt sales at these locations represent a revenue loss to the States, which would collect a tax on these sales if the tax-exempt options did not exist. These cigarette sales represent “the major sources of current revenue losses for most states” (ACIR 1985). In 1986, DOD discussed but did not adopt a proposal to remove the State and local tax exemption for cigarettes sold in the military, as part of an overall strategy to discourage smoking in the military (US DOD 1986c).

Effects of Excise Taxes on Smoking and Health

Price Elasticity of Demand for Cigarettes

One of the few nearly universal relationships in economics is the law of downward sloping demand; that is, demand for a commodity declines as its price increases. Numerous econometric studies have confirmed that this relationship holds for cigarettes. Because excise taxes increase the price of cigarettes, fluctuations in excise tax rates should influence the demand for cigarettes, and excise tax increases should reduce tobacco consumption.

The basis for estimating the consumption effects of a change in excise tax rates is an analysis of the price elasticity of demand for cigarettes. Elasticity, a measure of the degree of responsiveness of demand to changes in price, is defined as the percentage change in the quantity of cigarettes demanded divided by the percentage change in price. An elasticity of -0.5, for example, means that a l0-percent increase (decrease) in price would reduce (increase) by 5 percent the quantity of cigarettes demanded. Because cigarette taxes account for only a fraction of the total retail price of cigarettes, the price elasticity of demand would have to be multiplied by the percentage change in price that resulted from a tax change to determine the elasticity of demand with respect to the tax. Accordingly, the elasticity of demand with respect to a tax change will be less than the price elasticity of demand.

Numerous attempts have been made to measure the price elasticity of demand for cigarettes, with estimates ranging from -0.2 to -1.3. Miller (1982) suggested that -0.7 was the midpoint of recent studies and noted that the Tobacco Institute used that figure for its analyses of cigarette tax effects. Table 12 reports the results of studies published since 1980 on the price elasticity of demand for the United States. The substantial changes in the market for cigarettes and in the demographics of the smoking population that have occurred since 1964 suggest that earlier estimates may be inappropriate today.

The estimates reported in Table 12 derive from econometric studies that attempt to explain differences in cigarette consumption as functions of the price of cigarettes, income, and demographic variables. Some of the variability in results is a consequence of methodological differences among studies. The studies derive estimates of demand from different sources, including time series of per capita cigarette consumption (for the United States as a whole and for cross-sections of States) and cross-sectional survey data on the smoking behavior of individuals at a point in time and over time. Each of these methods has inherent limitations that can cloud the interpretation of results. In time series studies, the estimates of price and income elasticities are sensitive to the method of accounting for the effects of concurrent social influences on smoking, such as the growing public knowledge about its harmful effects and changing cigarette advertising policies. In addition, time series estimates are not stable because the independent variables tend to be highly correlated with each other. Moreover, price elasticities estimated with time series data may represent short-term responses to price fluctuations rather than the long-term responses that are typically of greater interest to policymakers.

On the other hand, estimates of cigarette price elasticities based on cross-sections of State tax-paid sales may be biased upward because some cigarettes sold in low-tax States are ultimately consumed by smokers in higher tax States. As a result, tax-paid sales may overstate actual consumption in low-tax States and understate consumption in high-tax States, and the estimated price elasticity of sales will exceed the price elasticity of actual consumption. Some studies have attempted to control for short-distance, casual smuggling (ACIR 1977, 1985; Becker, Grossman, Murphy 1987; Chaloupka and Saffer 1988) and long-distance, organized smuggling (Becker, Grossman, Murphy 1987; Chaloupka and Saffer 1988) by using a set of carefully constructed variables. While these are imperfect measures of the smuggling phenomena, the careful attempt to control for the problem should reduce the bias associated with the use of this type of data.

TABLE 12.--Recent estimates of the price elasticity of demand for cigarettes

Study	Estimated aggregate price elasticity	Method of estimation	Comments
Fujii (1980)	-0.45	Ridge regression	Time-series aggregate data, 1929-73
Schneider, Klein, Murphy (1981)	-1.23	Instrumental variables	Time-series aggregate data, 1930-78
Lewit, Coate, Grossman (1981) Teenage smoking	-1.44	Ordinary least-squares	U.S. Health Examination Survey, 12-17-year-olds, 1966-70
Lewit and Coate (1982) Adult smoking	-0.42	Ordinary least-squares	1976 Health Interview Survey, elasticities by age and sex, 20-74-year-olds
Young (1983) Price increase Price decline	 -0.33 -0.61	Ridge regression	Fujii's model with asymmetrical responses
Bishop and Yoo (1985)	-0.45	Three-stage least-squares	Time-series aggregate data, U.S., 1954-80
ACIR (1985)	-0.45	Ordinary least-squares	Pooled-time series of State cross-sections, 1981-83
Mullahy (1985)	-0.47	Probit, instrumental variables	1979 Health Interview Survey, by sex
Baltagi and Levin (1986)	-0.14	Instrumental variables	Pooled-time series cross-section of 46 States, 1963-80
Porter (1986)	-0.27	Two-stage least-squares	Time-series aggregate data, 1947-82
Chaloupka (1988) Long run	-0.26- -0.40	Instrumental variables	HANES2 full sample; also by age, sex, race, or education
Becker, Grossman, Murphy (1987) Long run	-0.75	Instrumental variables	Pooled-time series of State cross-sections, 1956-85
Chaloupka and Saffer (1988)	-0.28	Two-step endogenous law model	Pooled-time series of State cross-sections, 1975-85

An additional limitation of most econometric studies is that they use aggregate or per capita cigarette consumption as their dependent variable. As a result, they provide estimates of the price elasticity of aggregate or per capita cigarette consumption but can provide no information on the effects of price changes on smoking rates, smoking cessation and initiation, or quantity and type of cigarette smoked by smokers. Also, they cannot identify differences by separate demographic groups in response to price changes. Accordingly, aggregate studies are useful for economic and fiscal planning but are of limited usefulness when considering the behavioral or health effects of changes in cigarette tax policy.

In contrast to studies focused on aggregate consumption effects, Lewit and colleagues (1981, 1982) used data on individuals from two national surveys to investigate the effects of price (tax) differences on smoking behavior. With data on a sample of 19,288 individuals aged 20 through 70 years from the 1976 NHIS, Lewit and Coate (1982) estimated an overall price elasticity of -0.42 for cigarettes. They corrected for bias in two ways: first, by using consumption reported by individuals rather than tax-paid sales as the unit of observation, and second, by removing from the sample those households within 20 miles of States with lower prices. The former eliminates some of the error in the measurement of consumption, and the latter partially corrects for errors in the price measure that result when households purchase cigarettes outside their own localities.

Lewit and Coate's study also gave a more detailed breakdown of the smoking response than in previous studies. They found that cigarette prices affected smoking primarily by reducing smoking prevalence (the "participation rate," or number of smokers). The estimated effects on the number of cigarettes per smoker were not statistically significant. There were also differences in the estimated price elasticities among groups; reported price elasticities were much higher for adult males than for adult females and much higher for people aged 20 to 25 years than for other age groups. Their estimates are summarized in Table 13.

In a methodologically similar study, Lewit, Coate, and Grossman (1981) analyzed teenage smoking by using data from Cycle III of the U.S. Health Examination Survey (HES), a national sample of 6,768 youths between the ages of 12 and 17 years who were surveyed between March 1966 and March 1970. They reported that price elasticities of demand for cigarettes among teenagers are larger in absolute value than price elasticities for adults. As in the adult study, smoking participation (or prevalence) is more responsive to price than is the quantity of cigarettes smoked. Their estimated smoking participation elasticity for teenagers was -1.20, and the quantity-smoked elasticity (conditional on smoking) was -0.25 (Table 13).

The estimated elasticities based on HES data for teenagers were generally confirmed in a related study by Grossman, Coate, and Lewit (1983) and summarized by Grossman (1983). The study used a similar methodology to estimate price elasticities for teenagers on the basis of the four U.S. National Surveys on Drug Abuse (NSDA) conducted in 1974, 1976, 1977, and 1979. Estimates based on these surveys must be interpreted with caution because they are based on much smaller samples than those from the previous studies. Adjusting for this fact, Grossman's summary estimate of NSDA

TABLE 13.--Estimates of the price elasticity of demand for cigarettes

Age group (years)	Elasticities		
	Total	Participation	Quantity per smoker
12-17	-1.40	-1.20	-0.25
20-25	-0.89	-0.74	-0.20
26-35	-0.47	-0.44	-0.04
36-74	-0.45	-0.15	-0.15
All adults (20-74)	-0.42	-0.26	-0.10
All ages (12-74)	-0.47	-0.31	-0.11

SOURCE: Lewit and Coate (1982): Lewit, Gate, Grossman (1981): Lewit (1985) and unpublished calculations by Lewit.

participation elasticity was -0.76, which is smaller in absolute value than the HES estimate but almost 3 times larger than the NHIS elasticity for adults.

Most economic studies of the demand for cigarettes, including those cited above, have not explicitly allowed for the addictive nature of cigarettes (US DHHS 1988). Part of the reason for this omission was that the consumption of addictive goods in general was not thought to conform to the rational, utility-maximizing model that is the paradigm of standard economic analysis. Recently, however, Becker and colleagues (Becker, Grossman, Murphy 1987; Becker and Murphy 1988), among others, have developed models of "rational addiction" that are conducive to economic analysis. In general, this work recognizes that the demand for cigarettes depends on the levels of both past and future consumption, permitting incorporation of the notions of tolerance, reinforcement, and withdrawal, which are generally used to distinguish addictive from nonaddictive substances.

The findings of preliminary empirical research are consistent with the characterization of smoking as an addiction and suggest that failure to consider addiction explicitly may lead to underestimation of the long-term response to changes in cigarette price (Becker, Grossman, Murphy 1987; Chaloupka 1988). The application of the rational addiction model to cigarette consumption is a recent development that will require further empirical investigation and theoretical refinement before its contribution to the understanding of smoking behavior can be fully evaluated. The range of estimates of the long-term price elasticity of demand for cigarettes derived under the assumptions of the model is not inconsistent with previously published estimates, however, which suggests that insights gained from analyses of recent tax increases are not likely to be invalidated by further refinement of the addiction model.

The principal message of this body of research on price elasticity of demand is that an increase in the price of cigarettes appears to curtail smoking, particularly the initiation of smoking by teenagers. Because adolescents are more responsive to changes in cigarette prices than are adults and because price changes appear to have stronger effects on smoking prevalence than on daily consumption by smokers, the studies sug-

gest that excise tax increases may be useful tools to prevent or delay the onset of smoking by adolescents.

Because aggregate cigarette consumption and smoking prevalence are dominated by the behavior of adults, the short-term effects of an increase in cigarette excise taxes would likely be modest. The long-term impact of such an increase could, however, be considerably more substantial. If the current situation, in which very few individuals start smoking after age 20 (see Chapter 5) continued, it is possible that the cohort of young persons who do not begin to smoke as a result of a tax increase would never become smokers. If the tax increase were maintained in real terms, it could continue to discourage successive generations of youths from starting to smoke. Gradually, the smoking prevalence of adults might be reduced as these cohorts moved through the age spectrum. Over a period of several decades, aggregate smoking and its associated health effects might decline more substantially than would be evident in the years immediately following a tax increase.

In addition to its relevance for cigarette taxation, research demonstrating the inverse relationship between tobacco price and demand has implications for the armed forces. As described in Chapter 5, the prevalence of smoking among military personnel exceeds that of the general population. One factor probably contributing to the differential in smoking rates is the lower price paid by military personnel for tobacco products. The current pricing structure of the military resale system results in approximate 35-percent and 18-percent reductions in cigarette price in military commissaries and exchanges, respectively, when compared with commercial retail outlets (US DOD 1986c). Cigarettes sold in these military stores are exempt from State and local excise taxes and, if outside the United States, are also exempt from the Federal excise tax. Cigarette sales in the military resale system totaled 1,046 million packs in fiscal year 1985, though sales have been decreasing in the 1980s (US DOD 1986c, 1987). Price elasticity of demand data suggest that increasing the price of cigarettes could contribute to reducing tobacco use by military personnel. In 1986, DOD considered banning the sale of tobacco in commissaries or raising the price of tobacco products on military installations as part of a broad program to discourage tobacco use. Neither of these policies was adopted (US DOD 1987), although, as discussed in Part III and Chapter 6, DOD has instituted new smoking restrictions and has launched antismoking activities on a large scale.

Effects of an Excise Tax Increase

Research addressing the temporary doubling of the Federal excise tax in 1983 and its six temporary extensions prior to permanent adoption in 1986 generated several estimates of the effect of the tax increase on cigarette consumption and smoking prevalence. For example, Harris (1982) used the Lewit-Coate estimate of the adult-smoking participation price elasticity of -0.26 and the Lewit-Coate-Grossman estimate of the teenage-smoking participation price elasticity of -1.20 to forecast the impact of the doubling of the Federal excise tax rate in 1983. He predicted that the number of adult smokers would decline by 1.5 million and the number of teenage smokers by 0.7 million.

In an analysis performed in 1985, during the period of uncertainty as to whether the Federal tax increase would be extended permanently or allowed to lapse, Warner (1986a) used the Lewit-Coate and Lewit-Coate-Grossman age-specific elasticity estimates to project the changes in cigarette consumption that would have accompanied an 8-cent tax decrease or 8- and 16-cent tax increases (Table 14). Altogether he estimated that an 8-cent decrease in the tax would induce almost 2 million persons to smoke who would not do so if the tax were to remain unchanged at 16 cents per pack. In contrast, a doubling of the tax to 32 cents per pack would have encouraged almost 3.5 million Americans to forego smoking, a figure that included more than 800,000 teenagers and almost 2 million young adults aged 20 to 35 years.

TABLE 14.--Expected percentage changes in cigarette consumption resulting from changes in the Federal cigarette excise tax

Age group	8-cent decrease		8-cent increase		16-cent increase	
	Total consumption	Smoking prevalence	Total consumption	Smoking prevalence	Total consumption	Smoking prevalence
12-17	11.9	10.2	-11.1	-9.5	-21.1	-18.1
20-25	7.6	6.3	-7.0	-5.9	-13.4	-11.2
26-35	4.0	3.7	-3.7	-3.5	-7.1	-6.6
36-74	3.8	1.3	-3.6	-1.2	-6.8	-2.3
All adults (20-74)	3.6	2.2	-3.3	-2.1	-6.3	-3.9

SOURCE: Warner (1986a).

Lewit (1985) examined the actual decline in aggregate cigarette consumption following the 1983 tax increase. He noted that in anticipation of the January 1, 1983, tax increase, the tobacco companies increased the wholesale price of cigarettes four times between August 1982 and January 1983. Cigarette prices were increased twice again in 1983, and 16 States increased their cigarette excise taxes during 1982 and 1983. As a consequence, the average retail price of cigarettes increased by about 40 percent between November 1, 1981, and November 1, 1984, from approximately 70 cents per pack in 1981 to almost 98 cents in 1984 (Tobacco Institute 1988). During this same period, the price of cigarettes adjusted for inflation rose by 26 percent. Based on an overall price elasticity of -0.47 for adults and teenagers, per capita consumption should have declined by about 12 percent over this period. Department of Agriculture data indicate a decline of 11 to 12 percent. Although per capita cigarette consumption had been slowly declining at the rate of about 1 percent per annum since the mid- 1970s, the very rapid acceleration in the rate of decline following the excise tax increase and as-

sociated price increases is consistent with the cross-sectional studies and serves as further evidence that excise taxes may be a potent tool to discourage smoking.

Harris (1987) conducted an extensive review of the 1983 Federal tax increase. On the whole, his findings for the period 1981-86 are consistent with those reported by Lewit (1985). Harris' discussion of the cigarette manufacturers' response to the tax increase is, however, of particular interest. It has been generally assumed that changes in tax rates would be fully passed on to consumers. Accordingly, Warner's analysis (1986a) and Harris' earlier analysis (1982) assumed that an 8-cent tax increase would raise the retail price of cigarettes by 8 cents. Harris (1987) reports evidence to suggest, however, that the preannounced 1983 Federal tax increase appeared to have served as a focal point for coordinating an oligopolistic price increase by tobacco producers that exceeded the amount of the tax. He concludes that "Quite contrary to the conventional view of the incidence of excise taxes, the federal excise tax may have actually had a multiplier effect upon price." He estimates that the 8-cent-per-pack tax increase induced a 16-cent-per-pack increase in the market price of cigarettes.

Health Consequences of Tax Changes

Given the deleterious health effects of cigarette smoking and the important changes in both cigarette consumption and smoking prevalence that would accompany a substantial tax change, it appears that a policy of aggressive increases in the tax on cigarettes would lead to large reductions in smoking-induced illness. To assess fully the effect of a cigarette tax change on the health of the population, information is needed on who actually cuts down on cigarettes, who quits, and who does not start smoking. Only a portion of such information is available.

However, both Warner (1986a) and Harris (1987) provide crude estimates of some of the health effects that may result from the 1983 Federal tax increase. Basing his estimates on the conservative assumption that one lifelong smoker out of every four dies of smoking-related illness (Mattson et al. 1987), Warner obtained upper bound estimates of the mortality impact of increases or decreases in the Federal excise tax. He estimated that an 8-cent tax increase, maintained in real value over time, would avert 450,000 premature deaths in the cohort of Americans 12 years of age and older in 1984 and that this number would rise to 860,000 following a 16-cent increase. An 8-cent tax decrease, however, would result in an increase of more than 480,000 premature smoking-induced deaths.

Focusing specifically on the post-1983 tax-induced price changes and their impact on consumption, Harris estimated that 100,000 additional persons will live to age 65 as a result of the tax increase. Of these 100,000, he estimated that 54,000 will result from having discouraged 600,000 teenagers from starting to smoke. Thus, the major effect of the tax increase on mortality will not be realized for decades. On the other hand, although no estimates of the impact of the tax increase on other health measures have been published, reductions in smoking-induced morbidity and disability should raise aggregate health levels long before the projected mortality reductions are fully realized.

Policies Under Consideration

Among the public policy tools with a potential to reduce tobacco use, the cigarette excise tax has received particular attention because its public health benefits are well documented, and it has the additional advantage of generating public revenues (Warner et al. 1986b). Currently discussed proposals to modify Federal, State, or local cigarette excise taxes fall into two categories: (1) proposals to increase the amount of the tax or the method of calculating the tax rate, and (2) proposals to channel the revenues generated from excise taxes for specific purposes. The first category includes proposals to increase the Federal excise tax rate, raise State and local excise tax rates (especially in States in which rates are currently below the national or regional average), and switch from a specific unit tax to an ad valorem tax, thereby tying the tax rate to a measure that changes with inflation. This last proposal often accompanies the others because it permits the real tax rate to keep pace with inflation. Proposals in the second category would dedicate (or earmark) some portion of tax receipts for purposes such as funding tobacco control programs or paying for the excess health care costs of smokers.

Tobacco Excise Tax Increases

Increasing the Federal excise tax beyond the 16-cent-per-pack level first set by Congress in 1983 and made permanent in 1986 is the most widely discussed and most broadly supported tax proposal. It has been endorsed by a wide range of voluntary health organizations and organized medical societies, including the American Medical Association, American Public Health Association, American Cancer Society, American Heart Association, and American Lung Association. Proponents of a Federal excise tax increase note that the real value of the tax has fallen since 1964 and that inflation since the last increase in 1983 has continued to erode the real value of the tax. Opponents of Federal excise tax increases have raised several issues, primarily based on tax equity considerations. Chief among them is that cigarette excise taxation is regressive, requiring the poor to pay a greater proportion of their income on the tax than the rich. More pragmatic concerns have been raised about the effect on State tax revenues. Because the consumption of cigarettes tends to decline as price rises, State cigarette tax receipts may fall after a Federal tax increase if State tax rates remain constant. In the aggregate, this did not happen after the 1983 Federal excise tax increase because State tax rates also increased.

Increases in State excise taxes have received less attention, although the effect of such a policy change on consumption and revenue would be expected to resemble that of a Federal tax change. The variability in State taxes adds an additional concern about interstate bootlegging of cigarettes, which could be avoided if excise tax rates were preferentially raised in States with relatively low tax rates. Beyond excise tax changes, cigarette taxes could also be increased in those States that now exempt cigarettes from the regular sales tax by removing that exemption. Massachusetts did so in June 1988, resulting in a 5-cent increase in the tax on cigarettes (Mohl 1988).

Switch to an Ad Valorem Tax

With the exception of the State excise tax in Hawaii, all Federal, State, and local cigarette taxes are specific unit taxes; that is, the tax rate is a constant nominal amount per unit. While a specific unit excise tax has the advantage of administrative simplicity, it has the disadvantage that the real revenue yield tends to decline with inflation. Unit excise taxes must be raised periodically if real revenues--and consequent impact on tobacco consumption--are to be maintained. Replacing unit taxes on cigarettes and other tobacco products with equivalent-yield ad valorem taxes would allow revenues to keep pace with inflation-induced increases in cigarette prices, and real cigarette prices would be more likely to be maintained over time. As mentioned above, Federal taxes on large cigars and most State taxes on noncigarette tobacco products are ad valorem taxes. An alternative to switching to an ad valorem tax on cigarettes is to index the unit tax to changes in either the general price level or to a price index for cigarettes (Toder 1985). This would maintain the administrative simplicity of per-unit taxes and eliminate the need to periodically reevaluate the unit tax rate to maintain real revenues.

Earmarking of Revenues

Tobacco taxes may also be earmarked (dedicated) for specific tobacco- or health-related purposes. Proposals have included using tax revenues to support the cost of health care for tobacco-related illnesses or to fund tobacco prevention and cessation programs delivered in schools or via the media (Warner 1986c). Earmarking a portion of the Federal cigarette excise tax to fund the medicare program has been proposed to Congress (Committee on Ways and Means 1986) and survey data show that a majority of the public would support an increase in the cigarette excise tax to fund medicare (Chapter 4).

Several States have used cigarette tax revenues to finance tobacco-related health programs. In Nebraska, revenue from a l-cent-per-pack cigarette tax is used to fund the State's Cancer and Smoking Disease Research Program (CDC 1987). In Minnesota, the Omnibus Nonsmoking and Disease Prevention Act of 1985 increased the cigarette excise tax by 5 cents per pack and earmarked 1 cent of the additional revenues for a public health fund. As noted previously, one-quarter of this fund is dedicated to assist local school boards to implement tobacco use prevention programs. Funds are also provided for an active public tobacco control and prevention program overseen by the Commissioner of Health (Minnesota Department of Health 1987a,b). In Utah, a portion of revenues generated from an 11-cent increase in the State cigarette excise tax is dedicated for tobacco control programs (Utah 1987). A newer proposal would earmark a portion of the estimated excise tax revenue generated from sales of tobacco products to minors to support tobacco prevention and cessation programs for youth (Slade 1988a). In Indiana, a portion of the State tobacco excise tax is earmarked to support subsidized child care programs (Lewin 1988).

The most substantial earmarking of tobacco excise tax revenues is in California, the result of passage of a ballot initiative in November 1988 raising the State's cigarette excise tax by 25 cents per pack. With the exception of funds to cover the administra-

tive and collection costs associated with the tax, three-quarters of all revenues are dedicated to health education, research, medical treatment, and environmental conservation programs. In its first full year of operation, the tax is expected to generate 650 million dollars for these purposes (Tobacco Tax and Health Protection Act of 1988; Wilson 1988b).

Insurance and the Treatment of Smokers

At the time of the 1964 Surgeon General's Report, whether a person smoked was not a consideration in the premiums paid for insurance. No major life, health, disability, homeowner, or auto insurer offered discounts to nonsmokers, and no major health insurer covered the expenses of smoking cessation programs. In fact, the consensus of a panel of the Society of Actuaries convened in 1963 was that consideration of smoking in calculating life insurance premiums seemed to be impractical (November et al. 1964).

Over the subsequent 25 years, this situation has changed considerably, but changes have come at different rates in the three major segments of the insurance industry--life, health and disability, and property and casualty. Currently, almost all life insurers, including two that are subsidiaries of major tobacco firms, offer premium discounts to individuals who do not smoke cigarettes (Trenk 1986). In contrast, only about 15 percent of companies writing health and disability insurance policies offer discounts to nonsmokers, and even fewer reimburse health care providers for smoking cessation treatment (National Association of Insurance Commissioners (NAIC) 1987c). Only 1 of the 10 leading writers of homeowner and personal passenger auto policies offers discounts to nonsmokers on both (Wasilewski 1987a,b). Although the underwriting practices and administrative exigencies vary considerably among these three types of insurance, sentiment has been building for insurers, primarily those in life and health, to offer premium differentials and cover the costs of smoking cessation treatment (Brailey 1980; Stokes 1983; Davis 1986; Engstrom 1986; Walsh and Gordon 1986; US DHHS 1988).

Premium differentials based on smoking behavior are generally referred to as nonsmoker discounts rather than as smoker surcharges. The terminology, which implies that smoking is the majority condition, is no longer correct, but it persists for historical and marketing reasons; the premium differentials were developed when smoking was a more common behavior, and a discount sounds like a positive incentive, while a surcharge has the negative connotation of a penalty. Smoker-nonsmoker premium differentials are the result of insurer business decisions, based primarily on differences between insured smokers and nonsmokers in mortality rates, health care costs, and auto and homeowner claims. For the policyholder, a premium differential may serve as an economic disincentive for smoking.

This Section will examine separately each of the three major industry segments to address the extent to which insurers in each category consider policyholder smoking status when calculating premiums or coverage, reasons the three segments handle the issue differently, and the potential effects of the insurance industry's premium structure and reimbursement policies on smoking behavior,

Life Insurance

Life insurance policies are sold on an individual, family, or group basis. Policies purchased on an individual or family basis are referred to as ordinary life insurance and are the most common type of life insurance. Sixty-two percent of households in the United States had ordinary life insurance policies in 1987 (American Council of Life Insurance (ACLI) 1987).

Life insurers price their products according to the mortality experience of the insured population. Higher premiums are set for classes of individuals with greater mortality rates. Smoker-nonsmoker premium differentials were adopted by the industry when actuarial studies confirmed that the excess mortality of smokers, previously observed in epidemiologic studies, was also present in the insured population (Cowell 1985). Some insurers offer an alternative to smoker-nonsmoker premium differentials. These policies are based on overall health behavior or health status and are typically available only to applicants who meet health standards with regard to weight, blood pressure, and exercise and who do not smoke.

History of Premium Differentials

Three months after the 1964 Surgeon General's Report was released, State Mutual Life Assurance Company became the first company to offer life insurance to nonsmokers at discounted rates. The company believed that its statistical evidence of "much higher death rates among persons who smoke was so overwhelming that the company could no longer ignore it in pricing insurance" (Cowell 1985; Cowell and Hirst 1980). This action was consistent with a position that nonsmokers should not subsidize the higher insurance costs resulting from smokers' excess death claims.

Between 1965 and 1975, more than 30 other companies introduced premium discounts for nonsmokers, based on their estimates of the effects of smoking on mortality in the insured population. Their estimates resulted at least partly from examination of mortality studies discussed in the early Surgeon General's Reports (Crowne and Shapiro 1980). However, most of the industry did not develop nonsmoker premium discounts at that time. Their reluctance derived primarily from a paucity of actuarial data. Furthermore, only half of the primary market of policyholders--adult males--stood to benefit from these discounts, because in 1965, 50 percent of adult males smoked (Chapter 5). Companies also had to address the uncertainties of marketing and administering a new product. These factors were sufficient to slow the adoption of smoker-nonsmoker premium differentials (Cowell 1985; Cowell and Hirst 1980).

In 1979, State Mutual analyzed the mortality differences between its insured smokers and nonsmokers. The analysis showed that the overall mortality of smoking policyholders was 2 to 2 l/2 times that of nonsmoking policyholders. The higher death rates of smokers were not confined to older ages but were apparent even at early ages. These findings were statistically significant and large enough to be used for insurance underwriting and pricing purposes (Cowell and Hirst 1980). This landmark report was a stimulus to rapid change in the industry. After State Mutual made public its experience, so did other life insurers, including those that had previously not issued their

findings in the mistaken belief that the differences were too large to be true. Within 3 years, 400 companies offered discounted premiums to nonsmokers (Shaman 1982).

In 1983, at the request of NAIC, a Society of Actuaries' task force examined the smoking-related mortality data of insurance companies. The Task Force on Smoker/Nonsmoker Mortality determined the mortality differences between smoking and nonsmoking insured persons of ages 15 to 99 years and divided the mortality tables used to value the reserves on life insurance into those appropriate for pricing separate smoker and nonsmoker products. The group did not specifically address the nature of the association between smoking and increased mortality that it so clearly observed. For their purposes, it was sufficient only that premium rates reflected the actual mortality experience of groups of insured smokers and insured nonsmokers (Society of Actuaries 1983).

By addressing these issues, the task force facilitated greater acceptance of smoker-nonsmoker premium differentials by insurance companies and the State government officials who regulate them. NAIC used the Society of Actuaries' work to develop the "Model Rule (Regulation) Permitting Smoker/Nonsmoker Mortality Tables For Use In Determining Minimum Reserve Liabilities and Nonforfeiture Benefits" (NAIC 1985b). The rule permitted insurers to use standard underwriting and actuarial practices to set different premium rates for smokers and nonsmokers, as insurers would for any other accepted risk classification in their normal conduct of business. Proposed in January 1984 to Commissioners of Insurance in all States, the model rule or a similar variation had become law in 33 States as of July 1987 (NAIC 1987f).

Once the empirical basis for smoker-nonsmoker premium differentials was established, life insurers had to consider how to market and administer the new products. A central concern was the possibility that individuals would misrepresent their smoking status (Lipson 1988). Misrepresentation is not a new problem; insurance companies have had to deal with it since their beginning. One solution was to require biochemical validation of nonsmoking status. A growing number of insurers now require this validation before selling a policy (Lyons 1986). One reason nonsmoking discounts are less often offered on group policies is that persons within groups are rarely examined or have their smoking status verified (Brailey 1980).

A second approach has been to investigate claims made by nonsmokers. When confronted with a claim from an individual who has misrepresented his or her smoking status, insurance companies have usually done one of the following: (1) reduced the benefit to the amount that the premium actually paid would have purchased for a smoker, (2) paid the claim in full, (3) returned the premiums paid with interest, (4) deducted the premium differential from the benefits, or (5) rescinded the policy and refused to pay. How often insurers use each of these options is not known, but the last option, by far the most severe deterrent to misrepresentation, has recently garnered much industry support (Lyons 1986). It has also been upheld in the courts. In a January 4, 1988, decision in *Mutual Benefit Life Insurance Company v. JMR Electronics Corp.*, the U.S. District Court of the Southern District of New York absolved the insurer of liability for a policy where the insured had misrepresented his smoking status:

> To allow recovery would condone such fraudulent Statements, for applicants would have everything to gain and nothing to lose by gambling on getting full coverage and at worst

getting the coverage they are actually entitled to (Tobacco Products Litigation Reporter 1988).

In May 1988, the U.S. Court of Appeals upheld that opinion (Hagedom 1988).

Current Status of Premium Differentials

In 1987, 89 percent of 215 companies responding to an industry survey reported that they offered health-behavior-related discounts on individual life insurance policies; 14 percent also offered them on group life insurance policies. Almost all of these health-behavior-related discounts included discounts to nonsmokers (Center for Corporate Public Involvement 1987).

Thirty percent of all individual life insurance policies purchased in the United States and 39 percent of the amount of coverage are so-called universal life policies, which offer the policyholder the option of varying the amount of coverage or the timing of premium payments (ACLI 1986). All of the top five life insurers, which as a group are responsible for 23.4 percent of life insurance premiums generated in the United States, offer nonsmoking discounts on universal policies, varying by the age of the insured by as much as 30 percent (A.M. Best 1987a). Nineteen of the top 25 companies, responsible for 46 percent of the total amount of life insurance premiums, offered universal policies in 1987 (A.M. Best 1987a). Of those 19 companies, 16 gave discounts to nonsmokers, some as high as 40 percent for both males and females. Discounts varied by the age and sex of the insured (Table 15). The discounts were smallest for younger persons, increased steadily to a peak at age 45 years, and dropped slightly for older individuals. At all ages, discounts were larger for men than for women. The average discounts for newly insured males and females in 1987 ranged from 12.5 to 22.5 percent.

TABLE 15.--Average premium discount (%) offered to nonsmokers purchasing universal life insurance policies, 1986-87

	Average age (years)			
	25	35	45	55
Male	14.5	18.1	22.5	20.4
Female	12.5	14.3	17.0	16.5

NOTE: Discounts based on the minimum amount of insurance that can be purchased.
SOURCE: A.M. Best (1987a).

The average dollar amount of discounts varied not only by sex and age but also by policy amount (Table 16). Savings for nonsmokers increased with the amount of the policy and the age of the insured, and they were larger for men than for women. The average size of an ordinary life insurance policy *in force* in 1986 was 25,538 dollars (ACLI 1987). On a 25,000 dollar policy written for males, the annual savings in premium cost ranged from 15 dollars at age 25 to 114 dollars at age 55. Savings on the same size policy written for females varied between 10 dollars at age 25 and 61 dollars

TABLE 16.--Average difference ($) between annual premiums paid by smokers and nonsmokers purchasing universal life insurance policies, 1986-87

Policy amount	Age (years)			
	25	35	45	55
$25,000 policy[a]				
Male	15	30	72	114
Female	10	18	39	61
$50,000 policy[b]				
Male	48	79	170	299
Female	34	55	109	192

NOTE: Figures are based on policies offered by the 25 largest life insurers.
[a]Average value of an ordinary (individual) life insurance policy in force in 1986 was 25,538 dollars (ACLI 1987). Not all companies offer this amount of coverage.
[b]Average value of an ordinary (individual) life insurance policy purchased in 1986 was 55,535 dollars (ACLI 1987).
SOURCE: A.M. Best (1987a).

at age 55 (A.M. Best 1987a). The average size of ordinary life insurance policies *purchased* in 1986 was 55,535 dollars (ACLI 1987). Annual savings on a 50,000 dollar policy averaged from 48 dollars at age 25 years to 299 dollars at age 55 in men, and from 34 dollars at age 25 years to 192 dollars at age 55 in women (A.M. Best 1987a).

Health Insurance

Approximately 85 percent of Americans are covered by health insurance, which is most frequently offered by commercial carriers, Blue Cross-Blue Shield (BC/BS) plans, and health maintenance organizations (HMOs). Unlike life insurance, which is largely sold to individuals and families, 80 percent of health insurance is purchased on a group basis, usually as an employment benefit (Health Insurance Association of America (HIAA) 1987). As a result, these policies are seldom tailored to individual health profiles or health risks to the degree common in individual life insurance underwriting, where a physical examination is typically required before a policy is written. In keeping with this situation, smoker-nonsmoker premium differentials are much less commonly offered by health than by life insurers, as described below.

Current Status of Premium Differentials

Individual health insurance policies are far less common than group plans. They account for only 20 percent of the health insurance market (HIAA 1987). The most complete study of premium differentials for individual health and disability policies was conducted in 1987 by NAIC (NAIC 1987a,b,c,d), which sent a survey to all 603 carriers offering individual health and disability insurance in Illinois and all BC/BS plans in the United States. Seventy-six percent of commercial carriers and 77 percent of

BC/BS plans responded. Fourteen percent of the commercial carrier respondents either offered discounts to nonsmokers or imposed surcharges on smokers for health (hospital-medical) or disability (loss of income) policies. Sixteen percent of BC/BS plans offered discounts to nonsmokers on hospital-medical policies. Average nonsmoker discounts on health insurance offered by commercial carriers ranged from 9 to 15 percent, with an industry average of 10 percent. Average discounts offered by the BC/ElS plans ranged from 8 to 10 percent, with an industry average of 9 percent. For disability policies, the average nonsmoker discount ranged from 3 to 14 percent, with an industry average of 8 percent, whereas the average smoker surcharges ranged from 10 to 14 percent, with an industry average of 13 percent.

Health insurers are much less likely to offer nonsmoker discounts with their group health products, despite an NAIC resolution supporting premium differentials in group as well as in individual health policies (NAIC 1985a). In 1980, Provident Indemnity Life Insurance Company became the first to use smoking as a risk factor in establishing health insurance premiums for small groups (less than 25 employees) (Hellauer 1988). Few insurers have followed suit.

The use of smoking status in the calculation of premiums for HMOs has been slowed by Federal regulations. Federally qualified HMOs were required by the original HMO Act of 1973 (Public Law 93-222) to calculate their group premiums by community rating, reflecting the health cost experience of the overall community, not of special groups such as young, healthy employees. In the HMO Amendments of 1981 (Public Law 97-35), Congress modified that requirement and allowed HMOs to become more competitive by setting their community rates by class. Classes subsequently permitted by the Secretary of Health and Human Services include age, sex, family size, and industry of the insured. Because smoking status is not one of these, each HMO must individually petition the Federal Government to use smoking as one of its classification factors. As of March 1988, only one had applied for permission and received it. The Contra Costa Health Plan in 1987 became the first federally qualified HMO to use smoking as a factor in calculating its group health premiums. To do so, it received approval by the Office of Prepaid Health Care, Department of Health and Human Services. Contra Costa based its request, and the Federal office its approval, on a study (Brink 1987) that reported that nonsmokers incurred 18.5 percent lower health care costs than smokers (Contra Costa Health Plan 1987).

In summary, as of 1987, approximately one in seven commercial health carriers and BC/BS plans offered nonsmoking discounts on individual policies; these discounts ranged from 3 to 15 percent. A few carriers have introduced discounts of 2 to 3 percent on group policies where certain percentages of the groups are nonsmokers. Only one federally qualified HMO offers a nonsmoker discount; it is approximately 5 percent of premium cost.

Factors Influencing Decisions About Premium Differentials

Several factors have contributed to the slower development of smoker-nonsmoker premium differentials by health and disability insurers compared with life insurers. First, there are fewer actuarial data to document that nonsmokers incur fewer health

care costs. Second, most health insurance is purchased on a group basis, which makes calculating discounts more difficult and makes validation of smoking status nearly impossible because no individual examination is undertaken. Third, as discussed above, current Federal regulations for HMOs preclude the use of smoking status in calculating premiums.

Health insurers have offered nonsmoker discounts with little supportive actuarial experience that nonsmokers incur fewer claims. Many insurers have not developed such data because they have not had the ability to separate the claims experience of smokers from nonsmokers. In addition, smaller companies may not have the statistical resources to collect or analyze such data. In one recent survey, only 32 percent of commercial carriers with premium differentials and 70 percent of BC/BS plans had the ability to develop the appropriate actuarial data (NAIC 1987c).

The first major compilation of claims data was made in 1987 by NAIC (1987c). It supported smoker-nonsmoker premium differentials in most cases. Analysis of the claims experience of eight commercial carriers justified a nonsmoking discount of 28 percent on hospital-medical policies, whereas a similar analysis of five BC/BS plans justified a 19-percent discount (Table 17). Claims data from all five BC/BS plans justified nonsmoking discounts that were more than or equal to that offered. The experience was not so clearcut for commercial carriers. The data from one company, with more than half of the total claims experience, supported a larger discount. However, claims experience justified nonsmoker discounts for only three of the seven smaller companies. This inconsistency may be explained by the misclassification of smokers in the "nonsmoker" policyholder category. This is suggested by the fact that only 20 percent of all adjusted earned premiums were held by policyholders classified as smokers, a much lower percentage than the prevalence of smoking in the general population. This discrepancy may result from smokers misrepresenting their status,

TABLE 17.--Summary of smoker-nonsmoker health and disability claims experience

	Adjusted earned premiums ($)		Loss ratio[a]	
	Nonsmoker	Smoker	Nonsmoker	Smoker
Hospital/medical insurance				
Commercial carrier	120,694,007	29,857,057	49.1	68.7
Blue Cross-Blue Shield	55,791,022	32,449,964	71.6	88.2
Disability insurance				
Commercial carrier				
Nonsmoker discount	11,445,976	3,931,357	30.4	25.1
Smoker surcharge	50,404,495	5,182,015	31.3	61.1
Blue Cross-Blue Shield	26,226,456	10,822,819	76.9	104.8

[a]Ratio of claims incurred to earned premiums, multiplied by 100. A loss ratio of 100 indicates that claims incurred equal earned premiums.
SOURCE: NAIC (1987c).

from excessively lenient eligibility standards for nonsmoker status, or from certain plans having an excess number of older former smokers who had quit smoking because of smoking-related illness.

For disability insurance policies, a nonsmoking discount of 25 percent was justified by the analysis of seven commercial carriers and one BC/BS plan (Table 17). However, as with hospital-medical policies, the claims experience of a single large insurer overwhelmed those of the others. Only one of the other carriers had experience that justified a discount. On the other hand, analysis of claims data from the five commercial carriers that charged smokers a premium surcharge rather than offering nonsmokers a discount supports these increased rates for smokers.

Another reason health insurers have been reluctant to offer nonsmoking discounts is that most insurance is purchased by groups. Premiums paid by groups are commonly "experience rated"; premiums paid in a given year are based largely on the overall costs of claims incurred by the group in the previous year or years. In theory, the experience rating mechanism should eventually result in lower premiums to groups with relatively more nonsmokers, if their health care costs are in fact lower than those of smokers. A group with fewer smokers should incur fewer health care costs, which should be reflected in their subsequent premiums. Adding a premium discount based on the proportion of nonsmokers in the group simply adds administrative problems with determining and validating the proportion of nonsmokers in the group. Finally, because the difference in health care costs between smokers and nonsmokers differs across various age groups, computation of discounts is complicated and must involve adjustment by the age mix of the employee group (Hellauer 1988).

Property and Casualty Insurance

There is a clear rationale for offering nonsmoker discounts on homeowner policies. Between 1981 and 1985, smoking materials caused 7.1 percent of all home fires, 8.0 percent of all home fire property damage, and 31.3 percent of all home fire civilian deaths (National Fire Protection Association 1987). In 1985 alone, smoking materials in the United States caused almost a quarter million home fires. Associated with those fires were 1,703 deaths, 3,997 injuries, and 422 million dollars in direct property damage (Hall 1987).

Smoker-nonsmoker premium differentials on auto insurance are based on studies demonstrating that nonsmokers have fewer motor vehicle accidents. Farmers' Insurance Group, the first property and casualty insurer to offer these discounts, instituted its nonsmoker discounts because of an early study reporting an association between smoking and vehicular accidents (Adams and Williams 1965, 1966). Farmers' own internal study of several thousand of its policyholders revealed that its nonsmokers had a lower accident rate and fewer claims than smokers. Subsequent claims experience has confirmed the original findings, as has nonindustry research (McGuire 1972; Grout et al. 1983; DiFranza et al. 1986).

The specific reason for the better safety record of nonsmokers is not clearly understood, and the relationship may not be causal. Several potential explanations for smokers' higher accident rate have been suggested: (1) smoking while driving may

result in less attentive driving; (2) smokers may engage in more risk-taking behavior in operating their vehicles; (3) smokers use alcohol and illegal drugs more frequently than nonsmokers; and (4) nicotine or some other constituent of cigarette smoke may impair complex behaviors such as driving (DiFranza et al. 1986). In the industry's view, whether there is a causal link between smoking and motor vehicle accidents is irrelevant; the better safety record of nonsmokers has been shown repeatedly and is the basis for the discounts. Periodic reviews by Farmers' have been kept proprietary but support continuing discounts for nonsmokers (Clemans 1988). Similarly, Hanover Insurance Group's experience--that smokers have a 24-percent higher rate of claims than do nonsmokers--demonstrates that actuarial differences support premium differentials (DiFranza et al. 1986).

The first property and casualty insurer to offer premium discounts to nonsmokers, the Farmers' Insurance Group of Companies, includes the third largest private passenger auto insurer and the third largest homeowner insurer in the United States. Nonsmoking discounts were offered on auto policies beginning in 1971 and on homeowner policies in 1974 (Clemans 1988). This company remains the only 1 of the 10 leading writers of homeowner and private passenger auto insurance to offer discounts to nonsmokers on both types of policies (Wasilewski 1987a,b). Currently Farmers' offers nonsmokers and former smokers who have not smoked for at least 24 months discounts of 3 to 7 percent on homeowner policy base rates and discounts of 10 to 25 percent on auto policies, depending on State of residence.

Other insurers that offer nonsmoker discounts on auto policies include Preferred Risk Group and Hanover Insurance Company (NAIC 1987e). On the basis of its own claims experience, Hanover increased discounts from the original 5 percent, instituted between 1974 and 1978, to the current 10 percent. The company provides the discounts on both auto and homeowner policies nationwide, except in States where regulatory bodies prohibit them. Fifty-two percent of its policyholders have nonsmoker discounts (Weinman 1988).

Factors that have prevented the more widespread industry adoption of nonsmoker discounts on auto and homeowner policies include difficulties in the verification of smoking status and regulations in some States that prohibit nonsmoking discounts or prohibit rescission of benefits in cases of misrepresentation.

Effects of Insurance Premium Differentials on Smoking Behavior

Insurers' use of smoking behavior as a factor in setting premiums may have both economic and educational effects that discourage smoking. Premium differentials may serve as economic disincentives for smoking because they effectively, if indirectly, increase the cost of smoking cigarettes. This may reduce tobacco consumption and encourage cessation. In addition, payment of a higher premium may reinforce smokers' knowledge of the harm caused by smoking and serve as another social message to smokers about the disadvantages of smoking and desirability of cessation. It is less likely that insurance premium differentials will have a strong role in discouraging smoking initiation, because most individuals make decisions about smoking during adolescence, before many purchase insurance.

Empirical studies, reviewed in the previous section, have demonstrated that changes in cigarette prices affect tobacco consumption. Elasticities have been calculated for the effect on demand of changes in the price of cigarettes at the point of purchase, but not for economic policies that indirectly alter a smoker's costs. No empirical studies have examined the effect on smoking prevalence or cigarette consumption of higher insurance premiums for smokers or of reimbursement for the cost of smoking cessation programs. The potential educational effects of premium differentials on public knowledge or attitudes have not been studied; effects will be difficult to distinguish from other social influences discouraging smoking.

The expected effects of excise taxes and premium differentials are not identical, because of inherent differences between buying cigarettes and purchasing insurance. A smoker can respond to higher excise taxes by reducing consumption without giving up smoking, but a smoker can reduce insurance premiums only by stopping smoking altogether. Insurance premium differentials may be less powerful economic incentives than are changes in actual cigarette prices, because higher insurance premiums do not translate directly into an increase in the price of cigarettes at the point of sale. Furthermore, a smoker buys cigarettes far more often then he or she pays insurance premiums. On the other hand, the magnitude of an insurance premium differential is greater than a tax-induced change in the price of a pack of cigarettes.

Other factors may blunt the impact of insurance premium differentials based on smoking behavior. First, smokers may forget or not even know that they are being penalized if there is no reminder of that fact on their insurance bill or payroll receipt. Some life and health insurers may not inform smoking policyholders that they use controllable risk factors when setting premiums. The educational value of the premium differential is largely lost after the policy is issued if periodic reminders of the basis of premium are not sent with the insurance bill. Furthermore, part of the economic incentive is lost if no mechanism exists for smokers who quit smoking after the policy is issued to become eligible for a lower premium. Second, the individual may not pay the full cost of insurance premiums. Health and life insurance is often included in employee benefit packages, with the employee paying only a portion of the total premium. The employee's contributions to the insurance premiums may be small or nonexistent. Third, most health insurance policies are group policies that do not include smoker-nonsmoker differentials. Those that do set premiums based on the smoking prevalence of the group, so that a smoker's higher premium cost is partly borne by nonsmoking members of the group. Finally, because not all insurers offer nonsmoking discounts, even smokers purchasing individual insurance have the option of purchasing insurance from companies that do not tie premiums to smoking behavior.

Health Insurance Coverage for Smoking Cessation Treatment

Insurers who reimburse for the costs of attending a smoking cessation program or of purchasing a cessation aid effectively reduce the cost of quitting smoking, thereby removing a financial disincentive to quit. This reimbursement may also serve as an economic incentive to the provider of the treatment to offer more services, thereby increasing availability of cessation treatment.

Currently, few health insurance carriers cover the costs of smoking cessation programs. Only 11 percent of 263 health insurance carriers surveyed in 1985 included smoking cessation treatment as a covered benefit. Insurers that reimbursed for smoking cessation programs did so only to treat established smoking-related diseases, not to prevent these diseases (Gelb 1985). Among BC/BS plans, smoking cessation is usually not an approved benefit for groups unless it is included as part of a wellness package purchased by the employer (Moore 1988). A similar situation holds for the reimbursement of pharmacologic treatment to promote smoking cessation. Health insurers usually limit reimbursement of drug treatment to drugs that are approved by the Food and Drug Administration (FDA) and are prescribed for treatment of a diagnosed medical illness in a patient who has prescription drug coverage. Currently, nicotine polacrilex gum is the only drug approved by the FDA to aid in smoking cessation. Nevertheless, its prescription is usually not reimbursable for smokers who do not already carry a diagnosis of a smoking-related disease (Moore 1988).

Several barriers impede greater coverage of smoking cessation treatment by health insurers. Traditionally, health insurance has covered the cost of treating, not preventing, illness. A major reason for this was that insurers' were not convinced of the financial feasibility of covering preventive services, however socially desirable such a policy might be. Similarly, insurers have only gradually come to cover the costs of drug and alcohol treatment (American Hospital Association 1987). Smoking cessation programs might be classified as either preventive care or as treatment of substance abuse. Regardless of how it is classified, it appears that insurers are not convinced of the financial feasibility of covering smoking cessation treatment. In part, this stems from a lack of data with which to make appropriate calculations.

To be in the health insurers' economic interests, the cost of a treated smoker (the cost of cessation treatment in addition to other health claims) must be less than the claims paid to a smoker who does not attend a cessation program. This calculation requires the estimation of several factors that have not been well studied, including the difference in annual health care costs of current and former smokers, the costs and success rates of different smoking treatments, the likelihood that a smoker will quit without a program, the length of time that the smoker remains insured by the same insurer, and the discount rate at which future costs are evaluated. Furthermore, because health insurance is usually provided by employers, and employees change jobs, it is possible that the health insurer who pays for a policyholder's smoking cessation may not reap the benefits of any reduced health care costs that individual experiences.

Even if reimbursement for smoking cessation treatment were shown to be financially advantageous for insurers, practical problems would remain to slow the implementation of reimbursement. For example, insurers would have to define which programs, drugs, or other aids would be covered and which providers would be reimbursed.

Summary

The Public Health Service's 1990 Health Objectives for the Nation include two goals for smoking and insurance:

1. By 1985, the collection and publication by insurers of actuarial experience on differential life experience and hospital utilization by specific cause among smokers and nonsmokers, by sex;

2. By 1990, differential insurance premiums for smokers and nonsmokers by major life and health insurers (US DHHS 1981b, 1986d).

Progress has been made toward meeting both of these goals. The actuarial basis for life insurance premium differentials has been established, and data are beginning to be collected on hospitalization rates (US DHHS 1986d). However, more information on the total health care costs of smokers and nonsmokers, including ambulatory care, would help to establish a firmer rationale for offering premium discounts for health and disability insurance and for covering the costs of smoking cessation treatment. The second objective has been partially met. Although nearly all life insurers offer nonsmoker discounts, only a minority of health insurers do. This is partly because, unlike life insurance, most health insurance is sold to groups, which, as discussed above, presents greater operational obstacles to the development and implementation of nonsmoker discounts.

Much of the accomplishment to date is a result of the insurance industry's voluntary initiatives, which seem likely to continue (Walsh and Gordon 1986). Collection and publication of claims experience by industry groups such as the Society of Actuaries are steps that could be taken to increase the use of smoker-nonsmoker premium differentials in health and disability insurance. State and Federal governments have the opportunity to act as facilitators and educators to encourage insurers--especially health insurers--to offer premium discounts to nonsmokers and to reimburse for smoking cessation treatment. Government officials at both levels could act to remove those legal barriers that prevent insurers from adopting nonsmoker discounts and to disseminate research findings that support these discounts and coverage for smoking cessation. HMOs may be more likely to use smoking status as a factor in setting premiums if current Federal restrictions preventing it, except on a case-by-case basis, are removed.

Although the insurance industry is State regulated, regulation has generally been limited to ensuring the financial integrity of insurers. Some have suggested that a State-regulated industry could be subject to other controls in the public interest (Hiam 1987/88). Since the 1960s, all States have mandated certain types of coverage that insurers must provide as a condition of doing business in the State (Glantz 1985). State health insurance commissioners or legislatures could require smoker-nonsmoker premium differentials as a condition for writing policies within their States. In several States, bills have been filed that would mandate insurance premium differentials, although none have been enacted (CDC 1980, 1981). The few remaining life insurers without premium differentials might be encouraged to adopt them if the NAIC model rule regarding smoker-nonsmoker mortality tables were adopted by legislatures and insurance commissioners in the States that have not yet done so (NAIC 1985b).

Publicly funded health insurance such as medicare and medicaid is more directly amenable to government action. Measures have been introduced into Congress that would restructure medicare premiums to offer discounts to nonsmokers and to cover preventive care, including smoking cessation treatments (past bills include S. 357 and S. 358 in 1985). In the preface to the 1988 Surgeon General's Report (US DHHS 1988).

the Surgeon General stated, "Treatment of tobacco addiction should be more widely available and should be considered at least as favorably by third-party payors as treatment of alcoholism and illicit drug addiction." Research to establish the cost-effectiveness of preventive care coverage by insurers, especially for smoking cessation, would be useful in reaching that goal.

PART III. DIRECT RESTRICTIONS ON SMOKING

The policies discussed so far discourage tobacco use indirectly, either by educating the public about the health hazards or by creating economic disincentives to smoke. A third category of public policies acts more directly; their aim is to reduce smoking by limiting either public access to tobacco products or the opportunity to use them. The most extreme potential policy in this category would be a total ban on the sale, possession, or use of tobacco products, analogous to current statutes on such other addictive drugs as heroin or cocaine. Short of that are policies that restrict or ban smoking in specific places, such as indoor public places and workplaces, prohibit the sale of tobacco products in particular places, or prohibit the use of tobacco by a particular group of individuals, namely minors.

Tobacco occupies a position unlike that of any other consumer product (or pharmaceutical agent) in the United States; it was widely used, socially accepted, and economically vital to strong agricultural and manufacturing interests long before its adverse health effects and addictive potential were appreciated. These facts have made the most stringent regulatory option--total ban on sale or use--impractical and undesirable. Such a policy did exist in some States in the early part of this century, when a moral crusade against cigarettes like that against alcohol led to the passage of laws in a dozen States banning the sale of tobacco products (Walsh and Gordon 1986). These laws proved difficult to enforce and were all repealed by 1927.

Although a total prohibition on tobacco is unlikely, there is a long tradition of restricting children's and adolescents' access to tobacco. According to established social convention, the rational use of certain products, like tobacco, alcohol, or the material sold in adult bookstores, requires an informed decision that minors are deemed to be too young to make. The growing awareness of the addictive nature of nicotine (US DHHS 1988) strengthens that convention in the case of tobacco products. Policies limiting smoking in public places or workplaces have a different rationale; they restrict the smoker's behavior for the sake of the nonsmoker. Although the primary aim of these policies is to protect the nonsmoker from the health consequences of involuntary tobacco smoke exposure, they may have the side effect of discouraging tobacco use by reducing opportunities to smoke and changing public attitudes about the social acceptability of smoking.

The direct restrictions discussed so far address the consumer (smoker or potential smoker). Policies directed at tobacco manufacturers include regulations on the contents of tobacco products to reduce their harmfulness. Such policies have the inherent difficulty of defining an acceptable level of tobacco or smoke exposure because, as documented in Chapter 2, there is no known safe level of tobacco use.

This Section considers three types of policies that put direct restrictions on smoking or tobacco products. First, it examines policies that restrict smoking in public places and workplaces, including both government actions and policies initiated in the private sector. Second, policies that would restrict minors' access to tobacco products are discussed. Finally, the Section considers the treatment of tobacco products by Federal regulatory agencies.

Government Actions to Restrict Smoking in Public Places and Workplaces

In 1986, the Surgeon General's Report documented "a wave of social action regulating tobacco smoking in public places" (US DHHS 1986b) that was then occurring. It reviewed public and private policies designed to protect individuals from environmental tobacco smoke (ETS) exposure by regulating the circumstances in which smoking is permitted. Since the 1986 Report, the pace of action appears to have increased in both the public and private sectors. Restrictions on smoking in public places are the result of government actions at the Federal, State, and local levels, particularly State and local legislation. The Federal Government has largely acted via regulatory mechanisms and has addressed smoking in Federal facilities and in public transportation. The major exception is recent congressional legislation restricting smoking on commercial airliners. Accompanying government actions are a wide range of private initiatives; these have become widespread in this decade. Smoking restrictions in the workplace are the most common private sector action, but hospitals, schools, hotels and motels, and other institutions are also adopting no-smoking policies. This trend reflects two forces: a growing scientific consensus about the health risks of involuntary smoking (US DHHS 1986b; NAS 1986b) and changing public attitudes about the social acceptability of smoking. As documented in Chapter 4, a growing majority of Americans now supports the right of nonsmokers to breathe smoke-free air and favors restricting smoking in public places and the workplace.

This Section addresses the scope and impact of government actions to restrict smoking in public places and workplaces. Private initiatives to regulate smoking are discussed in the subsequent section. Both sections summarize and update the findings of Chapter 6 of the 1986 Surgeon General's Report.

Smoking Restrictions in Public Places

A public place has usually been defined as any enclosed area to which the public is invited or in which the public is permitted (Americans for Nonsmokers' Rights (ANR) 1987a, b). This broad definition encompasses a diverse range of facilities that share the characteristic of being indoor enclosed spaces that permit the general public relatively free access. Beyond this general agreement, laws and regulations differ in their operational definition of public place. They even differ in the degree to which the concept is specified. Public place is commonly interpreted to include government buildings, banks, schools, health care facilities, public transportation vehicles and terminals, retail stores and service establishments, theaters, auditoriums, sports arenas, reception areas, and waiting rooms. Although they fit the definition, restaurants are usually

treated separately in these laws. Private businesses are also separately addressed, and private homes specifically excluded.

As noted in the 1986 Surgeon General's Report, the degree to which smoking is restricted in public places also depends on history or tradition, the level of involuntary smoke exposure that is likely (determined by size, ventilation, and amount of smoking), the ease with which smokers and nonsmokers can be separated, and the degree of inconvenience that smoking restrictions pose to smokers. Public places may be owned by government or private interests. As a consequence of these factors and others, there is considerable variability in the methods by which new regulations have been proposed and the ease with which they have been adopted. Smoking restrictions have been most easily adopted in public facilities, especially facilities where smoking has traditionally been prohibited for safety reasons, where smoking is not associated with the activity taking place, and where the public spends limited time. Such considerations explain the relatively slower acceptance of smoking restrictions in restaurants, bars, and private businesses (US DHHS 1986b).

Federal Actions

Until recently, actions at the State and local Government level--primarily legislation--accounted for the bulk of smoking regulations in public places. Since 1986, the Federal Government has taken new steps, including the first congressional actions (covered below), to restrict smoking in two categories of public places: transportation facilities and Government worksites. The Federal Government has enacted no restrictions on smoking that apply to a broad range of nongovernmental public places.

State Legislation

Although the health hazards of smoking were not widely appreciated until the 1960s the fire hazard was recognized much earlier, giving rise to the first State laws regulating smoking. For nearly a century cigarette smoking has been regulated by State law to prevent fires and prevent the contamination of food being prepared or packaged for public consumption. This was the extent of State law in 1964, when the first Surgeon General's Report was issued. At that time, 19 States prohibited smoking near explosives or fireworks, in or near mines, or near hazardous fire areas. Five States banned smoking in food processing factories or restaurant preparation areas (US DHHS 1986e; BNA 1987). These laws affected only a small proportion of the population and did not alter smoking in public places.

In addition, by 1964, 13 States had adopted some restrictions on smoking in specific public places. This legislation, also enacted to prevent fires, had some potential to reduce smoking in public places, even though that was not its primary intent. Six States permitted employers to ban smoking in mills and factories as long as signs were posted, and six States restricted smoking in public transportation vehicles or terminals or in auditoriums and theaters. The remaining laws sought to discourage smoking by children: three States prohibited smoking (at least by minors) on school grounds, buildings, or buses (US DHHS 1986b; BNA 1987). This remained the basic extent of smok-

ing restrictions through the 1960s as the health hazards of smoking became widely known.

In the 1970s, a new form of smoking legislation emerged, differing in both intent and content. The specific rationale behind this legislation was the safety and comfort of nonsmokers, reflecting growing interest and, later, scientific evidence of the health hazards of passive smoke exposure (US DHHS 1986b; BNA 1987). These Clean Indoor Air Acts regulated smoking in a larger number of places and for the first time mandated smoking restrictions in private facilities. Over time, the language of the laws became more restrictive, first permitting, then requiring nonsmoking sections, then making nonsmoking the principal condition, with an option for smoking areas. The legislation was developed and promoted by the growing nonsmokers' rights movement, for the most part a grassroots movement consisting of Californians for Nonsmokers' Rights (later changed to Americans for Nonsmokers' Rights) and a number of other State and local groups, many using the name Group Against Smoking Pollution (GASP). These organizations focused their attention on achieving legislative goals at the State and local levels (see Chapter 6). In doing so, they sometimes worked in conjunction with the voluntary health organizations.

The prevalence and content of State legislation on smoking changed dramatically over the ensuing two decades (Figure 6). Current smoking restrictions in public places are largely the product of legislation enacted at the State level beginning in the early 1970s (Tables 18 and 19). Between 1970 and 1979, smoking restrictions were enacted by legislatures in 24 additional States; in 7 others, existing restrictions were extended. In 1975 alone, 13 States enacted laws, more than double the number that had done so in the previous decade (1964-74).

Not only the quantity but also the content of these laws was different. In 1973, Arizona became the first State to restrict smoking in a number of public places, and the first to do so explicitly because smoking was a public health hazard. Although not comprehensive by current standards, the law was regarded as comprehensive when passed. The first State law to include smoking restrictions in restaurants was passed in Connecticut in 1974. Coverage of worksite smoking also began at this time with the landmark Minnesota Clean Indoor Air Act. Passed in 1975, it extended smoking restrictions to many public places, restaurants, and both public and private worksites. It became the model for other comprehensive State legislation that began to be passed in the mid-1970s.

After a relative lull in the early 1980s, there was another notable increase in passage of State laws in the middle of the decade, probably reflecting greater scientific consensus about the health consequences of involuntary smoking. By the end of 1985, 41 States and the District of Columbia had passed laws regulating smoking in at least one public place (US DHHS 1986b). In 1987, the year after two national groups separately reviewed the evidence on passive smoking and reached similar conclusions about its health effects (US DHHS 1986b; NRC 1986b), 20 States passed legislation regulating smoking, more than ever before in a single year. Moreover, the legislation being passed grew more comprehensive in its coverage. From the start of 1985 to the end of the 1987 legislative sessions, there was a doubling in the number of States restricting smoking

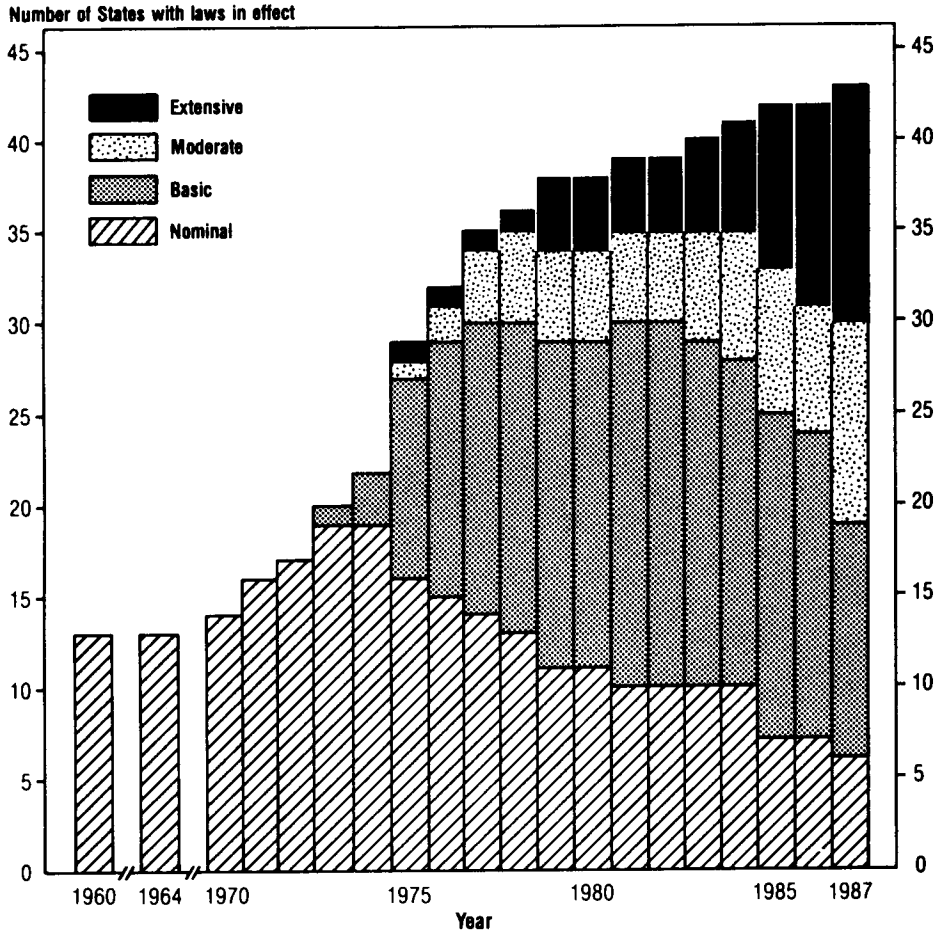

FIGURE 6.—Prevalence and restrictiveness of State laws regulating smoking in public places, 1960–1987

NOTE: Index of restrictiveness: 0 = none, no statewide restrictions; 0.25 = nominal, State regulates smoking in one to three public places, excluding restaurants and private worksites; 0.50 = basic, State regulates smoking in four or more public places, excluding restaurants and private worksites; 0.75 = moderate, State regulates smoking in restaurants but not private worksites; 1.00 = extensive, State regulates smoking in private worksites.

SOURCE: US DHHS (1986b); unpublished data, OSH.

TABLE 18.--State laws restricting smoking, 1964-87

Year	Number of States enacting laws	Cumulative number of States with laws	Number of States restricting smoking in restaurants		Number of States restricting smoking in private worksites		Number of States restricting smoking in public worksites	
			Enacting/cumulative		Enacting/cumulative		Enacting/cumulative	
1964	0	13						
1965-66	0	13						
1967-68	2	14						
1969-70	0	14						
1971	2	16						
1972	1	17						
1973	3	20						
1974	3	22		1				
1975	13	29	2	3	1		4	4
1976	5	32	3	6	1	2	1	5
1977	6	35	2	7	0	2	3	8
1978	2	36	1	8	0	2	1	9
1979	6	38	2	10	2	4	2	11
1980	1	38	0	10	0	4	0	11
1981	7	39	1	11	0	4	3	13
1982	1	39	0	11	0	4	0	13
1983	4	40	1	12	1	5	2	15
1984	3	41	1	12	0	5	2	15
1985	9	42	4	16	4	9	5	20
1986	6	42	1	16	3	11	4	22
1987	20	43 (84%[a])	10	23 (45%)	4	13 (25%)	15	31 (61%)

NOTE: Includes the District of Columbia.
[a]Percentage of total states.
SOURCE: BNA (1987); US DHHS (1986b); individual State laws.

in private workplaces (from 4 to 13), public workplaces (15 to 31), and restaurants (10 to 23) (Table 18).

Recently adopted laws are more likely to include three provisions that strengthen the position of nonsmokers: (1) protection against discrimination for supporters of worksite smoking policies, (2) priority to the wishes of nonsmokers in any disagreement about the designation of an area as smoking or nonsmoking, and (3) permission for cities and counties to enact more stringent ordinances. In 1985, Maine was the first of five States to adopt a nondiscrimination provision, which makes it illegal for employers to discipline, discharge, or otherwise discriminate against employees who assist in the implementation of nonsmoking policies (BNA 1987). The second provision first appeared

TABLE 19.--Continued laws regulating smoking in public places and worksites, through October 1, 1988

	AL	AK	AZ	AR	CA	CO	CT
YEAR(S) LEGISLATION ENACTED		1975 1984	1973, 81 1986, 87	1977 1985, 87	1971, 76 1980, 81 1982, 87[a]	1977 1985[a]	1973, 74 1983, 87
PUBLIC PLACES WHERE SMOKING IS RESTRICTED							
Public transportation[b]		X	X	X	X[C]	X	X
Elevators		X[C]	X			X	X[C]
Indoor cultural or recreational facilities		X	X		X	X	
Retail stores[d]		X			X		X
Restaurant[e]		X			X	X	X
Schools		X	X	X	X	X	X
Hospitals		X	X	X	X	X	X
Nursing homes		X	X		X		X
Government buildings		X	X		X	X	X
Public meeting rooms		X			X		X
Libraries		X					
Other[f]		X	X	X			
WORKSITE SMOKING RESTRICTIONS[gh]							
Public worksites		D	B,D	B,D	B	C,D[a]	C
Private worksites		A					C
IMPLEMENTATION PROVISIONS							
Nonsmokers prevail in disputes			X				
No discrimination against nonsmokers			X				
ENFORCEMENT (PENALTIES)							
Against smokers[i]		X	X	X	X		X
For failure to post signs[j]		X					X
LOCAL ORDINANCES							
Specifically allowed					X	X	
Specifically preempted							
OVERALL RESTRICTIVENESS OF STATE LAW[k]	0	3	2	2	3	2	4

TABLE 19.--Continued

	DE	DC	FL	GA	HI	ID	IL
YEAR(S) LEGISLATION ENACTED	1960	1975, 79 1988	1974, 83 1985	1975	1976, 87	1975, 85	
PUBLIC PLACES WHERE SMOKING IS RESTRICTED							
Public transportation[b]	X	X	X[C]	X[C]		X	
Elevators		X	X[C]	X[C]	X	X	
Indoor cultural or recreational facilities			X		X	X	
Retail stores[d]		X	X		X	X	
Restaurant[e]		X	X		X	X	
Schools		X	X			X	
Hospitals		X	X		X	X	
Nursing homes		X	X		X	X	
Government buildings		X	X			X	
Public meeting rooms		X	X		X	X	
Libraries			X		X		
Other[f]			X				
WORKSITE SMOKING RESTRICTIONS[gh]							
Public worksites			B,D		B,D	D	
Private worksites			B,D				
IMPLEMENTATION PROVISIONS							
Nonsmokers prevail in disputes							
No discrimination against nonsmokers							
ENFORCEMENT (PENALTIES)							
Against smokers[i]	X	X	X	X	X	X	
For failure to post signs[j]		X	X		X		
LOCAL ORDINANCES							
Specifically allowed					X		
Specifically preempted			X				
OVERALL RESTRICTIVENESS OF STATE LA W[k]	1	3	4	1	3	3	0

TABLE 19.—Continued

	IN	IA	KS	KY	LA	ME	MD
YEAR(S) LEGISLATION ENACTED	1987	1978, 87	1975, 87 1988	1972		1954, 81 1983, 85 1987, 88	1957, 75 1987[a] 1988
PUBLIC PLACES WHERE SMOKING IS RESTRICTED							
Public transportation[b]		X	X[c]				X
Elevators		X	X[c]				X
Indoor cultural or recreational facilities		X	X			X	
Retail stores[d]		X	X			X	X
Restaurants[e]		X	X			X	
Schools	X	X	X	X		X	
Hospitals	X	X	X			X	X
Nursing homes	X	X	X			X	X
Government buildings	X	X	X			X	X[a]
Public meeting rooms	X	X	X			X	
Libraries	X	X	X				
Other[f]						X	
WORKSITE SMOKING RESTRICTIONS[g h]							
Public worksites	C,D	D	C,D			B,D	B[a]
Private worksites		D				B,D	
IMPLEMENTATION PROVISIONS							
Nonsmokers prevail in disputes							X
No discrimination against nonsmokers						X	
ENFORCEMENT (PENALTIES)							
Against smokers[i]	X	X	X	X		X	X
For failure to post signs[j]		X	X			X	
LOCAL ORDINANCES							
Specifically allowed	X		X				
Specifically preempted							
OVERALL RESTRICTIVENESS OF STATE LAW[k]	2	4	3	1	0	4	2

TABLE 19.—Continued

	MA	MI	MN	MS	MO	MT	NE
YEAR(S) LEGISLATION ENACTED	1947, 75 1987, 88	1967, 68 1978, 81 1986, 87 1988	1971, 75 1987	1942		1979	1979 1986
PUBLIC PLACES WHERE SMOKING IS RESTRICTED							
Public transportation[b]	X[c]	X	X	X		X	X
Elevators	X[c]	X	X			X[c]	X
Indoor cultural or recreational facilities	X	X	X			X	X
Retail stores[d]	X	X	X			X	X
Restaurants[e]	X	X	X			X	X
Schools	X	X	X			X	
Hospitals	X	X	X			X	X
Nursing homes	X	X	X			X	X
Government buildings	X	X	X			X	X
Public meeting rooms	X	X	X			X	X
Libraries	X		X				X
Other[f]	X	X	X				
WORKSITE SMOKING RESTRICTIONS[g h]							
Public worksites	C,D[a]	D	C,D			D	D
Private worksites			C,D			D	D
IMPLEMENTATION PROVISIONS							
Nonsmokers prevail in disputes			X				X
No discrimination against nonsmokers							
ENFORCEMENT (PENALTIES)							
Against smokers[i]	X	X	X	X			X
For failure to post signs[j]		X				X	
LOCAL ORDINANCES							
Specifically allowed							
Specifically preempted							
OVERALL RESTRICTIVENESS OF STATE LAW[k]	3	3	4	1	0	4	4

TABLE 19.—Continued

	NV	NH	NJ	NM	NY	NC	ND
YEAR(S) LEGISLATION ENACTED	1911, 75 1979 1987	1981 1986 1987	1953 1979 1985	1985	1921, 53 1975 1976		1977 1987
PUBLIC PLACES WHERE SMOKING IS RESTRICTED							
Public transportation[b]	X	X	X		X		X
Elevators	X	X	X	X			X
Indoor cultural or recreational facilities	X	X	X		X		X
Retail stores[d]	X	X	X				
Restaurants[e]	X	X	X				X
Schools	X	X	X				X
Hospitals	X	X	X				X
Nursing homes	X	X	X				X
Government buildings	X	X	X	X			X
Public meeting rooms	X	X	X	X			X
Libraries	X	X	X	X	X		X
Other[f]	X	X			X		
WORKSITE SMOKING RESTRICTIONS[g h]							
Public worksites		D	B,C	C,D			C,D
Private worksites	A	B	B,C		A		
IMPLEMENTATION PROVISIONS							
Nonsmokers prevail in disputes			X				
No discrimination against nonsmokers							
ENFORCEMENT (PENALTIES)							
Against smokers[i]	X	X	X	X	X		X
For failure to post signs[j]		X	X				X
LOCAL ORDINANCES							
Specifically allowed							
Specifically preempted			X				
OVERALL RESTRICTIVENESS OF STATE LAW[k]	3	4	4	2	2	0	3

TABLE 19.—Continued

	OH	OK	OR	PA	RI	SC	SD
YEAR(S) LEGISLATION ENACTED	1953, 81 1981, 84 1988	1975 1987	1973, 75 1977 1981	1927 1947 1977	1976 1977 1986	1937	1974 1987
PUBLIC PLACES WHERE SMOKING IS RESTRICTED							
Public transportation[b]	X	X	X[a]		X	X	X
Elevators	X	X	X		X		X
Indoor cultural or recreational facilities	X	X	X	X	X		X
Retail stores[d]			X	X	X		
Restaurants[e]		X	X		X		
Schools	X	X	X		X		X
Hospitals	X	X	X	X	X		X
Nursing homes	X	X	X	X	X		X
Government buildings	X	X	X		X		
Public meeting rooms	X	X	X				
Libraries		X			X		X
Other[f]	X		X		X		X
WORKSITE SMOKING RESTRICTIONS[g h]							
Public worksites	D	C,D	D		B		
Private worksites					B		
IMPLEMENTATION PROVISIONS							
Nonsmokers prevail in disputes		X			X		
No discrimination against nonsmokers					X		
ENFORCEMENT (PENALTIES)							
Against smokers[i]	X	X	X	X	X		X
For failure to post signs[j]			X		X		
LOCAL ORDINANCES							
Specifically allowed							
Specifically preempted		X					
OVERALL RESTRICTIVENESS OF STATE LAW[k]	2	3	3	2	4	1	2

TABLE 19.—Continued

	TN	TX	UT	VT	VA	WA	WV
YEAR(S) LEGISLATION ENACTED		1975 1987	1976 1979 1986	1892 1987		1984 1985	1913 1919 1985
PUBLIC PLACES WHERE SMOKING IS RESTRICTED							
Public transportation[b]		X	X			X[c]	X
Elevators		X	X	X[c]		X[c]	
Indoor cultural or recreational facilities		X	X			X[c]	
Retail stores[d]			X			X[c]	
Restaurants[e]			X			X	
Schools		X	X			X[c]	X
Hospitals		X	X			X	
Nursing homes		X	X	X		X	
Government buildings			X			X	
Public meeting rooms		X	X	X[c]		X[c]	
Libraries			X			X	
Other[f]				X			X
WORKSITE SMOKING RESTRICTIONS[g h]							
Public worksites			D	B,D		D	
Private worksites			D	B,D		D	A
IMPLEMENTATION PROVISIONS							
Nonsmokers prevail in disputes			X				
No discrimination against nonsmokers			X	X			
ENFORCEMENT (PENALTIES)							
Against smokers[i]		X	X	X		X	X
For failure to post signs[j]				X		X	
LOCAL ORDINANCES							
Specifically allowed			X				
Specifically preempted							
OVERALL RESTRICTIVENESS OF STATE LAW[k]	0	2	4	4	0	4	1

TABLE 19.—Continued

	WI	WY	TOTAL STATES N	%
YEAR(S) LEGISLATION ENACTED	1983			
PUBLIC PLACES WHERE SMOKING IS RESTRICTED				
Public transportation[b]	X		36	70.6
Elevators	X		32	62.7
Indoor cultural or recreational facilities	X		30	58.8
Retail stores[d]	X		25	49.0
Restaurants[e]	X		24	47.1
Schools	X		32	62.7
Hospitals	X		34	66.7
Nursing homes	X		32	62.7
Government buildings	X		31	60.8
Public meeting rooms			27	52.9
Libraries			21	41.1
Other[f]				
WORKSITE SMOKING RESTRICTIONS[g h]				
Public worksites	D		31	60.8
Private worksites			13	25.5
IMPLEMENTATION PROVISIONS				
Nonsmokers prevail in disputes			8	15.7
No discrimination against nonsmokers			5	9.8
ENFORCEMENT (PENALTIES)				
Against smokers[i]	X		40	78.4
For failure to post signs[j]			17	33.3
TOTAL			41	80.4
LOCAL ORDINANCES				
Specifically allowed	X		7	13.7
Specifically preempted			3	5.9
OVERALL RESTRICTIVENESS OF STATE LAW[k]	3	0		

TABLE 19.--Continued

NOTE: Laws cited do not include restrictions on smoking near explosives, fireworks, or hazardous areas; in or near mines; or in food preparation or handling areas of restaurants or food processing factories.

[a]Executive order.

[b]In school buses only in AR, FL, and SC. Smoking is prohibited on all forms of intrastate transportation in CA.

[c]Smoking is never permitted in this area.

[e]Proprietors of retail stores in CO are encouraged to establish no-smoking areas. Smoking is prohibited only in grocery stores in AK, CA, CT, MA, NV, and RI.

[e]Proprietors of restaurants in NJ and CO are encouraged to establish no-smoking areas. In AK, FL, HI, MI, NH, OK. RI, and WI, restaurants seating 50 or more persons must have a no-smoking section. In CA, restaurants in a publicly owned building seating 50 or more must have a no-smoking section. In CT and MA, restaurants seating 75 or more must have a no-smoking section.

[f]Smoking is restricted in jury rooms in AK, FL, ME, MA, MI, MN, OR, and SD; in day-care centers in AK, AZ, AR, MA, and MN: in mills, factories, barns, or stables in ME, MA, NV, RI, VT, and WV; in polling places in NH and NY; in prisons, at the prison officials discretion, in FL and PA; and in the asbestos hazard abatement project in OH.

[g]A, employer must post a sign where smoking is prohibited; B, employer must have a written smoking policy; C, employer must have a policy that provides for a nonsmoking area; D, no smoking except in designated areas. Only B, C, and D count as having a worksite policy in calculation of totals.

[h]Employers must post signs designating smoking and no-smoking areas in AK, MI, MN, NE, NJ, and UT public worksites, and in MN, NE, NJ, and UT private worksites; in smoking areas only in FL, ND, and WI public worksites; and in no-smoking areas in NH and NM public worksites. Depending upon their policy, employers must post either smoking or no-smoking signs in MT public and private worksites. Smoking is not restricted in factories, warehouses, and similar worksites not usually frequented by the public in MN and NE. Smoking is prohibited in any mill or factory in which a no-smoking sign is posted in NV, NY, VT, and WV.

[i]Persons who smoke in a prohibited area are subject to the following maximum fines: $5, AK, KY, VT; $10, IA, OR, PA: $20-25, CT, DE, HI, KS, NM, WI; $50, ID, ME, NH: $100, AR, CA, DC, GA, NE, NV, NY, ND, OK, RI, WV; $100 per day, WA: $200, NJ; $300, MD; $500, FL, MI: $50 or up to 10 days jail or both, MA; minor misdemeanor, OH; petty misdemeanor, MN; misdemeanor, MS, TX: petty offense, AZ, SD; infraction. IN, UT.

[j]Persons who are required to and fail to post smoking and/or no-smoking signs are subject to the following maximum fines: $10, IA; $20-25, MT; $50, KS, NH; $100, ME, ND, OR, VT; $200, NJ; $300, AK, DC; $500, FL, MI; $500 per day, HI, RI; civil action, WA; infraction, CT.

[k]Restrictiveness key: 0, none (no statewide restrictions); 1, nominal (State regulates smoking in 1-3 public places, excluding restaurants and private worksites); 2, basic (State regulates smoking in 4 or more public places, excluding restaurants and private worksites): 3, moderate (State regulates smoking in restaurants but not private worksites): 4, extensive (State regulates smoking in private worksites).

SOURCE: BNA (1987); Tobacco-Free America Project 1987, 1988a, b: US DHHS (1986b); individual State laws.

in the Minnesota Clean Indoor Act (1975) and is incorporated into statutory language in six other States. Seven States include the third provision, which specifically permits local governments to enact ordinances more stringent than the State law (BNA 1987). Conversely, following intense legislative debate that included heavy lobbying by the tobacco industry, Florida (1985) enacted a State law that preempted more stringent local laws, as have Oklahoma (1987) and New Jersey (BNA 1987). Similar legislation has been proposed in other States.

By the end of 1987, smoking was restricted in at least 1 public place in 42 States and the District of Columbia. Table 19 summarizes the provisions of these laws, which most often restrict smoking in public transportation facilities (36 States), hospitals (34 States), schools (32 States), elevators (32 States), government buildings (31 States), and recreational facilities (30 States). As of January 1988, over 82 percent of the United States population resided in States that restricted smoking in at least one public place; this compares with a previous estimate of 8 percent in 1971 (US DHHS 1986b). Over

17 percent of Americans lived in States with laws requiring smoking restrictions at the worksite for nongovernment workers, whereas over half lived in States with such restrictions for State government employees. More than 40 percent of Americans live in States requiring no-smoking areas in restaurants, and two-thirds live in States that limit smoking in health care facilities.

The 1986 Surgeon General's Report documented geographical variation in State smoking laws. Southern States had fewer and less comprehensive laws. This remains true (Table 20). Excluding the major tobacco-producing States (North Carolina, Kentucky, South Carolina, Virginia, Tennessee, and Georgia), over 80 percent of States in each region, including the South, have enacted smoking restrictions. Of the major tobacco-growing States, only Georgia, which ranked sixth in production, had enacted restrictions on smoking in any public places other than school facilities or vehicles.

State laws also vary in their implementation and enforcement provisions. Health departments are responsible for policy implementation in most States (US DHHS 1986b). Nearly all States with laws (40 of 43) provide penalties for smokers who violate restrictions (Table 19). Seventeen States also have penalties for employers and proprietors who do not establish nonsmoking policies or post signs as required (BNA 1987). It is not known how often these penalties are actually imposed.

Local Legislation

As noted in the 1986 Report, efforts to pass Clean Indoor Air Laws spread from the State to the local level in the 1980s, spearheaded by actions in California (US DHHS 1986b). Local ordinances generally extend the scope of smoking restrictions beyond that provided for in corresponding State laws. Usually they include provisions to restrict or ban smoking in restaurants and public and private worksites, in addition to a broad range of public places. An accurate record of local ordinances nationwide is difficult to obtain because there is no single reference library for local legislation. Recently, two organizations have monitored local no-smoking ordinances on a nationwide basis. Their data indicate that local ordinances are being enacted at a rapid pace. As of August 1988, ANR (1988b) identified 321 local ordinances with provisions for significant nonsmoker protection. The Tobacco-Free America Project (1988c) reported in October 1988 that 380 local communities had passed laws restricting smoking in public places. These numbers represent a nearly fourfold increase in the estimate of 89 communities with smoking ordinances in 1986 (US DHHS 1986b).

The most complete information on the prevalence and content of local ordinances is available for California, where ANR has kept an ongoing compilation of laws (ANR 1988a). According to their records, the first local ordinances were passed in 1979. In 1982, San Diego became the first large California city to enact a workplace ordinance. Although not the first local action to include the private workplace, the passage of San Francisco's worksite smoking ordinance in 1983, in the face of heavily subsidized tobacco industry opposition, attracted widespread publicity and stimulated further action (US DHHS 1986b). The following year, Los Angeles passed a law requiring smoking policies in workplaces with five or more employees (ANR 1988a).

TABLE 20.--Regional variation in restrictiveness of State laws limiting smoking

Region[a]	Total States	Mean restrictivenes[b] in October 1988	States with laws[c] N	(%)	Mean restrictiveness[b] of laws in effect October 1988	States with different degrees of restrictiveness[b] 1.00	0.75	0.50	0.25	0.00
Northeast	9	.861	9	(100)	.861	6	1	2	0	0
Midwest	12	.625	10	(83)	.750	3	4	3	0	2
West	13	.692	12	(92)	.750	3	6	3	0	1
South	17	.324	12	(71)	.458	1	2	3	6	5
Major tobacco producer	6	.125	3	(50)	.250	0	0	0	3	3
Other	11	.432	9	(82)	.528	1	2	3	3	2
Total	51	.583	43	(84)	.692	13	13	11	6	8

[a]Regions are defined by the Bureau of the Census
Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, VT
Midwest: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI
West: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY
South: AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV
Major tobacco producers: GA, KY, NC, SC, TN, VA
[b]Index of restrictiveness (from US DHHS 1986b):
0.00 = None; no statewide restrictions.
0.25 = Nominal; State regulates smoking in one to three public places, excluding restaurants and private worksites
0.50 = Basic; State regulates smoking in four or more public places, excluding restaurants and private worksites.
0.75 = Moderate; State regulates smoking in restaurants, but not private worksites.
1.00 = Extensive; State regulates smoking in private worksites.
[c]Difference in prevalence of laws. South versus all other: chi square (using Yates correction)=13.40, $p<0.005$.
SOURCE: BNA (1987), US DHHS (1986b). individual State laws.

As a result of this early action, California holds the distinction of having more cities, towns, and counties restricting smoking than any other State. As of April 1988, 125 California cities, towns, and counties had significant nonsmoker protection laws, including all California cities with populations greater than 250,000 and more than one-third of all other communities with populations greater than 25,000 (ANR 1988a). Smoking was restricted in private worksites in 117 California communities; these laws applied to nearly 15 million citizens, more than 55 percent of the State's population. Restaurant nonsmoking sections are required in 118 California communities.

A stringent restaurant law was passed in Beverly Hills in April 1987). It banned all smoking in restaurants except those in hotels or bars. Amid enforcement problems and restaurateurs' reports of losing business to neighboring communities with less stringent laws, the city subsequently amended the ordinance to permit smoking areas in restaurants with air filtration systems, as long as nonsmoking sections are at least 50 percent of seating capacity (ANR 1988a; Malnic 1988; New York Times 1987). This remains the only widely known example of a State or local ordinance that has been revised to become less stringent.

A total ban on smoking in restaurants has been adopted successfully by one city, Aspen, CO. In September 1985, Aspen passed a Clean Indoor Air Act that contained an even more stringent restaurant provision: a ban on smoking in all restaurants (Aspen 1985). Six months after the law passed, a survey of 30 restaurants revealed that 87 percent of managers favored the law; 77 percent reported no effect of the ordinance on their business, 10 percent said they lost business, and 13 percent were uncertain of the effect (Dunlop 1986).

Outside California, Massachusetts has the largest number of local smoking ordinances. As of June 1988, 56 cities and towns restricted smoking in restaurants and 9 communities restricted smoking in private workplaces. Since 1984, Massachusetts communities have been passing restaurant laws at the rate of over 10 per year, and there has been an increase in the minimum required size of nonsmoking sections (GASP 1988a,b).

Communities in more than 20 other States restrict smoking, including 6 of the 8 States without statewide restrictions. Two of the major tobacco-producing States, Virginia and South Carolina, each have several counties that restrict smoking. In Virginia, which has no statewide restrictions, Arlington, Fairfax, and Prince William Counties, as well as the city of Norfolk, restrict smoking in restaurants and other public places. In South Carolina, which has statewide limits only for school buses, smoking is restricted in government buildings in five counties. In 1987, the city of Greenville became the first in South Carolina to restrict smoking in private worksites and restaurants (Tobacco-Free Young America Project 1987).

Other States with several communities regulating smoking in public places or worksites are Texas, Colorado, Maryland, Ohio, Arizona, and New York. Among the major cities not already cited that restrict smoking in private worksites and various public places are New York, NY; Cleveland OH; Denver, CO; Kansas City, MO; Phoenix and Tucson, AZ, Pittsburgh, PA; Austin, Dallas, El Paso, and Houston, TX; and Seattle, WA (ANR 1988b).

The city ordinance affecting the largest number of people is the Clean Indoor Air Act that took effect in New York City on April 6, 1988. It applies to over 7 million people, almost 3 percent of the United States population, and bans or restricts smoking in a wide variety of public places. Restaurants seating more than 50 persons must designate at least half of their seating as nonsmoking, and employers with more than 15 employees must maintain a written smoking policy and provide, "to the extent reasonably practicable, smoke-free work areas for nonsmoking employees who sit in common work areas." Smoking is also prohibited in hallways, restrooms, and other shared areas at work (New York City Department of Health 1988).

Smoking Restrictions in Public Transportation Facilities

Buses and Trains

For interstate public transportation, prior Federal regulatory actions have been accompanied by more recent congressional legislation. In the 1970s the Interstate Com-

merce Commission (ICC) and the Civil Aeronautics Board (CAB) issued smoking restrictions for buses and airliners, respectively. In 1971, the ICC issued regulations requiring that smoking on buses traveling interstate routes be confined to designated smoking sections. Upheld in a 1973 court case and amended in 1976, the current regulations require smoking sections to be at the rear of buses and to consist of no more than 30 percent of total seating capacity (49 CFR 1061, 1987). In 1971, the ICC also required that smoking on trains traveling on interstate routes be confined to designated areas (Public Law 9l-518; 49 CFR 1124.1). The legislation mandating these regulations for trains was repealed in 1979.

More recently, congressional legislation passed in 1987 led indirectly to a ban on smoking on commuter rail lines serving New York City. The law would have withheld Federal funds to the New York Metropolitan Transportation Authority unless smoking was banned on the Long Island Railroad (LIRR) (101 Stat. 1329-382, 1987). In response, the Authority banned smoking, effective February 15, 1988, on all LIRR and Metro-North Commuter Railroad trains. The action affected 452,000 daily riders of these commuter lines, which connect New York City with Long Island and Westchester County, NY, and Connecticut. Railroad officials had previously favored a ban, but the Authority's board had rejected a total ban until the threatened loss of an estimated 539 million dollars in Federal funds (Schmitt 1988).

Commercial Airlines

Smoking on commercial airline flights has been the subject of longstanding Federal regulation and more recent congressional legislation. The CAB promulgated its first regulations in 1971 (14 CFR Part 252.2). These required that all commercial airline flights provide nonsmoking sections large enough to accommodate every passenger who desired to sit in them. In 1983, the CAB issued new regulations that banned smoking on flights of 2 hr or less; however, the CAB reversed its decision almost immediately, allegedly in response to outside pressure (Walsh and Gordon 1986).

Public pressure for a smoking ban on commercial airline flights continued to mount, however. In 1986, the National Academy of Sciences appointed a Committee on Airliner Cabin Air Quality to examine the issues. Their report recommended a ban on smoking on all commercial domestic airline flights, for several reasons: to increase the comfort of passengers and crew, to reduce potential health hazards of involuntary smoke exposure for the crew, to decrease the risk of fire caused by cigarettes, and to bring cabin air quality into line with established standards for indoor environments (NRC 1986a). That same year, the Adult Use of Tobacco Survey, which interviewed over 13,000 adults, found that nonsmoking sections were preferred by 82 percent of nonsmokers, 69 percent of former smokers, and even 14 percent of current smokers (CDC 1988).

In response to this evidence and growing pressure by the voluntary health organizations and nonsmokers' rights groups, Congress passed legislation in 1987 prohibiting smoking on all regularly scheduled commercial flights with scheduled flight times of 2 hr or less (Public Law 100-202). This includes approximately 80 percent of all domes-

tic flights. The ban also prohibited tampering with aircraft smoke detection devices and authorized fines of up to 2,000 dollars for violations. The law, which became effective on April 23, 1988, will expire in 1990 in the absence of further congressional action (101 Stat. 1329-382, 1987).

Recent legislation in California and Canada has created more comprehensive smoking restrictions on a wider range of transportation vehicles. As of January 1, 1988, California banned smoking on all intrastate commercial airplane, train, and bus trips. Several carriers, including Amtrak, American Airlines, and Alaska Airlines, ignored the law on the grounds that their operations are regulated by Federal rather than State laws (Washington Post 1988). However, when both airlines complied with the Federal inflight smoking ban in April 1988, they effectively complied with the California law. In June 1988, the Canadian Parliament acted to ban smoking on flights less than 2 hr. The law also limits smoking on federally regulated ships, trains, and buses to designated areas separated from the main seating (Bums 1988).

Opinion surveys document support for greater restrictions on smoking in airliners (see Chapter 4). In a survey of more than 33,000 airline passengers in 39 States and 89 airports, conducted by the American Association for Respiratory Care prior to the passage of congressional legislation, 64 percent supported a total ban on smoking in flight, including 74 percent of nonsmokers and 30 percent of smokers (Milligan 1987). In another survey, California's smoking ban on intrastate flights was supported by 85 percent of 614 passengers and 94 percent of 63 airline flight crew surveyed at San Francisco's airport (Journal of the American Medical Association 1988b).

Less is known about smoking restrictions in airports. Preliminary data from a survey by the Airport Operators Council International (AOCI) of its 180 U.S. members showed that 50 of 59 respondents had smoking restrictions of some type (AOCI 1988; Yenckel 1988). However, after the institution of the congressionally mandated ban during flights of 2 hr or less, there were anecdotal reports of increased smoking in airports, as smokers appeared to compensate for on-board restrictions (Yenckel 1988).

Smoking Restrictions in the Workplace

Government Worksites

Federal, State, and local governments have used a combination of regulatory and legislative means to address the smoking in their own facilities. As a result of recent Federal regulations, most Federal workers are covered by policies that restrict but do not ban smoking in the workplace. In 1986, the General Services Administration (GSA), which is responsible for one-third of all Federal buildings and provides office space for 890,000 Federal employees, revised its 1973 smoking policy. The current regulations, which became effective on February 6, 1987, prohibit smoking except in designated areas, specify areas where smoking is to be banned and where it may be permitted, but do not require that all working areas be smoke free. The intent of these regulations was to provide a reasonably smoke-free environment for workers and visitors in GSA-controlled buildings. Smoking is prohibited in auditoriums, class-

rooms, conference rooms, elevators, medical care facilities, libraries, and hazardous areas. Smoking is banned in general office spaces unless they are designated for smoking and configured to protect nonsmokers from involuntary exposure to smoke. The regulations do not specify how to determine if nonsmokers are protected from exposure to ETS in cases where smoking areas are designated. Corridors, lobbies, restrooms, and stairways are also nonsmoking areas unless designated otherwise (41 CFR 101-20, 1987; GSA 1986).

In consultation with employees, agency heads have the authority to decide which areas are designated nonsmoking or smoking as well as to establish more stringent guidelines (GSA 1986). Response by the various executive departments has varied. DHHS has adopted the most stringent requirements: a complete ban in all Department buildings effective February 25, 1988. Previously, the Indian Health Service had banned smoking within its 45 hospitals (CDC 1987b). Other departments have permitted sections of food service facilities, restrooms, or corridors to become designated smoking areas (BNA 1987).

The second major Federal regulatory effort addressed smoking by Armed Forces personnel. DOD previously had a worksite smoking policy, dating from 1977, which prohibited smoking in auditoriums, conference rooms, and classrooms and required nonsmoking areas in all cafeterias. In March 1986, DOD established a new policy that was a component of the antismoking portion of the DOD comprehensive health promotion and education program (US DOD 1986a; Chapter 6). Its purpose was to create an environment that discouraged tobacco use. Although each of the military services has adopted branch-specific regulations, the departmentwide policy stipulates that smoking is prohibited in auditoriums, conference rooms, classrooms, elevators, buses, and vans. Smoking is not permitted in common work areas shared by smokers and nonsmokers unless adequate space is available for nonsmokers and ventilation is adequate to provide them with a healthy environment. Smoking is permitted only in designated sections of those common work areas, as in restricted sections of eating facilities, medical facilities, and schools (US DOD 1986a). The DOD policy covers nearly 2.2 million military and 1.2 million civilian personnel worldwide (US DOD 1986b).

Servicewide surveys taken in 1987 suggest that the DOD antismoking campaign is affecting smoking behavior. Between 1985 and 1987, the smoking prevalence in the Army dropped from 52 to 41 percent, in the Navy from 49 to 44 percent, and in the Air Force from 39 to 31 percent. The Marine Corps' last survey in 1985 indicated a smoking rate of 43 percent (Kimble 1987). It is impossible to determine how much of this drop is attributable specifically to the new smoking restrictions, because many other antismoking activities occurred during this time, both in the military and in the wider community. In the 6-month period ending April 30, 1987, monthly tobacco product sales in military commissaries decreased by approximately 18 percent. The rate of decreased sales does not necessarily directly reflect the rate of decreased consumption, because of possible purchases in the civilian market. Nevertheless, it is another suggestion of a decrease in tobacco consumption by military personnel (US DOD 1987).

In December 1988, the Veterans Administration (VA) announced its intent to establish smoke-free environments in acute-care sections within the 172 medical centers and more than 230 outpatient clinics that are part of the VA health care system (VA 1988).

In addition to Federal actions, smoking restrictions in State and local government offices have been imposed by legislation and regulation. Laws in 31 States now restrict smoking at public worksites, and additional States have restricted smoking by executive branch action.

Private Worksites

Governments have been slower to mandate smoking restrictions for private worksites than for their own employees. State laws in 13 States now require various levels of smoking restrictions at private sector worksites. Additionally, as discussed above, a growing number of city and county laws are also restricting smoking in private businesses. These actions have encouraged and supported ongoing initiatives by private businesses to restrict smoking, which are described in detail in the next section.

Judicial Actions

Decisions by both Federal and State courts have supported the authority of State and local governments to restrict or ban smoking in public places because of the health hazards, so long as the restrictions reasonably achieve desired results (Reynolds 1984). In a review of court opinions on workplace smoking restrictions, the Bureau of National Affairs found that challenges to the legality of governmental limitations have been rare (BNA 1987).

One widely publicized exception was the case of smoking regulations promulgated by the New York State Public Health Council in 1987. These broad restrictions on smoking in public places, restaurants, and workplaces were declared void by the highest level of State court on the grounds that the Public Health Council had usurped the legislature's prerogative to establish public policy (BNA 1987). Subsequently, the State legislature seriously considered several no-smoking bills, and New York City adopted a strong no-smoking ordinance (New York City Department of Health 1988).

Effects of Government Actions to Restrict Smoking

A summary of potential effects of smoking restrictions, methodological issues in their assessment, and the status of current evidence is included in Chapter 6 of the 1986 Surgeon General's Report (US DHHS 1986b). The following updates that discussion.

Implementation, Compliance, and Enforcement

No-smoking laws passed by State and local governments are generally implemented by health, rather than police, departments. Neither the adequacy of implementation nor the level of public compliance has been well studied. Their impact on smoking behavior and air quality has not been evaluated. These policies are often said to be "self-enforcing." This implies that the majority of smokers, being law abiding, obey smoking restrictions and that individuals assume responsibility for requesting compliance, thereby freeing the government from the need to actively monitor compliance or provide enforcement. Such a strategy requires substantial public awareness about the provisions of smoking laws or regulations, appropriate placement of signs, and the willingness, on the part of the public, to confront violators.

There has been little formal evaluation of the adequacy of implementation or level of compliance with smoking laws. Most available data are anecdotal. For example,

newspaper accounts of the smoking ban on the LIRR reported the perception of railroad officials that cars were cleaner 2 weeks after the ban. After a well-publicized violation on the day that the ban went into effect, compliance appeared to be good (Schmitt 1988).

Prior to the implementation of New York City's no-smoking law in April 1988, a number of restaurant owners were interviewed. They anticipated great difficulty complying with the requirement that 50 percent of their seating capacity be nonsmoking. When these restaurateurs were reinterviewed 6 months after the law went into effect, they reported few problems with compliance. The city's Health Department reported receiving only a small number of complaints. Through August 24, 1988, only five hearings or complaints had been held, and only 700 dollars in fines were levied (Bums 1988).

One systematic study of implementation examined San Francisco's workplace smoking law. The city found that implementation required only a declining fraction of a single employee's time. Compliance was monitored passively; the city responded to complaints rather than doing active surveillance and equated the lack of complaints with good compliance (Martin 1988). This study's finding does not support the tobacco industry claim that smoking laws would be expensive to implement and enforce (Tobacco Institute 1983).

The implementation of a 1987 local ordinance restricting smoking in Cambridge, MA, was also studied systematically (Rigotti et al. 1988). To inform the public about the new law, the Health Commissioner relied on the news media; to inform city businesses about their new responsibilities, he mailed a brochure. The one employee in the Commissioner's office designated to handle communication about the ordinance kept a telephone log. Analysis of the log revealed a peak of calls in the first few weeks after the ordinance took effect, followed by a rapid decline. Most early calls were for information; later calls were to report complaints. Over the first 3 months, no individual or business was fined, and no judicial actions were taken.

Compliance was measured by direct observations of retail stores, which were required to ban smoking and to post signs. At 3-month followup, there was little smoking observed in stores but there were also very few signs. Only 22 percent of stores had no-smoking signs, and only 3 percent had signs worded as required by law. Compliance was also measured by a random survey of city residents. At 3 months, one-third of residents had recently noticed smoking where it was not permitted; the most common response to seeing a violation was to ignore it. The authors concluded that the reluctance of city residents to respond to violations of the law called into question the notion that the law was self-enforcing (Rigotti et al. 1988).

Public Opinion

As described in Chapter 4, a number of public opinion polls report that the majority of both smokers and nonsmokers favor restrictions on smoking in public places and workplaces. However, there have been relatively few surveys of residents of cities and States that have adopted a new policy. There is almost no information about what effect smoking laws have on knowledge of or attitudes about smoking.

The few existing surveys of public opinion after the implementation of a smoking law indicate that these policies are popular, especially with nonsmokers. Nearly three-quarters (73 percent) of a random sample of 676 New York City residents interviewed 3 months after the city's smoking law took effect were in favor of the law. This included 84 percent of nonsmokers and 43 percent of smokers (New York Times 1988). Similar results were found in Cambridge, MA: 77 percent of a random sample of 400 residents surveyed 3 months after the law became effective approved of the law. Although the policy was more popular among nonsmokers, 41 percent of smokers also approved of it. A separate survey of business managers in the city, also conducted 3 months after the law went into effect, found that the majority (64 percent) favored the law requiring the development of a smoking policy at the worksite (Rigotti et al. 1988). As noted above, the California State law banning smoking on intrastate airline flights was well accepted by both airline passengers and crew surveyed at the San Francisco airport (Journal of the American Medical Association 1988b).

Smoking Behavior

Smoking policies will be regarded as successful if they achieve their aim of reducing nonsmokers' exposure to smoke. They will assume added public health importance if, in so doing, they encourage cessation by smokers and discourage the initiation of smoking. Although there are suggestions that smoking restrictions may have these effects, evidence is lacking because the impact of these policies on attitudes or smoking behavior has not been systematically evaluated in controlled trials. In the previously mentioned study of the Cambridge smoking ordinance, there was no change over 3 months in smokers' self-reported actions or desire to quit and no change in smoking prevalence (Rigotti et al. 1988). Behavior change may require a longer time to occur. Furthermore, because of the relatively greater time that smokers spend at work compared with public places, worksite smoking restrictions may have a greater potential to change the behavior of smokers (US DHHS 1986b).

As noted previously, surveys of Armed Forces personnel indicate a drop in smoking prevalence in all services between 1985 and 1987, coincident with the adoption of a militarywide nonsmoking policy and an aggressive antismoking intervention program (Kimble 1987). The precise contribution of the policy to the overall decline is not possible to determine.

Lewit (1988) reported a relationship between smoking behavior and residence in a community having a State or local law restricting smoking. Using NHIS data, he compared the smoking prevalence and cigarette consumption of individuals living in communities with smoking laws to the smoking behavior of individuals living in areas without these laws. He reported that residence in a town with a highly restrictive ordinance (restricting smoking in restaurants and the worksite) was associated with a rate of smoking cessation that was up to 10 percentage points above the rate expected on the basis of personal characteristics alone. This applied to teenagers and young adults, as well as to the general adult population. Lewit found less of a relationship between the laws and daily cigarette consumption by continuing smokers. This is the first evidence of an association between smoking laws and smoking behavior and requires

confirmation. Furthermore, as Lewit observed, the direction of causality between the existence of laws and reduced smoking, if any, is uncertain.

This assessment has been reinforced by new work by Chaloupka (1988) and Chaloupka and Saffer (1988) that concludes that, while smoking and the existence of laws are inversely related, the association reflects the higher probability of laws being passed in States with relatively low levels of smoking. Once this relationship was controlled, the authors found no significant effect of passage of the laws on smoking rates. They observed, however, that this did not mean enactment of laws would not decrease smoking, but rather that, thus far, laws have been passed primarily by States with low levels of smoking.

Summary

The Public Health Service's 1990 Health Objectives for the Nation included this goal:

> By 1990, laws should exist in all 50 States and all jurisdictions prohibiting smoking in enclosed public places, and establishing separate smoking areas at work and in dining establishments (US DHHS 1980).

As this Section has documented, there has been a rapid increase in the number of State and local government actions to restrict smoking in public places and worksites. Since 1980, 5 of 13 States without public place smoking laws have enacted them; similarly, 13 of 40 States without restaurant laws in 1980 have adopted them; and 9 of 46 States without worksite restrictions have passed such laws. However, gaps in statewide legislation remain. Eight States currently have no smoking restrictions at all, 27 States do not include provisions for restaurants, and 37 States do not have laws restricting smoking at private worksites. Although both the number and comprehensiveness of Statewide laws have grown rapidly since 1980, it is unlikely that this 1990 Health Objective will be fully achieved by the target date.

Some of the present gaps in State legislation are now being filled by community ordinances. A recent analysis estimated that, as of August 1988, there were 321 local smoking ordinances nationwide, covering a total population of over 45 million (ANR 1988b). Another compilation counted 380 local laws (Tobacco-Free America Project 1988c). Local ordinances restricting smoking at the worksite now cover over half of California's population (ANR 1988a). If this trend occurs in other States, the level of protection for nonsmokers will increase and in certain States supplant the need for stronger State legislation. However, because of the potential for differing regulations, a patchwork of local legislation may be less desirable than broader State or Federal action. In the U.S., Federal actions have restricted smoking in transportation facilities and Federal offices. The first congressional action, the 1988 ban on smoking on short commercial airline flights, will expire in 1990 without congressional action to extend it. Actions by the General Services Administration (GSA) and DOD have restricted smoking in the majority of Federal offices.

It appears that the trend toward increasingly comprehensive State and local smoking restrictions, identified in the 1986 Surgeon General's Report, is continuing. Additional legislation is being adopted, and with one exception (Beverly Hills, CA), none has

been rescinded or substantially weakened. If present trends continue, smoking restrictions in cities and States can be expected to be the norm by the end of the century. A potential obstacle to the growth of local legislation is the inclusion in State legislation of a provision prohibiting cities and towns from taking stronger actions than has the State. This has occurred in at least three States (Florida, New Jersey, and Oklahoma).

Currently, little is known about the effects of no-smoking laws on attitudes toward smoking or smoking behavior. As smoking laws become more common, public health interest may shift from enactment to implementation of these laws and address issues of compliance and impact on smoking behavior.

Smoking Restrictions in the Private Sector

In 1986, the Surgeon General's Report noted the new development of policies regulating smoking in the private sector, particularly policies restricting smoking in the workplace (US DHHS 1986b). Evidence accumulated since then indicates that this trend, which began in the early 1980s is continuing and possibly accelerating. A growing number of businesses, schools, health care facilities, and other institutions have adopted smoking policies to protect the health of employees, students, teachers, and patients. Not only are more private institutions adopting smoking policies, but also the policies they are adopting are further limiting the areas in which smoking is permitted. Survey data summarized in Chapter 4 demonstrate that this trend is strongly supported by public opinion.

The previous section summarized smoking restrictions that have been adopted as a result of government actions at the Federal, State, and local levels. This Section addresses smoking restrictions adopted voluntarily, that is, by private initiative. However, surveys on smoking restrictions in the private sector often do not distinguish between restrictions adopted voluntarily and those adopted to comply with legislation. This Section focuses on activities of businesses, schools, and health care facilities, because trends in these areas are the best recorded. Similar efforts are also being made for public transportation, restaurants, hotels and motels, and other sites; these are covered in the previous Report (US DHHS 1986b).

Workplace Smoking Restrictions

Walsh and Gordon (1986) cite a number of reasons for labeling the worksite as a "lightning rod" for those concerned about the health consequences of involuntary smoking. Along with growing evidence about the adverse health effects of involuntary tobacco smoke exposure (Eriksen, LeMaistre, Newell 1988; US DHHS 1986b), there is appreciation that the workplace is a major source of involuntary smoke exposure for all employed adults and is the most important source of exposure for adults who live in nonsmoking households (CDC 1987a). Furthermore, employees have less choice about their place of work, and hence their ETS exposure at work, than they do about where they spend time outside work. From the employer's standpoint, there are medical, legal, legislative, and economic reasons to consider workplace smoking control initiatives (Eriksen 1986). Nonsmokers' right to clean air at work has been supported by

common law precedent (US DHHS 1985c; Walsh and Gordon 1986). Smoking policies have also attracted the interest of behavioral scientists interested in the potential of the worksite as a base for activities that alter worksite norms about smoking, restrict opportunities to smoke, and increase motivation to quit (US DHHS 1985d).

A broad range of smoking policies has been developed by businesses. A taxonomy of these policies is presented and discussed in the 1986 Surgeon General's Report (US DHHS 1986b). Briefly, the options can be categorized as follows: (1) no explicit policy, (2) environmental alterations, (3) restricting smoking to designated areas, (4) banning smoking at work, and (5) preferential hiring of nonsmokers. In addition to these actions to control workplace smoking, private businesses have also developed worksite-based smoking cessation programs (Chapter 6).

History and Prevalence

There is a long tradition of smoking restrictions in the workplace to protect the safety of the worker, workplace, and product from hazards such as fires, explosions, or contamination. Such policies were supported by State legislation as far back as 1892. Although there are very few systematic data about prevalence or nature of workplace policies prior to the late 1970s. available data indicate that at the time of the 1964 Surgeon General's Report, there were essentially no restrictions on smoking in the workplace except where restrictions were needed because of fire or explosion hazards or sensitive equipment (US DHHS 1986b).

During the 1970s workplace smoking regulations for the sake of employee health and comfort were included in clean indoor air legislation proposed at the State level and adopted by private businesses. By the late 1970s private consulting firms, universities, and public health agencies began to assess the prevalence and characteristics of these policies. Most surveys have included large businesses only; consequently, less is known about the prevalence of smoking restrictions in smaller businesses.

The Dartnell Corporation (1977) a private organization that conducts survey research for businesses, made one of the first attempts to estimate the prevalence of workplace smoking policies. In its 1977 survey of U.S. and Canadian office administrators, the organization reported that 30 percent of U.S. and 25 percent of Canadian offices had smoking policies. Since then, a number of State and national surveys have been conducted. The prevalence of policies reported by surveys done in the 1970s ranged from a low of 8 percent in California (Fielding and Breslow 1979) to a high of 64 percent in Massachusetts (Bennett and Levy 1980). During the 1980s the estimates of workplace smoking policies have ranged from a low of 32 percent (Human Resources Policy Corporation 1985) to a high of 54 percent (BNA 1987).

Attempts to compare the results of different surveys are complicated by differences in survey design, types of companies studied, definitions of "policy," measurement instruments, and analytical techniques. Furthermore, the low response rate of some surveys limits their generalizability. Particularly in the earlier surveys, the variability in results may have been attributable as much to differences in research methodology as it was to differences in the actual prevalence of policies. The 1986 Surgeon General's Report includes a comprehensive review of the results and methodological limitations

of the surveys measuring the prevalence of workplace smoking policies (US DHHS 1986b). It concluded that the prevalence of worksite smoking policies was increasing. Recently, Walsh and McDougall (1988) reviewed the trends in workplace smoking policies, noted the methodological limitations, and tentatively concluded that about 30 percent of employers have some type of smoking policy.

The conclusion that worksite smoking policies are becoming more common is supported by the results of two surveys conducted by the Bureau of National Affairs (BNA). These were two national surveys, in 1986 and 1987, of random samples of members of the American Society of Personnel Administration (BNA 1986, 1987). Although the generalizability of the results is limited by low response rates (34 percent in 1986 and 29 percent in 1987), the similarity of the two surveys' methodologies permits limited comparisons between years and provides an indication of general trends. In 1986, BNA reported a 36-percent prevalence of workplace smoking policies; in 1987, the estimate was 54 percent. Taken together, these results indicate a 50-percent increase in the proportion of companies with policies between 1986 and 1987. This conclusion was supported by the finding that 85 percent of companies with a smoking policy in 1987 reported that it had been adopted in the past 3 years (1985 to 1987). In addition to the companies that had a policy in 1987, 4 percent of companies were planning to establish a policy by the end of 1988, and 21 percent were considering workplace smoking restrictions at the time of the survey. Thus, only 22 percent of responding companies did not have either a smoking policy in place or one under consideration.

These results are consistent with those from a large random sample survey of U.S. businesses participating in the 1985 National Survey of Worksite Health Promotion Activities. Of the 35 percent of companies that had smoking control activities, over three-quarters (76.5 percent) reported having a formal smoking policy in place (US DHHS 1987c). Formal smoking policies were the most common component of workplace smoking control programs. The one discrepant result was obtained by a survey restricted to New York City businesses (CDC 1987a). Done in August 1986, it reported that only 4 percent of 573 companies responding to the survey had written smoking policies. It is notable that this is the only one of these surveys to include a large number of smaller businesses. Half of the sample consisted of businesses with fewer than 10 employees, and they were less likely than larger companies to have a smoking policy. Another possible explanation for the discrepancy is that businesses were asked about having a written smoking policy. Some small businesses may have unwritten policies in place.

A separate line of evidence supports these estimates of worksite smoking policy prevalence. The 1986 Adult Use of Tobacco Survey provides an estimate of the extent of worksite smoking policies from the employee's, not the employer's, perspective (CDC 1988). The results are based on a national probability sample of over 13,000 adults. Of employed adults, 45 percent reported having some smoking restrictions at their place of work; smoking was restricted for 42 percent and banned for 3 percent. Of the 55 percent working in places without smoking restrictions, two-thirds reported at least some exposure to ETS (CDC 1988).

Most surveys of workplace smoking policies have assessed their prevalence in private businesses. Recently, however, there have been some attempts to assess the prevalence

of smoking policies at public worksites. The 1987 BNA survey reported that organizations classified as "non-business" tended to establish their smoking policy before their business counterparts did; however, the opposite was reported in a systematic random-sample survey of private businesses and public agencies in Texas (Gottlieb, Hedl, Eriksen et al., in press). In that survey, over 50 percent of both private and public employers reported having a restrictive smoking policy, with only minor differences between them. These Texas surveys were conducted at the same time as the national BNA survey (1987), and each reported the prevalence of restrictive smoking policies to be over 50 percent. In another study of public agencies, Timmins (1987) surveyed a random sample of public agency personnel managers and reported that 38 percent had either formal or informal personnel policies dealing with smoking at work. This percentage is consistent with the prevalence of workplace smoking policies reported for private corporations in 1986 (BNA 1986). Although there are some small differences in rationale and timing, there appear to be more similarities than differences between public and private workplaces regarding the establishment of restrictive smoking policies. Overall, smoking restrictions currently exist in approximately one-half of large American businesses.

Level of Restrictiveness

Not only the prevalence but also the restrictiveness of worksite smoking policies is increasing. According to the BNA surveys (1987), the proportion of company smoking policies that stipulated a total ban on smoking in all company buildings doubled from 1986 to 1987, from 6 to 12 percent. The proportion of company policies that prohibit smoking in all open work areas also increased, from 41 percent in 1986 to 51 percent in 1987. In addition to open work areas, smoking was more likely to be prohibited in 1987 than in 1986 in each of six specific areas addressed in the surveys, including hallways, conference rooms, and private offices. When workplace smoking policies are revised, the revisions are typically more restrictive, sometimes becoming total smoking bans. In the 1987 BNA survey, 13 percent of companies had revised their policies since first being adopted and another 17 percent were anticipating changes before 1989, with the "vast majority" becoming more restrictive than the original ones (BNA 1987). The most restrictive smoking policy, the preferential or exclusive hiring of nonsmokers, is uncommon. According to the BNA survey (BNA 1987), only 12 percent of companies give a hiring preference to nonsmokers and only 1 percent restrict hiring to nonsmokers. There was no indication that this trend is increasing over time.

Reasons for Adopting Smoking Policies

In their review of current smoking policies, Walsh and McDougall (1988) identify reasons businesses have adopted restrictive smoking policies: (1) to protect equipment; (2) to impress customers; (3) to protect the health of smoking employees; (4) to reduce the health risks of involuntary smoke exposure for nonsmoking employees; (5) to respond to employees' complaints; (6) to comply with regulations; and (7) to avert insurance and productivity losses.

As noted above, the first workplace smoking policies were implemented primarily for safety and productivity reasons (Bennett and Levy 1980), whereas the majority of the recent policies have been implemented to protect employee health (Walsh and McDougall 1988). According to the National Survey of Worksite Health Promotion Activities (US DHHS 1987c), the major reasons companies established restrictive smoking policies were to protect the health of nonsmoking employees (40.4 percent) and to comply with regulations (39.5 percent). Of secondary importance was the need to protect equipment (12.7 percent). In the 1987 BNA survey, the leading reason reported for adopting a smoking policy was a concern for the comfort and health of employees. The second most common reason was in response to employee complaints, followed by the need to comply with State or local law. Both surveys illustrate the impact of the nonsmokers' rights movement and the flurry of local and State legislation on the adoption of workplace smoking policies.

The most common barrier to adopting a restrictive smoking policy is perceived lack of employee demand. In the 1987 BNA survey, two-thirds of the companies without policies cited insufficient employee demand as the reason for not adopting a policy, twice the proportion citing anticipated enforcement problems and lack of support from top management, the next most common reasons given. In addition, some employers fear a negative reaction from smoking employees, conflict between smokers and nonsmokers, and the possibility of legal action and grievances by smokers demanding the right to smoke at work (Thompson, Sexton, Sinsheimer 1987; US DHHS 1987c). Also, sometimes unions have not supported smoking policies, a fact that may have discouraged management in some companies from adopting smoking restrictions (BNA 1986). However, in a recent survey, 82 percent of union members favored smoking restrictions (Brown et al, 1988).

Another reason employers may be reluctant to implement a restrictive smoking policy is concern about its impact on workplace norms. Until recently, smoking was sanctioned at work and many aspects of the work environment actually reinforced smoking. Smoking breaks were times for employee socialization and were often included in collective bargaining agreements. Concern for smokers' needs to satisfy their addiction to nicotine and the fear of productivity losses resulting from frequent smoking breaks outside the immediate work area may also deter some employers from implementing a restrictive smoking policy (Schilling, Gilchrist, Schinke 1985). On the other hand, there is some indication that societal norms about smoking are changing rapidly in the work environment. For example, a 1987 *Wall Street Journal* article (Freedman 1987) cited anecdotal evidence to support the notion that cigarette smoking could serve as a barrier to the career development of white-collar workers.

Correlates of Worksite Smoking Policies

Worksite smoking policies are more common in larger businesses. In a survey of personnel managers (BNA 1987), 63 percent of those with 1,000 or more employees reported having a smoking policy, compared with 52 percent of companies with fewer employees. In the same survey, smaller companies were half as likely as larger ones to have a policy under consideration (12 vs. 24 percent). Similar findings were reported

by the National Survey of Worksite Health Promotion Activities, in which larger worksites were more likely than smaller ones to report smoking control activities (US DHHS 1987c). As noted above, in a survey of private New York City businesses, only 4 percent (21/539) of companies with fewer than 100 employees had a written smoking policy (CDC 1987a).

The prevalence of smoking policies also varies by type of industry. In general, companies with the greatest potential for respiratory hazards (manufacturing and processing) and the highest prevalence of smoking employees (US DHHS 1985c) are also the ones least likely to have smoking policies (Administrative Management Society 1986; BNA 1986, 1987). One study has shown a relationship between the smoking status of the top administrator and the likelihood of having a smoking policy. A business whose manager was a current smoker was less likely to have a written smoking policy (CDC 1987a).

Health Care Facilities

Like the worksites described above, health care facilities, especially hospitals, have become focal points of private efforts to restrict smoking. There are compelling reasons for these facilities to adopt strong smoking restrictions (US DHHS 1986b). Many patients treated in health care facilities have smoking-related illnesses; nonsmoking is part of their treatment. Permitting smoking in hospitals may undermine the advice given by physicians to patients to stop smoking. Other patients have illnesses whose symptoms can be worsened by exposure to tobacco smoke. The majority of hospital fires are caused by smoking in bed. Furthermore, hospitals are also workplaces; like any other worksite, employees have numerous reasons for having smoking restrictions. Smoking restrictions in health care facilities are supported by surveys of patients (Kottke et al. 1985) and have been endorsed by numerous medical organizations (US DHHS 1986b).

Despite the strong rationale and favorable public attitudes, smoking restrictions in health care facilities have lagged behind those in private businesses. This has occurred despite the fact that, much more often than businesses, health care facilities have been required by State and local laws to have smoking restrictions. As noted in the previous Section, two-thirds of States now require hospitals to restrict smoking to designated areas. These legislative efforts have not led to strong protection of patients in many cases because the laws do not specify the nature or size of smoke-free areas. Most smoking restriction has been the result of private initiative, often beginning with the medical staff (US DHHS 1986b).

Two recent surveys indicate that almost all hospitals have adopted some smoking restrictions. A survey of 774 hospital administrators by the American College of Healthcare Executives (ACHE) (1988) reported that 90 percent of hospitals currently restrict smoking and another 6 percent are currently developing a smoking policy. Similar results were obtained in a study of hospitals accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO): 93 percent of the 2,165 responding hospitals reported having a formal written smoking policy (Holland 1988).

Although these national surveys of hospital administrators indicate that nearly all hospitals restrict smoking in at least some areas, they do not indicate the extent of these smoking restrictions. Other surveys suggest that patient care areas are not uniformly free of smoke. For example, over 90 percent of Indiana hospitals allow inpatients, outpatients, and visitors to smoke, at least in designated areas (Torabi, Seffrin, Brashear 1987). In Texas, where 78 percent of hospitals have written smoking policies, only two-thirds of hospitals provide smoke-free rooms, and even then, smoke-free rooms are often available only on a "when available" basis, and patient requests are often denied (Zamrazil 1984).

A number of hospitals are beginning to ban smoking entirely. In the ACHE survey, 7 percent (28/394) of the responding hospitals with current smoking restrictions reported that smoking was entirely prohibited, although some of these hospitals allowed smoking by patients under the written order of a physician. Although the survey of JCAHO-accredited hospitals did not ask if the facility was smoke free, by analyzing the response to questions regarding smoking in specific areas, the authors estimate that approximately 5 percent of surveyed hospitals are smoke free. In Minnesota, 26 percent of hospitals have already banned smoking in preparation for compliance with a recently enacted State law that will require all hospitals to become smoke free by 1990 (Kim 1988). All 20 of the nation's comprehensive cancer centers are or will soon become mostly or totally smoke free (Neville 1988). The requirement that a doctor's order be written before a patient is allowed to smoke appears to be becoming a common component of hospital smoking policies. These are intended for use in unusual situations, for example, in the case of terminal patients. It is not clear how often this option is used when available. For example, at Saint Cloud Hospital in Minnesota, only 10 doctors' smoking orders were written in the 18 months following the effective date of the smoking ban (ACHE 1988).

Health care facilities report somewhat different reasons for adopting smoking restrictions than do other worksites. The national survey of ACHE members indicated that the most often cited rationale for smoking restrictions was that they were a moral obligation of health care providers. Other reasons included improvement of employee health and air quality.

Hospital policies other than smoking restrictions also discourage smoking. In one recent survey, 3 percent of hospitals reported that they do not hire smokers (ACHE 1988). Most hospitals prohibit the sale of cigarettes. In 1976, a survey of hospital administrators found that 58 percent of Indiana hospitals sold cigarettes. When a similar survey was repeated in 1986, the proportion of hospitals selling cigarettes had dropped to 13 percent (Torabi, Seffrin, Brashear 1987). In Texas, 26 percent of surveyed hospitals never sold cigarettes; as of 1984, 28 percent of hospitals continue to sell them (Zamrazil 1984). Voluntary (nonpolicy) efforts by health care professionals to discourage smoking are discussed in Chapter 6.

There is virtually no information about the prevalence of smoking restrictions in physician offices. One small study of primary care physician offices reported that ashtrays were found in 9 of 51 waiting rooms and that "no smoking" signs were posted in only 20 of 51 offices (Radovsky and Barry 1988). Medical organizations are themselves also beginning to restrict smoking in their facilities. In an informal telephone

survey conducted by the American Medical Association (AMA), 45 of the 65 medical organizations represented in the AMA House of Delegates had some type of smoking policy (Journal of the American Medical Association 1988a; Goldsmith 1988).

Many pharmacies sell tobacco products, in addition to dispensing medications for the treatment of smoking-related illnesses. Only 11 of 100 San Francisco pharmacies surveyed in 1978 did not sell tobacco products (Schroeder and Showstack 1978). The extent to which this situation may have changed in the subsequent decade is unknown. During that time, pharmacists have been exhorted to stop selling tobacco products (Richards and Blum 1985), and at least one advocacy group compiles an ongoing list of pharmacists who have made this decision (New Jersey GASP 1988). The American Pharmaceutical Association has endorsed the position that pharmacists should not sell tobacco products (Taylor, Richards, Fischer 1987). A survey of 136 pharmacists in Georgia in 1986 revealed that 74 percent sold cigarettes (Taylor, Richards, Fischer 1987).

Schools

Secondary schools have traditionally regulated smoking by students, but for reasons other than concern about involuntary smoke exposure (US DHHS 1986b). School smoking restrictions are part of broader societal efforts to prevent children and adolescents from starting to smoke by educating them about the hazards of tobacco use and by restricting their access to tobacco products. Because most smokers start smoking before age 20 (Chapter 5), efforts to reduce the initiation of smoking have focused on schools. As noted in Part I, school education about the health consequences of smoking is mandated by law in 20 States (Lovato, Allensworth, Chan, in press) and has also been the result of voluntary efforts by individual schools (Chapter 6).

Smoking by secondary school students is also restricted by State laws and regulations. Currently, 32 States restrict or ban smoking in schools (Table 19). Smoking by students is banned in schools in 15 States and restricted to designated areas in an additional 17 States (Tobacco-Free America Project 1988a). Furthermore, as discussed in the next section, laws in 43 States and the District of Columbia prohibit the sale of cigarettes to minors below a designated age; in most cases this is age 18 years or higher. In 16 States, not only the sale but also the use or possession of tobacco products is banned with respect to minors. Consequently, secondary schools have banned student smoking for at least two major reasons: to comply with State law and to discourage the initiation of smoking by students.

Recognition of the health effects of involuntary smoke exposure provides an additional reason for school smoking restrictions and a reason to expand attention from students to teachers. Smoking by teachers has traditionally been permitted only in areas away from students, partly out of concern that teachers' smoking could serve as role model behavior for students. Available evidence indicates that there are far fewer restrictions on smoking by teachers and other school staff than on smoking by students. Nearly as many States restrict faculty smoking as restrict student smoking; however, whereas 15 State laws totally ban smoking by students, only 1 State, Kansas, bans smoking by teachers. A history and description of school smoking policy restrictions can be

found in the 1986 Surgeon General's Report (US DHHS 1986b). There is little information about smoking restrictions in colleges and universities. In 1988, the American College Health Association adopted a statement endorsing stringent smoking restrictions and a prohibition of tobacco sales and advertising on college and university campuses (ACHA 1988).

The most comprehensive and recent information about the prevalence of school smoking policies was reported by the National School Boards Association (NSBA), which surveyed a stratified random sample of 2,000 school districts nationwide in 1986 (NSBA 1986, 1987). The 36-percent response rate, although relatively low, was consistent with response rates reported for other workplace surveys (Walsh and McDougall 1988). Eighty-seven percent of the responding school districts reported having written policies or regulations on smoking in schools. Nearly half of the districts (47 percent) had a comprehensive policy that prohibited student smoking in school buildings, on school grounds, and at school-sponsored functions. There were fewer restrictions on smoking by faculty and staff. Although 91 percent of school districts prohibited student smoking in school buildings, these restrictions applied to teachers in only 10 percent of the districts. Most school districts (81 percent) provided designated smoking areas in school buildings for faculty and staff. Overall, only 2 percent of the school districts prohibited school-related tobacco use for students, faculty, and administration. The NSBA survey addressed school smoking policies only; it did not assess rules about smokeless tobacco usage.

School smoking policies, like those in other worksites, are becoming more restrictive. According to the NSBA survey (1986, 1987), 37 percent of school districts have revised their policies since 1981, with 80 percent instituting stricter rules for students and 56 percent strengthening restrictions for faculty and staff. The major reason given by school districts for implementing smoking policies was concern about health, followed by problems associated with smoking behavior (42 percent) and State or local legislation (35 percent). The reason for adopting smoking policies differed by location; rural districts tended to be influenced more by the belief that adult role models change student smoking behavior, whereas urban districts were influenced by municipal or State antismoking legislation.

Public Transportation

As noted in a preceding section, as of April 1988, smoking was banned by Federal legislation on all domestic U.S. airline flights scheduled for 2 hr or less. Shortly before that ban took effect, one airline, Northwest Airlines, the Nation's fifth largest carrier, adopted a policy stricter than the law required; it banned smoking on all its domestic flights, regardless of flight time, excluding those between Hawaii and the mainland (Northwest Airlines 1988). According to company information, the action was at least partially a marketing decision to capitalize on changing social norms related to smoker and nonsmoker rights (Northwest Airlines 1988). Little is known about private initiatives to ban smoking on trains or buses. In 1987, Air Canada, that nation's largest carrier, voluntarily banned smoking on a trial basis on selected flights within Canada and to the United States. This action preceded parliamentary action in June 1988 to ban

smoking on all flights of 2 hr or less. Subsequently, in July 1988, Air Canada announced a ban on smoking on all its North American flights (Boston Globe 1988b).

Effects of Smoking Restrictions

Policies restricting smoking at the worksite have a number of possible direct and indirect effects that are outlined here (US DHHS 1986b). An adequately implemented smoking policy has the direct effect of limiting the circumstances in which smoking is permitted, thereby altering the behavior of smokers and eliminating or reducing the concentration of ETS in areas in which smoking is banned. Successful policy implementation requires that employees and managers be aware of the policy, comply with its provisions, and enforce it against violations. For smokers, the result is fewer opportunities to smoke during working hours, which should reduce cigarette consumption at work, may reduce overall consumption, and may trigger attempts at cessation. For nonsmokers, worksite restrictions have the potential to reduce an important source of involuntary smoke exposure, because adults spend more time at work than at any other place outside the home.

Beyond these direct effects, worksite smoking policies may have broader, indirect effects on public attitudes about tobacco use and smoking behavior outside work. Policies that restrict or ban smoking at work convey strong messages about the social acceptability of cigarettes and reinforce perceptions that nonsmoking is the norm. The combination of altered social norms and reduced opportunities to smoke has the potential to make a strong impact on smoking behavior at many points in its natural history. For worksite policies, hypothesized effects include reducing overall cigarette consumption and increasing the number and success of cessation attempts. The effects on behavior may be enhanced by a coexistent smoking cessation program. Worksite smoking restrictions may have other impacts, such as economic benefits, that are of interest to employers (US DHHS 1986b).

Smoking policies in schools may alter attitudes about the desirability of smoking and reduce social pressures to smoke, thereby discouraging smoking initiation. As in business, the impact may be enhanced by concurrent health education programs. In health care settings, smoking restrictions have the potential to influence smoking by patients, in addition to any impact on employees. Patients who develop acute illness, particularly cardiovascular disease manifestations, are more likely to quit smoking (Rigotti and Tesar 1985). Smoking restrictions in hospitals may enhance the effect of illness on smoking cessation and increase the effectiveness of health professionals' advice to stop smoking (US DHHS 1986b).

Although smoking policies have been increasingly adopted at worksites, especially in recent years, few have been subject to evaluation. Some businesses have conducted baseline surveys of employees to assess attitudes and behavior prior to policy implementation, but few have followed these with postimplementation surveys to assess their effects. Methodological issues in evaluation are reviewed in detail in the 1986 Surgeon General's Report and elsewhere (US DHHS 1986b; Rigotti 1989). The ideal study would assess variables before and after a policy is adopted and include a comparison group for whom no change occurs. This would permit controlling for con-

current outside influences on smoking behavior and attitudes, such as populationwide trends that are now occurring (Chapter 4), which may confound results. Such controlled evaluations are rare. Most available information is drawn from uncontrolled studies, often done retrospectively. The first evaluations of worksite smoking policies were done in a health care setting (Rigotti et al. 1986; Biener et al. 1989; Andrews 1983; Rosenstock, Stergachis, Heaney 1986). Evaluations of policies at other workplaces have begun to appear recently. The following section, which updates a review in the 1986 Surgeon General's Report, will describe the current state of knowledge about the impacts of smoking restrictions at worksites, schools, and health care facilities.

Implementation and Compliance

There has been little systematic evaluation of the degree of worksite smoking policy compliance by managers and employees, although descriptions of policy adoption by individual companies have not reported major problems (US DHHS 1986b; BNA 1986). On the other hand, data from the 1986 Adult Use of Tobacco Survey indicate that the presence of a policy does not guarantee smoke-free air (CDC 1988). A policy that is poorly implemented or enforced will result in little restriction of smoking and can be expected to have slight effect on air quality or smoking behavior. Model smoking policies for worksites and health care facilities and guidelines for implementation have been developed by several groups (BNA 1986, 1987; US DHHS 1985c; Kottke et al. 1986; American Hospital Association 1988).

Attitudes and Norms

Available studies indicate that smoking restrictions are well received by most employees. They are uniformly more popular with nonsmokers than with smokers. Four months after a stringent smoking policy was adopted at the Group Health Cooperative, a large health maintenance organization in the Pacific Northwest, 85 percent of surveyed employees approved of the decision to prohibit smoking, including nearly all nonsmokers and 36 percent of smokers. The level of approval of both smokers and nonsmokers was higher after implementation than it was when the policy was first announced, suggesting that policy implementation is better received than the initial policy announcement (Rosenstock, Stergachis, Heaney 1986). Rigotti and colleagues (1986) reported similar results among pediatric nurses after a smoking ban.

In another study of hospital employees by Biener and coworkers (1989), over 90 percent of the nonsmokers and two-thirds of the smokers approved of a smoking policy at both 6 and 12 months following its implementation. In another hospital, Andrews (1983) reported that 93 percent of the nonsmokers and 83 percent of the smokers, surveyed 20 months after the adoption of a strict smoking policy, approved of it. Outside the health care setting, similar results have been reported. Petersen and colleagues (1988) found that 67 percent of nonsmokers and 19 percent of smokers in an insurance company felt that a restrictive smoking policy had an overall positive impact on the work environment. At Ranier Bank (1986), headquartered in Seattle, the majority of all employees felt the company's smoking policy was effective and fairly implemented.

The attitude of smokers toward smoking policies depends on the restrictiveness of the policy and characteristics of the individual smoker. As would be expected, a policy is less popular with smokers when smoking is prohibited in work areas, as at the Connecticut insurance company (Petersen et al. 1988) and Group Health Cooperative (Rosenstock, Stergachis, Heaney 1986), than when the policy calls for designated smoking areas, as in the first phase of the Ranier Bank policy (1986) and the Rhode Island hospitals study (Biener et al. 1989). Thompson, Sexton, and Sinsheimer (1987) surveyed all employees in a Pacific Northwest high technology company that had recently implemented a restrictive smoking policy. Among smokers, those most likely to oppose the policy were females and heavy long-term smokers with fewer positive health practices. In addition, on discriminant analysis, a low desire to quit and a low probability of quitting were also significantly associated with opposition to the policy. These findings agree with another study associating support for smoking policies with greater interest in quitting, more concern for smoking health risks, and greater social support for nonsmoking (Sorensen and Pechacek 1989).

Although most studies have found the majority of smokers and nonsmokers to favor restrictive policies, both prior to and following policy implementation, there is little information available about the effect of policies on attitudes about smoking in general. In one case, Biener and associates (1989) found little change in nonsmokers' attitudes toward secondhand smoke or their assertiveness in confronting smokers after a restrictive smoking policy was adopted.

Smoking Behavior

Currently available studies indicate that worksite smoking restrictions reduce cigarette consumption at work, but there is little evidence about effects on overall smoking. All studies are limited by reliance on self-reports of smoking behavior. They tend to validate the hypothesis that implementation of a restrictive smoking policy has a positive effect on overall smoking behavior. Early studies monitored smokers' compliance with no-smoking signs (Dawley and Baldwin 1983; Dawley and Burton 1985) and oral reminders not to smoke in designated nonsmoking areas (Jason and Liotta 1982) and found these techniques to be effective.

Expanding upon these observational studies, researchers began to use survey methodology to investigate the impact of restrictive smoking policies on representative samples of an entire work force. Some of the earliest evidence of the impact of smoking policy on smoking behavior came from Group Health Cooperative of Puget Sound following the prohibition of smoking in its 35 facilities (Rosenstock, Stergachis, Heaney 1986). Four months after policy implementation, 29 percent of the surveyed current smokers reported they were smoking less and attributed the reduction to the policy. The average reduction, 2 cigarettes a day, was small but of statistical significance. However, prepolicy tobacco consumption was assessed after the policy took effect. Such retrospective assessment is subject to possible respondent bias that might overestimate the actual change. Four percent of the surveyed smokers reported that they quit smoking in association with the implementation of the policy; however, be-

cause it was only 4 months following the program, it is difficult to evaluate the long-term impact on cessation.

For these health maintenance organization employees, a smoking ban had relatively little impact on cessation rates, but contributed to reductions in the amount smoked. This relationship has also been reported among insurance company and hospital employees. Three months after a work area smoking ban was adopted by an insurance company in Connecticut, employees reported no increase in cessation rates, but an average reduction of 32 percent in the amount smoked. The average daily cigarette consumption fell from 0.95 pack per day to 0.67 pack per day, with 44 percent of smokers reporting a decrease in consumption (Petersen et al. 1988). The proportion of smokers reducing the amount smoked is similar to the decreases projected for employees in studies by Eriksen (1985) and Millar. (1986).

Furthermore, there was a direct correlation between the amount smoked and the likelihood of reporting a consumption decrease in the Petersen study (1988). The heaviest smokers were the ones most likely to report a reduction in the amount smoked, with 93 percent of those who smoked at least 2 packs a day reporting a reduction following the policy. However, the conclusions of the study are limited by major weaknesses in design. First, employees reported their current and previous smoking behavior at the same time and on the same questionnaire. The retrospective assessment of prepolicy smoking behavior introduced the possibility of recall bias. Second, the survey instrument was administered to employees as they entered the company cafeteria. Using this technique, researchers reached 56.6 percent of all employees; however, because the respondents were not randomly selected, they are not necessarily representative of the entire work force and the findings cannot be generalized beyond the respondents. In fact, compared with the average company employee, the survey respondents were more likely to be white (87 vs. 82 percent), be college educated (69 vs. 59 percent), and have professional or technical jobs (63 vs. 52 percent).

The study with the strongest research design, that of Biener and colleagues (1989), used random, cross-sectional samples of employees to examine the impact of a restrictive smoking policy on hospital employee smoking behavior. Telephone interviews were conducted at baseline and 6 and 12 months in experimental and comparison hospitals. They found no difference in quit rates between the two hospitals, but a reduction in the number of cigarettes smoked during work in the experimental group. Because there was no apparent change in the number of cigarettes smoked outside of work, the authors conclude that there was a net reduction in the daily amount smoked. In their study of hospital nurses, Rigotti and coworkers (1986) also reported a significant reduction in the number of cigarettes smoked at work, but no change in the overall daily amount smoked.

In another hospital-based study, Andrews (1983) surveyed 36 percent of the hospital staff 20 months after the implementation of a restrictive smoking policy and reported a major impact on both cessation and reduction of smoking: 26 percent of those surveyed had stopped smoking and 33 percent smoked less since the policy went into effect. However, methodological problems prevent an unequivocal conclusion that change was attributable to the policy.

In summary, the current data about the impact of worksite smoking policies on smoking behavior are equivocal, and firm conclusions await studies with stronger designs. The conclusion of one study reporting an effect on cessation was weakened by methodological problems (Andrews 1983). Three studies reported no impact on cessation, but reductions in the amount smoked (Petersen et al. 1988; Rosenstock, Stergachis, Heaney 1986; Biener et al. 1989) and one study showed no effect on overall smoking behavior (Rigotti et al. 1986). The conclusion of the 1986 Surgeon General's Report still holds: "There is as yet no conclusive evidence that worksite smoking policies are associated with increases in smoking cessation attempts or reductions in smoking prevalence" (US DHHS 1986b).

Even less information is available about the effect of school smoking policies on smoking behavior. One study (Porter 1982) has linked smoking policies with reduced smoking initiation. Another study (Murray, Kiryluk, Swan 1984) found student smoking behavior to be associated with teacher smoking, along with other organizational variables. As with worksites and health care facilities, there are few studies that have attempted to determine the relationship between smoking policy and associated behavior.

Participation in Cessation Programs

Smoking control efforts are the most prevalent worksite health promotion activity, according to the National Survey of Worksite Health Promotion Activities (US DHHS 1987c). In 1987, over half (54 percent) of companies responding to the 1987 BNA survey were planning future activities to encourage employee smoking cessation, a doubling of the 1986 rate (27 percent). However, data on the level of program participation are mixed, and data on outcomes are virtually nonexistent.

Companies with smoking policies are much more likely (64 vs. 38 percent) to have attempted to help their employees to quit smoking than are companies without policies (BNA 1987). It has been hypothesized that the adoption of a smoking policy will increase participation in company-sponsored smoking cessation programs, reflecting the potential of smoking policies to increase smokers' motivation to quit smoking. However, the data on the influence of a workplace smoking policy on participation in a worksite smoking cessation program are mixed. In the Group Health Cooperative study, only 2 percent of surveyed smokers participated in a smoking cessation class offered during the implementation period (Rosenstock, Stergachis, Heaney 1986). In the Rhode Island hospital study (Biener et al. 1989), implementation of a restrictive policy did not lead to an increase in enrollment in a self-help smoking cessation program when compared with employee enrollment in a comparison hospital (13 vs. 14 percent). In the Connecticut insurance company study (Petersen et al. 1988), only 20 smoking employees (about 4 percent of the eligible smokers) enrolled in a company-subsidized smoking cessation program, and no smokers requested support through a volunteer buddy system. On the other hand, over 25 percent of the smoking employees at Pacific Northwest Bell participated in a company-sponsored smoking cessation program that was offered in conjunction with a ban on workplace smoking (Martin 1988; Walsh and McDougall 1988).

Air Quality

The primary goal of worksite smoking policies is to reduce individuals' involuntary tobacco smoke exposure, but the degree to which policies achieve this goal has been measured infrequently and only indirectly. Air quality has been assessed only by subjective measures, which ask employees to rate the concentration of smoke in the air. These studies have found improvements in perceived air quality after policy adoption in most cases. After establishing designated smoking areas as the first phase in an eventual prohibition of smoking, Ranier Bank (1986) surveyed over 3,300 employees regarding their reaction to the policy. Nearly two-thirds of all employees, smokers and nonsmokers alike, felt that the amount of smoke in common areas decreased following implementation of the policy. In the Rhode Island hospital study (Biener et al. 1989), employees in the hospital with a restrictive policy were less likely to report being bothered by smoke at work than were employees in the comparison hospital. This was true for offices and staff lounges, but not for lavatories, suggesting that this was an area of noncompliance in the policy hospital. Rigotti and colleagues (1986) reported a significant improvement in air quality for nurses 1 year following a smoking ban.

Data from the 1986 Adult Use of Tobacco Survey (CDC 1988) suggest that a substantial proportion of employees at worksites with smoking restrictions or bans are still exposed to tobacco smoke. Among employees working where smoking was restricted, 53 percent reported at least some exposure to ETS, compared with 65 percent of respondents from worksites without restrictions and 21 percent from worksites with complete smoking bans.

Other Effects

There is little empirical evidence about the economic impact of worksite smoking policies because systematic analyses have not been done. Employee absenteeism, productivity, turnover, or health care costs have rarely been assessed. Biener and colleagues (1989) investigated the effect of a restrictive smoking policy on work performance. Although the majority of smokers and nonsmokers felt the policy had no impact, 21 percent of the nonsmokers felt that their work had improved, whereas 19 percent of the smokers felt their performance had deteriorated. However, there is little evidence of negative impact from even the most restrictive policies. For example, there have been no lawsuits, grievances, or dismissals associated with a total ban on smoking at Pacific Northwest Bell (Martin 1988).

Summary

Available survey data on smoking policies in businesses, hospitals, and schools strongly suggest that the previously identified trend toward greater prevalence and increasing restrictiveness (US DHHS 1986b) is continuing, and may have accelerated since 1986. According to the BNA survey, 85 percent of the worksite smoking policies in place in 1987 were adopted within the last 3 years. Furthermore, there is no sign of reversal; policies that have been revised nearly always become more restrictive than

the original ones (BNA 1987). The same situation holds for smoking restrictions in schools. Half of the school districts enacted their current smoking policies within the last 6 years, and virtually all policy revisions are becoming more restrictive and are expanding to include smoking by teachers and staff (NSBA 1986).

The growing number of State laws and community ordinances mandating smoking restrictions in the private sector worksite has contributed to this trend. For example, in the city of Cambridge, MA, 31 percent of businesses with a smoking policy had adopted it in the 6 months after the city passed a no-smoking ordinance requiring employers to have a smoking policy (Rigotti et al. 1988). Laws requiring smoking policies have also helped to overcome fears about loss of business for companies in service industries. For example, some hospitals have been reluctant to ban smoking for fear that some smokers might choose to be admitted to hospitals that will allow them to smoke. To eliminate this problem, the State of Minnesota passed a law prohibiting smoking in health care facilities, effective January 1, 1990 (Kirn 1988). By requiring every hospital to prohibit smoking (except for chemical dependency and mental health patients or under a physician's written order), this legislation avoids potential economic reasons for not restricting smoking.

Observers have noted that the tobacco industry is downplaying the existence and importance of the trend toward smoking restrictions in the hope that this may slow the momentum toward restrictive policies (Walsh and McDougall 1988). However, there is no evidence to support the industry's assertion of retrenchment and there is every indication to refute it (BNA 1987; US OTA 1986). If present trends in the prevalence of smoking restrictions continue, it can be expected that smoking will be permitted in fewer and fewer areas at work, in health care facilities, and in schools.

The impact of these restrictions on air quality and the behavior of smokers is less certain and probably will depend on the restrictiveness of the policy and the degree to which the policy is implemented as written. Current evidence permits no definitive conclusion about the actual impact of restrictive smoking policies on smoking behavior. The limited data available suggest that policies contribute to reductions in cigarette consumption by smokers, but not to cessation. However, comprehensive programs that include smoking restrictions along with other environmental changes and other health promotion activities may have a major impact on smoking prevalence, especially among high-risk employees (Shipley et al. 1988). Similarly, the same type of comprehensive program that aims to influence environmental factors may contribute to positive health outcomes in schools, including the prevention of smoking (Simons-Morton, Parcel, O'Hara 1988).

If worksite smoking policies, by themselves or in conjunction with health promotion programs, are shown to reduce tobacco consumption or smoking prevalence, they will need to reach high-risk groups and populations with high smoking rates to have a major impact upon public health. Blue-collar employees are an example of such a group. Data indicate that these employees are more likely to be occupationally exposed to respiratory hazards and are more likely to smoke (US DHHS 1985d). These employees are also less likely to work in the type of industry in which restrictive smoking policies are currently in force (Administrative Management Society 1986; BNA 1986, 1987).

Restrictions on Children's Access to Tobacco

Because only a very small percentage of smokers begin smoking as adults (Chapter 5), efforts at prevention must focus on children. Individuals who start smoking early have more difficulty quitting, are more likely to become heavy smokers, and are at higher risk for developing a smoking-related disease (US DHHS 1986e).

As reviewed in Chapter 4, surveys of adolescents indicate that many of those who start to smoke do not understand the nature of tobacco addiction and are unaware of or underestimate important health consequences of smoking. Their decision to smoke is, therefore, not a fully informed choice (Leventhal, Glynn, Fleming 1987). The difficulty that teenagers report in quitting smoking demonstrates that nicotine addiction can quickly become established in children (US DHHS 1988). Among 15-year-olds surveyed in Britain, 51 percent of those smoking 5 or more cigarettes per day had failed in their efforts to stop smoking, and 27 percent thought they would not be able to stop no matter how hard they tried (Revill and Drury 1980). A survey of American high school seniors found that 47 percent of those who were smoking daily would like to quit; however, only 17 percent of teenagers who smoked regularly quit by the time they were high school seniors (Johnston, O'Malley, Bachman 1987). The tenacity of smoking behavior appears to have changed little since the mid-1960s, when 80 percent of the teenagers who smoked regularly continued to smoke as adults (McKennell and Thomas 1967).

Given both the addictive nature of tobacco use and its health consequences, it is important to protect children and adolescents from using tobacco until they are capable of making a mature and informed decision. Policies to do this seek to reduce children's and adolescents' opportunities to experiment with tobacco products, and thereby develop a regular pattern of use, by making these products less available. Efforts to eliminate the availability of tobacco to children are supported by numerous medical and public healthgroups (WHO 1975, 1979, 1985; Hardes 1983; ACP 1986; AAP 1987; AMA 1987; DiFranza et al. 1987; Stanwick et al. 1987). It has been suggested, though not proved, that strict observance of prohibitions against the sale of tobacco to children might be the most powerful means for reducing the initiation of smoking by children (Reid 1985).

Restricting children's access to tobacco is only one approach to prevent the initiation of smoking. Other policies that specifically target children include prohibiting smoking in schools, mandating school curricula on the health effects of tobacco, and banning the promotional distribution of cigarettes to children. Additionally, policies such as increased excise taxation or proposed restrictions on advertising affect both adults and children, but may have a disproportionate impact on children and on the decision to smoke. Finally, restrictions on smoking in public places apply to children as well as to adults. These policies are discussed in other sections of this Chapter. They work synergistically with voluntary efforts (Chapter 6) to prevent the initiation of smoking. The remainder of this Section will focus on laws intended to prevent children from obtaining and using tobacco.

How Do Children Obtain Tobacco Products?

Recently, researchers have surveyed children and adolescents who smoke in order to determine how they obtain tobacco products. Although the published evidence is limited, these studies suggest that retailers, not parents or friends, are the primary sources of tobacco used by children. According to one Minnesota survey, the most common sources of cigarettes for 10th graders were gas stations, convenience stores, and vending machines, followed by friends, grocery stores, and drug stores. Only 19 percent of respondents reported that they commonly obtained cigarettes from home (Forster, Klepp, Jeffery, in press). In a survey cited by Slade (1988a), 90 percent of 472 adolescents between 12 and 18 years of age reported that they bought their own cigarettes. In another survey, 92 percent of 172 suburban New Jersey high school students who smoked reported that they had purchased their last pack of cigarettes in a retail store; 5 percent had used a vending machine; and 3 percent had obtained their last pack from a friend (Slade et al., unpublished manuscript). A Canadian survey revealed that although older children tended to purchase their own cigarettes, children from 8 to 15 years of age were more likely to rely on other children as a source of cigarettes. The youngest children were the most likely to use vending machines, presumably because of greater difficulty in purchasing cigarettes from a store clerk (Stanwick et al. 1987).

Thus, purchases from retailers or vending machines, either by the child or the child's friends or siblings, appear to represent the main source of cigarettes for children. This conclusion is consistent with studies, discussed below, in which the majority of retail stores were observed to sell cigarettes illegally to minors who requested them (DiFranza et al. 1987; Altman et al. 1989; Slade et al., unpublished manuscript).

Children also obtain cigarettes and other tobacco products as free samples distributed for promotional purposes. Although the tobacco industry's voluntary codes prohibit the distribution of cigarette samples to individuals under 21 years of age (Tobacco Institute 1981) and the distribution of smokeless tobacco to children under 18 (Smokeless Tobacco, Inc. 1986) there is evidence of widespread violation of this code (Davis and Jason 1988). Even in a State where the free distribution of tobacco to minors is illegal, 4 percent of elementary school children and 20 percent of high school students reported having received free samples (Davis and Jason 1988). In another survey of suburban New Jersey high school students, one-third of over 500 current and former smokers had received free cigarette samples before age 16 (Slade et al., unpublished manuscript).

Consistent with these apparent trends, policies intended to reduce the availability of tobacco products to children include those that (1) restrict the sale and free distribution of these products to minors, (2) ban the use or possession of tobacco by minors, and (3) ban or limit the location of vending machines.

History of Tobacco Access Laws

The Federal Government has taken no action to regulate the access of minors to tobacco. Almost all restrictions are the result of legislation by States. Every State in the Union has at one time restricted the sale of tobacco to children. The right of States to

do so was established at the turn of the century by the U.S. Supreme Court, which ruled that it is within a State's authority to ban the sale of tobacco *(Austin v. Tennessee* 1900). Several decades later the authority of local officials to ban the sale of cigarettes from vending machines was upheld by the Federal Court of Appeals, which ruled that such sales could be prohibited to prevent "the evil . . . of the purchase of cigarettes by immature minors" *(Illinois Cigarette Service Co.* v. *City of Chicago* 1937).

In 1964, when the first Surgeon General's Report on smoking was released, 48 States and the District of Columbia had active laws prohibiting the sale or gift of tobacco to children (Hawkins 1964). Two States, Louisiana and Wisconsin, had repealed their tobacco access laws before 1964 on the grounds that the laws were neither enforced nor enforceable. Louisiana did so in 1942, when the State legislature concluded that enforcement was impossible (Jacobs 1974). Wisconsin followed suit in 1955; the rationale was that because the law was not being enforced, it invited a disrespect for authority (Hawkins 1964). In the 48 State laws in effect in 1964, the minimum age for the purchase of tobacco ranged from 15 to 21. Eighteen States differentiated among various forms of tobacco, reflecting the belief that cigarettes were more dangerous than other tobacco products; 14 States restricted the sale of cigarettes but not that of cigars, pipe tobacco, or snuff, and 4 other States set the minimum age for the purchase of cigarettes higher than that for other forms of tobacco.

Since 1964, tobacco access laws have been rescinded in several other States and subsequently reinstated in only a few. More States have lowered the minimum age for sales of tobacco to children than have raised it. In addition, enforcement of laws in effect declined during the 1970s when many high schools established student smoking areas (Jacobs 1974). In some cases this occurred in States where children were not legally permitted to purchase or possess tobacco.

There are fewer restrictions on child tobacco use now than at any time in many decades, despite what has been learned since 1964 about the dangers of tobacco use, its addictive nature, and the early age of its initiation. This situation is in sharp contrast to virtually all other tobacco-related public policy measures, which have been strengthened since the release of the 1964 Surgeon General's Report.

Current Tobacco Access Laws

As of January 1, 1988, 43 States and the District of Columbia had some legal restriction on the sale of cigarettes to children, while 7 States allowed children of any age to purchase tobacco in any form (Table 21). Since that time, Wisconsin enacted a law scheduled to take effect in 1989, and several other States have strengthened existing restrictions. The most common provision of State laws is to ban the sale of cigarettes to minors below a specified age. All State access laws have this provision, except South Dakota, whose law applies only to smokeless tobacco. In 11 States, the vendor must post signs wherever cigarettes are sold stating that it is illegal to sell tobacco to minors. In 36 States, the ban on sales extends beyond cigarettes to apply to all tobacco products (cigarettes, cigars, pipe tobacco, chewing tobacco, and snuff). Laws in 21 States also restrict the distribution of some types of smoking paraphernalia, such as cigarette papers or pipes. All of these laws address tobacco sales. Sixteen States have a broader ban,

TABLE 21.—State laws restricting minors' access to tobacco products (as of January 1, 1988)

	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HI	ID	IL	IN	IA	KS
Minimum age for sale or possession	19[a]	16	18	18	18		16	17	16	18	17	15	18	18	18	18	18[a]
Prohibits use or possession of tobacco by minors			X										X	X	X		X[a]
Prohibits the sale of all tobacco products to minors			X	X	X		X	X	X	X	X	X	X	X	X	X	
Prohibits the sale of cigarettes to minors	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Prohibits the free distribution of tobacco to minors	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Prohibits all free distribution of tobacco																	
Prohibits cigarette vending machines accessible to minors													X				
Requires signs posted at point of sale					X									X	X		
Requires a license to sell tobacco	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Provides for license revocation												X					
Penalties[b]	B	B	F	B	B		F	B	B	B		F	B	B	F	B	B
Enforcement provisions										X[c]						X[c]	

TABLE 21.—Continued

	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC
Minimum age for sale or possession			18	16	18	18[d]	18	18			18	18	18	16		18	17
Prohibits use or possession of tobacco by minors						X	X				X		X				
Prohibits the sale of all tobacco products to minors			X		X	X	X				X	X	X	X		X	X
Prohibits the sale of cigarettes to minors			X	X	X	X	X	X			X	X	X	X		X	X
Prohibits the free distribution of tobacco to minors			X	X	X	X	X	X			X	X	X	X			X
Prohibits all free distribution of tobacco							X										
Prohibits cigarette vending machines accessible to minors																	
Requires signs posted at point of sale					X		X						X			X	
Requires a license to sell tobacco	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Provides for license revocation											X	X					
Penalties			F	B	F	B	B	B			B	F	F	F		B	B
Enforcement provisions											X[c]						

TABLE 21.—Continued

	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY	TOTAL
Minimum age for sale or possession	18	18	18	18	16	16[a]	18	18	18	16	19	17	16	18	18			
Prohibits use or possession of tobacco by minors	X					X		X	X		X		X		X			16
Prohibits the sale of all tobacco products to minors	X	X		X			X	X		X	X	X	X	X	X			34
Prohibits the sale of cigarettes to minors	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			43
Prohibits the free distribution of tobacco to minors	X	X	X	X	X	X	X	X	X	X	X	X		X	X			41
Prohibits all free distribution of tobacco																		1
Prohibits cigarette vending machines accessible to minors											X							2
Requires signs posted at point of sale		X							X		X	X						11
Requires a license to sell tobacco	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	50
Provides for license revocation									X									4
Penalties	B	B	B	B	B	F	B	U	B	F	B	F	F	B	F			
Enforcement provisions			X[c e]				X[e]		X[f]						X[c]			7

TABLE 21.—Continued

NOTE: Since January 1, 1988, the following States have new age restrictions on the sale of tobacco products: CO, 18 years; CT, 18 years; GA, 17 years; HI, 18 years; NJ, 18 years; WI (effective 1989), 18 years.

[a]Applies only to cigarettes.

[b]F, fine; B, both jail or fine; U, unspecified.

[c]Provisions to encourage minors to divulge source of tobacco.

[d]For cigarettes only; minimum age for smokeless tobacco sale is 17 years.

[e]Provides a bounty to informers.

[f]Provides that it is not entrapment to send a minor into a store.

SOURCE: DiFranza et al. (1987); US DHHS (1986e).

covering not only tobacco sales, but also the use or possession of some form of tobacco by minors (DiFranza et al. 1987).

The minimum age for the legal purchase of tobacco ranges from 15 to 19 years. Two-thirds of the laws require the purchaser to be 18 years or older. However, 7 States that prohibit the sale of tobacco to minors allow children of any age to purchase tobacco if they have a note from their parent or guardian. An age limit of 19 years or higher has the theoretical advantage of ensuring that most high school students cannot legally use tobacco products. This would automatically ban student smoking on school grounds, make it easier for schools to eliminate tobacco and support other school-based anti-smoking efforts (Chapter 6).

The enforcement of tobacco access laws is left to local law enforcement officials in most States. The exceptions are New Hampshire, where the Commissioner of Revenue Administration sets enforcement rules, and Massachusetts, where the Department of Public Health enforces the law requiring that signs be. posted at point of sale. Violation of tobacco access laws is a misdemeanor or petty offense, punishable by fine, imprisonment, or both. Minors found guilty of possession of tobacco face a fine under most laws and either fine or imprisonment in 3 States.

A few States have special provisions to facilitate enforcement. In Oklahoma and South Carolina, a portion of any fine levied against a merchant found guilty of selling tobacco to a minor goes to the witness who informed authorities of the violation (DiFranza et al. 1987). Tennessee law specifies that it is not entrapment for law enforcement authorities to have minors purchase tobacco for the purpose of monitoring retailer compliance with the law. Five States (Florida, Iowa, Nebraska, Oklahoma, and West Virginia) require minors caught in possession of tobacco to identify the person or business that provided the tobacco. In Nebraska and West Virginia, a juvenile who furnishes the identity of the person who provided the tobacco will be free from further prosecution (US DHHS 1986e).

With the exception of Virginia, the 43 States prohibiting tobacco sales to children also ban the distribution of free cigarette samples to minors. Communities that have banned all free cigarette distribution have also effectively banned distribution to children; these are discussed in the advertising section (Part I). A ban on all free distribution of tobacco products has been endorsed by the Surgeon General, the American Medical Association, the American Academy of Family Physicians, the Department of Health and Human Services, and others. In addition, opinion polls demonstrate that such an action is supported by a majority of the public (Davis and Jason 1988; Chapter 4).

By their design and intent, vending machines do not require supervision and allow easy access to minors (DiFranza et al. 1987). Despite survey data cited above suggesting that vending machines are an important source of cigarettes for children, as of October 1988, laws in only five States restrict minors' access to vending machines (Tobacco-Free America Project 1988b). Utah, Idaho, Alaska, and New Hampshire specify that vending machines must be inaccessible to minors, whereas Maine requires that vending machines be supervised by an adult (Tobacco-Free America Project 1988b). Nine States require the owners, operators, or supervisors of tobacco vending machines to post signs stating that minors are prohibited from purchasing cigarettes from that

machine (Tobacco-Free America Project 1988b). At least one locality has enacted a law requiring supervision of cigarette vending machines. King County, WA, will ban unsupervised vending machines in unincorporated areas as of February 1, 1989 (Coughlin 1988).

The World Health Organization, American Medical Association, American Cancer Society, American Heart Association, American Lung Association, and others have called for a ban on cigarette vending machines, citing them as a major obstacle to the enforcement of tobacco access laws (WHO 1975, 1976, 1985; Bennett 1985; AMA 1987; DiFranza et al. 1987). The analogy between alcohol and tobacco has been made: it is illegal to sell alcohol from vending machines, and the same standard could apply to tobacco (US DHHS 1988, Preface). According to Census Bureau data, in 1982, vending machine sales of cigarettes represented only 6.2 percent of all cigarette sales (US DHHS 1987e), suggesting that the absence of vending machines would result in little inconvenience to adult smokers.

In addition to laws restricting tobacco sales to minors, every State except West Virginia requires that an individual obtain a license before distributing, retailing, wholesaling, or manufacturing cigarettes and other tobacco products. This licensing requirement appears to be for the purpose of facilitating the collection of State excise taxes rather than for enforcing compliance with laws on tobacco sales. Only four States (Hawaii, Nebraska, Nevada, and Tennessee) permit a vendor's license to be revoked for selling cigarettes to minors (DiFranza et al. 1987).

Few community ordinances have addressed the sale of tobacco to minors, but in the past decade at least 14 local communities have banned the free distribution of tobacco products, generally for the purpose of limiting minors' access to tobacco (Davis and Jason 1988; Tobacco-Free America Project 1988b).

Compliance With Tobacco Access Laws

For a law to reduce or eliminate the commercial availability of tobacco products to minors, tobacco vendors must be aware of and comply with the law, and appropriate public officials must enforce it. Compliance with tobacco access laws has been evaluated by determining the degree of difficulty a minor has in obtaining tobacco products. Two methods have been used. The first is to ask children how difficult it is for them to obtain tobacco. In 1987, nearly 90 percent of a sample of Minnesota 10th grade students who smoked regularly reported that it would be very easy for them to obtain cigarettes, despite a State law banning cigarette sales to children under 18 years of age (Forster, Klepp, Jeffery, in press). A survey in New Jersey found that 90 percent of 508 current and former high school student smokers were always or nearly always able to buy tobacco products before age 16 (Slade et al., unpublished manuscript).

A second, more reliable method of assessing compliance is to observe directly the degree of compliance by individual merchants in an experimental situation. In a recent study, an 11-year-old girl was successful in 75 of 100 attempts to purchase cigarettes in Massachusetts, a State that prohibits the sale of cigarettes to children under 18 years of age (DiFranza et al. 1987). Compliance with the law was six times greater in stores where signs were posted compared with stores without signs. Similar data collected by

two nonprofit organizations, STAT (Stop Teen-age Addiction to Tobacco) and DOC (Doctors Ought to Care), and other investigators suggest that compliance with access laws is low throughout the United States (Kim 1987; Altman et al. 1989; Slade et al., unpublished manuscript). Using the same method of sending a child into a business establishment to test compliance with the law, they found that an average of 80 percent of the retailers in five States were violating the law (Kim 1987).

Two reasons have been identified for the failure of these laws to reduce children's access to tobacco: vendors are unaware of the laws, and State and local authorities fail to enforce the laws (DiFranza et al. 1987). Current laws provide no mechanism to inform tobacco vendors of their responsibility to prevent children from purchasing tobacco. As a result, many vendors are unaware that it is illegal to sell tobacco to minors. For example, in Massachusetts, one-third of tobacco vendors were unaware of the law (DiFranza et al. 1987), and in New York, 40 percent were uninformed (Cummings and Marshall 1988).

Knowledge of the law by tobacco vendors is necessary but not sufficient for the law to succeed; knowledgeable vendors must also comply with the law. In Massachusetts, 73 percent of vendors who knew that it was illegal to sell tobacco to minors sold cigarettes to an 11-year-old girl (DiFranza et al. 1987). This suggests that vendors either have little fear that noncompliance will be detected or are not deterred by the potential punishment. Retailers have a strong financial incentive to sell cigarettes to children. Although the size of the market is not known, one rough estimate is that cigarette sales to children under 18 years of age are worth nearly 500 million dollars per year, and smokeless tobacco sales to this age group are worth an additional 130 million dollars (Slade 1988a). As noted above, it appears that children purchase most of their cigarettes themselves. Compliance will be achieved only if retailers are not only aware of tobacco access laws but also deterred from violating them by adequate penalties and effective enforcement. It has been estimated that there are hundreds of millions of such violations annually, yet law enforcement officials throughout the country have difficulty recalling instances in which a vendor was charged with violating the law (Kim 1987). Under these circumstances, tobacco vendors may have little fear of prosecution, and therefore, little incentive to comply with the law. They may also not appreciate the magnitude of harm caused by tobacco or the importance of their sales in the initiation of smoking.

There are several reasons why these laws are not enforced. The provisions of some laws make enforcement difficult. In Washington, DC, for example, an arrest cannot be made without a warrant, and the arresting officer must personally witness the crime. Indiana law provides that a vendor may use as a defense that he or she "reasonably believed that the buyer or taker was at least eighteen years of age." This places the burden on the prosecutor to prove not only that a child under 18 was sold tobacco, but also that the child would appear under age to a reasonable person.

A 1987 survey of law enforcement officials in 25 States identified attitudinal barriers to the enforcement of tobacco access laws (Uzych, unpublished manuscript). Overall, the officials felt that the laws could not, should not, or need not be vigorously enforced. The most commonly held belief was that the laws were unenforceable. There was substantial evidence that little or no effort was being made to enforce tobacco access laws.

The most common policy cited by survey respondents was to enforce the law "only if specific complaints have been received,"or "only if violations are conspicuous." Some respondents felt the law was self-enforcing for retailers, while others felt enforcement of tobacco access laws was not the business of law enforcement officials, because tobacco sales to minors is a "health issue rather than a public safety issue"; "tobacco, a legal substance, does not have as a side effect anti-social behavior"; or "possession of tobacco by a minor is not. . . considered a grave offense" (Uzych, unpublished manuscript). These data suggest that widespread and substantial changes in the attitudes and priorities of law enforcement officials would be needed if conventional enforcement were to become effective. These changes include a shift in attitudes about the importance of smoking by children, the importance of enforcement, and the ability of law enforcement officers to enforce the law.

An alternative approach to enforcement that has been suggested is to transfer the responsibility from law enforcement agencies to public health departments (DiFranza, 1988). Public health departments traditionally have had both enforcement and licensing responsibilities. Public health inspectors routinely make unannounced visits to restaurants and food stores to monitor compliance with health and safety statutes. They are given the authority to issue citations or to revoke a vendor's license. Public health inspectors could also be assigned to ensure that tobacco vendors comply with tobacco access laws. It has been suggested that revenues from fines and the licensing of vendors might cover the cost of enforcement and even potentially be a source of State revenues (DiFranza 1988). It has also been suggested that some of the estimated excise tax revenues derived from the sale of tobacco to children be dedicated to enforcement. For New Jersey alone, this was recently estimated at 3 million dollars per year (Slade 1988a).

As an alternative to increasing enforcement, efforts could be made to increase tobacco vendors' knowledge of and compliance with existing laws. Educational efforts that target tobacco vendors have recently been developed in several States. They have shown promise in preliminary studies (Altman et al. 1989; Slade et al., unpublished manuscript). One study in Santa Clara County, CA, documented a significant reduction in illegal tobacco sales to minors after a 6-month campaign using mass media, direct merchant education, contact with management of chain stores and franchises, and community organization (Altman et al. 1989).

Legal tactics to increase compliance have also been pursued, so far without success. In *Parker v. City School Superintendent,* action was brought against school officials for providing students with a smoking lounge in a State that prohibited smoking by children under 18 (Jacobs 1974). The Supreme Court of Missouri ruled that smoking of cigarettes by minors was a misdemeanor and did not give rise to a civil cause of action. In another case, the Group Against Smoking Pollution (GASP) of Massachusetts filed a lawsuit on behalf of a 16-year-old girl who began smoking at the age of 14 and was illegally sold cigarettes for 2 years by a local convenience store. The suit charged the convenience store chain and the cigarette manufacturer with the "negligent entrustment of a dangerous instrumentality to minors" in violation of a State law prohibiting the sale of tobacco to minors. The case is pending (GASP 1987).

Effects of Current Access Laws

There has been little systematic evaluation of the impact of tobacco access restrictions. As described above, considerable evidence indicates that compliance is low and enforcement is poor, with the result that tobacco products are relatively easy for children to obtain. Under these circumstances, it is impossible to test hypotheses about the impact of tobacco access restrictions on smoking behavior.

It would be surprising if laws as currently implemented had much effect on the initiation of tobacco use by children. If tobacco access laws were adequately implemented, it would be possible to test the effect of a program of merchant education or strong enforcement on tobacco availability and, ultimately, on smoking behavior. However, comparisons of adolescent smoking rates in States with and without tobacco access laws or strong enforcement might be confounded by other cultural, economic, and demographic factors that can affect the prevalence of smoking among children.

Summary

Despite existing legislation in 43 States and the District of Columbia restricting the sale of cigarettes to minors, tobacco products are relatively easy for children to obtain. Tobacco vendors are often unaware of tobacco access laws, and law enforcement agencies do not enforce them. Furthermore, there are gaps in legislation. Seven States currently have no law prohibiting the sale or distribution of cigarettes to minors, and laws in many other States are not comprehensive. For example, some laws do not include all tobacco products, and a dozen permit children under 18 years of age to be sold tobacco. Only a few prohibit the use or possession of tobacco by children.

This situation could be ameliorated by improving the compliance with and enforcement of laws currently in effect, by amending current legislation, and by enacting new legislation. Because even new legislation would require adequate implementation to achieve its goals, efforts to ensure compliance with and enforcement of tobacco access laws are essential to achieve meaningful reductions in the availability of cigarettes to children. Moreover, interest in the enactment of new laws might be limited by the poor compliance record of past legislation, suggesting the importance of improving the implementation of existing laws.

The adoption of a uniform comprehensive tobacco access law throughout the United States has been proposed by several groups as one means to eliminate some of the loopholes through which children now legally obtain and use tobacco (AMA 1987; DiFranza et al. 1987; Stanwick et al. 1987; Cummings and Marshall 1988). The sale of tobacco to minors has been banned on a national level in Great Britain and Canada (Walker 1980; Stanwick et al. 1987). Model tobacco access laws, designed to protect children from tobacco, have been developed by the American Medical Association (AMA) and others (AMA 1987; DiFranza et al. 1987; Stanwick et al. 1987; Cummings and Marshall 1988). The provisions of these laws are similar. A number of provisions are borrowed from alcohol control efforts; these include banning all sales to minors, limiting sales to a small number of licensed vendors (which would eliminate vending machine sales), and requiring purchasers to show positive proof of age. Legislation

was introduced in the 100th Congress (H.R. 3658) that would prohibit the sale of cigarettes and other tobacco products to anyone under the age of 18, limit sales to over-the-counter sales (that is, prohibit vending machine sales), and require every retail establishment selling tobacco products to post conspicuously a sign stating, "The Sale of Cigarettes to Minors is Strictly Prohibited" (Atkins 1987). Proponents of comprehensive access laws draw an analogy between alcohol and tobacco and express the view that the sale of tobacco should be considered as seriously as the sale of alcohol and other addictive drugs (US DHHS 1988, Preface; Stanwick et al. 1987).

Federal Regulation of Tobacco Products

Because the use of tobacco products is hazardous to the health and safety of consumers, the regulation of tobacco products would be consistent with the established tradition of health and safety regulation for other consumer products. However, with few exceptions (e.g., see Part I regarding labeling and advertising regulations), none of the Federal agencies charged with health and safety regulation has taken regulatory action against tobacco products, due in part to specific statutory restrictions. There are a number of possible reasons for the lack of regulation, including the fact that millions of Americans became addicted to tobacco before its hazards were understood (Walsh and Gordon 1986).

In contrast to its approach to tobacco, Congress has passed a number of laws over the last two decades that strictly regulate other hazardous consumer, environmental, and occupational exposures. The primary aim of these laws is to reduce the risk of cancer, reproductive hazards, and injuries. An analysis by Morrall(l986) of the impact of 26 final rules promulgated under these acts suggested that the estimated number of lives they saved collectively each year was far smaller than the annual number of lives lost because of cigarette smoking. Doll and Peto (198 1) have estimated that the proportions of cancers attributable to occupational and environmental exposures are 4 and 2 percent, respectively, in contrast to the estimated 30 percent of cancer deaths that are caused by smoking (Chapter 3).

This Section examines the history of tobacco product regulation for health and safety purposes. The focus is on actions of the Federal Government, although relevant State actions are also mentioned.

Regulation of Tobacco Products Prior to 1964

In 1892, during a period in which several States were considering bans on cigarette sales, the U.S. Senate's Committee on Epidemic Diseases studied the cigarette issue and decided it was properly a State matter (Dillow 1981). By 1908, 11 States had banned the sale of cigarettes, primarily on the basis of aesthetic and moral objections and on the basis of health concerns that were poorly documented at that time. The laws proved unenforceable and were gradually repealed (Dillow 1981; Whelan 1984).

The Food and Drugs Act of 1906, the first Federal food and drug law, contained no express reference to tobacco products. It defined a drug as including medicines and preparations recognized in the United States Pharmacopeia (USP) or the National For-

mulary. Tobacco was listed in the 1890 edition of the USP, but it was deleted in the next edition, which was released in 1905. Neuberger (1963) stated that this deletion was rumored to have been made in exchange for support from tobacco-State Congressmen for passage of the law.

The 1906 Act also defined a drug as including substances intended to be used for the cure, mitigation, or prevention of disease in man or other animals. In 1914, the chief of the Bureau of Chemistry in the U.S. Department of Agriculture, the predecessor to the Food and Drug Administration (FDA), interpreted the 1906 Act by advising:

> [T]obacco and its preparations, when labeled in such a manner as to indicate their use for the cure, mitigation, or prevention of disease, are drugs within the meaning of the act, and, as such, are subject to the provisions thereof.
>
> On the other hand, tobacco and its preparations which are not so labeled and are used for smoking or chewing or as snuff and not for medicinal purposes are not subject to the provisions of the act (USDA 1914).

The 1906 Act was superseded in 1938 by the Federal Food, Drug, and Cosmetic Act (FFDCA), which gives FDA jurisdiction with respect to food, drugs, medical devices, and cosmetics. The definition of drug was expanded to include articles recognized in the Homeopathic Pharmacopeia. The current Homeopathic Pharmacopeia contains a monograph (i.e., a listing) for tobacco in the form of a tincture for application as a drug. Conventional cigarettes made from tobacco leaves are not recognized as drugs in any of the official compendia referred to in the "drug" definition of the FFDCA.

As further revised, the definition of "drug" in the FFDCA also includes "articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals" and "articles (other than food) intended to affect the structure or any function of the body of man or other animals" (FFDCA).

The FFDCA has not referred specifically to tobacco products as articles either within or outside the scope of jurisdiction under the Act. Tobacco products, as they have been customarily marketed, have not been considered by the FDA to fall within any of the categories over which the agency has jurisdiction (Young 1988). However, the agency has taken jurisdiction over tobacco products on the grounds that they are "drugs" when the manufacturer or vendor has made medical claims for the product (Young 1988). The FDA used this authority to assert jurisdiction over cigarettes in two cases during the 1950s in which the FDA's jurisdiction was upheld in court. The first action involved Fairfax Cigarettes, which the manufacturer claimed to prevent respiratory and other diseases *(United States v. 46 Cartons . . . Fairfax Cigarettes* 1953). The second action involved Trim Reducing-Aid Cigarettes, which contained the additive tartaric acid, which was claimed to aid the smoker in weight reduction *(United States v. 354 Bulk Cartons . . . Trim Reducing-Aid Cigarettes* 1959).

In a 1952 court case that involved the Federal Trade Commission (FTC), the FTC contended that the manufacturer deceptively advertised Chesterfield cigarettes and that the cigarettes were a drug by a definition virtually identical to that in the FFDCA *(Federal Trade Commission v. Liggett and Myers Tobacco Company* 1952). The court ruled that Chesterfield cigarettes did not meet the definition of a drug at issue in the case. The FTC argument that the cigarettes were a drug was based in part on two types

of representations by the manufacturer. The first type was that the cigarettes did not cause irritation of the throat and nose. The court ruled that this was not an affirmative claim of a beneficial effect or therapeutic purpose, but was merely a representation that the cigarettes had a nonadverse effect, and that such a representation was insufficient to find the product to be a drug. The second type of representation, which the FTC relied upon in asserting that the cigarettes were intended by the manufacturer to affect the functions of the body, was that the cigarettes had a "soothing effect." This was considered by the court to be not the type of bodily effect contemplated by the statute.

The FDA received new authority to regulate consumer products in 1960, with passage of the first Federal Hazardous Substances Labeling Act (FHSA), under which the definition of hazardous substance comprised six categories including toxic, corrosive, irritant, strong sensitizer, flammable, or pressure-generating substance, which may cause substantial personal injury or illness during or as a result of customary or reasonable use. Tobacco products were not specifically excluded. However, the FDA did not regulate tobacco products under that law.

In 1963, FDA expressed its interpretation that tobacco did not qualify as a hazardous substance under the FHSA. It noted that tobacco did not appear to fit within any of the FHSA's six classifications, and that at no time during the congressional consideration of the PHSA was there any indication that it was intended to cover tobacco (FDA 1963). In the same document, FDA also noted that the Surgeon General of the Public Health Service had recently appointed an Advisory Committee on Smoking and Health, and FDA stated its preference to withhold making any recommendations on Federal action regarding tobacco until the committee's report was issued (FDA 1963).

Regulation of Tobacco Products After 1964

Following the 1964 Surgeon General's Report, Congress considered a number of bills to regulate tobacco. From 1965 through 1978, over 75 bills were introduced into Congress on a wide variety of issues designed to address the smoking problem (Klebe 1979). The first U.S. House of Representatives bill dealing with smoking (H.R. 2248, 89th Congress) proposed amending the FFDCA to place cigarettes under the authority of the FDA. Because there was no known safe level for tar, nicotine, or other tobacco constituents, regulation would have likely resulted in prohibition of a product that was widely used. Instead, following considerable debate, the House Committee on Interstate and Foreign Commerce reported out H.R. 3014 (89th Congress), which called for warning labels on packages. This bill, along with its Senate counterpart, led to the first Federal cigarette labeling act (see Part I).

Other bills to regulate tobacco products indirectly by encouraging or requiring lower tar or nicotine levels were introduced. Of the bills filed during the next 6 sessions, 13 contained provisions for taxing cigarettes according to tar and nicotine content or cigarette length. Three other bills would have established maximum levels for tar and nicotine content or cigarette length. None of these bills became law.

Consumer health and safety laws enacted after 1964 might have led to the regulation of tobacco products. However, tobacco was specifically excluded in virtually all major bills passed after 1964. In 1970, Congress passed the Controlled Substances Act to

prevent the abuse of drugs, narcotics, and other addictive substances. In view of the scientific knowledge of nicotine's effects subsequently reported in the 1988 Surgeon General's Report (US DHHS 1988), nicotine would seem to be the type of substance the statute was intended to regulate. However, the law specifically excluded tobacco from the definition of a "controlled substance" in 21 U.S.C. 802(6).

In 1972, Congress passed the Consumer Product Safety Act (CPSA) and established the Consumer Product Safety Commission (CPSC), an independent regulatory agency, to administer the law. The Act excluded tobacco and tobacco products from the definition of "consumer product" (15 U.S.C. 2052 (a)(l)(B)). The Act also transferred authority for FHSA from the FDA to CPSC. Tobacco had not been exempted from FHSA when it was first passed in 1960. The American Public Health Association and others petitioned CPSC to set a maximum level of 21 mg of tar in cigarettes, under the authority of FHSA. In 1974, CPSC voted 3 to 2 that it lacked the authority to do so. The decision was appealed, and in April 1975, the U.S. District Court for the District of Columbia ruled that CPSC had jurisdiction and ordered it to consider the petition *(American Public Health Association v. Consumer Product Safety Commission* 1975). On May 11, 1976, Congress amended FHSA to exclude tobacco or tobacco products from the definition of hazardous substances. After this action, the court's decision was moot (Klebe 1979). The Senate report on the action stated that the change was made to clarify Congress' original intent and "should not be interpreted as reflecting any new judgment on smoking and health" (Senate Report No. 94-251 (June 24, 1975) for Public Law 94-284).

In 1976, Congress passed the Toxic Substances Control Act. One purpose of the Act was to "regulate chemical substances and mixtures which present an unreasonable risk of injury to health or the environment. . . " (15 U.S.C. 2601 (b)). Evidence reported in the Surgeon General's reports indicates that tobacco and tobacco products could have otherwise met the definition of "chemical substance" under the Act. However, the Act excluded tobacco and tobacco products from that definition (15 U.S.C. 2602(2)(B)(iii)).

In 1977, the FDA was petitioned by Action on Smoking and Health (ASH) and others to assert jurisdiction over cigarettes as a "drug" or a "medical device" under the definitions of the FFDCA and to restrict the sale of cigarettes to pharmacies. FDA denied those requests (FDA 1977, FDA 1980), finding that the administrative records relating to the requests did not contain the requisite evidence of intended use to bring cigarettes within the drug or device definitions. ASH appealed the 1977 denial of its request that FDA assert jurisdiction over cigarettes as a drug. The U.S. Court of Appeals for the District of Columbia Circuit upheld the FDA's interpretation of the scope of its jurisdiction over cigarettes *(Action on Smoking and Health v. Harris* 1980). ASH did not appeal FDA's denial (FDA 1980) of the request by ASH that FDA assert jurisdiction over cigarettes as medical devices.

In 1988, the Coalition on Smoking OR Health petitioned the FDA to declare low-tar and low-nicotine cigarettes to be a drug, asserting that manufacturers market them with the intent of creating a consumer perception that they will mitigate or prevent disease (Coalition on Smoking OR Health 1988a). The petitioners introduced evidence obtained through the discovery process in a 1988 New Jersey tobacco product liability lawsuit that, in their view, documents manufacturer intent. In that suit, the jury found

that the tobacco manufacturer had made express warranties to the consumer about the health aspects of its cigarettes *(Cipollone v. Liggett Group Inc. et al.* 1988). The petition was pending as of November 1988.

The issue of whether tobacco could be classified as a hazardous substance under FHSA was addressed again in 1984 in a tobacco product liability suit *(Palmer v. Liggett Group Inc.* 1984). The plaintiffs claimed that the tobacco manufacturer violated FHSA by failing to place warning labels on cigarette packages from 1960, when the first FHSA became law, until 1965, when the Federal Cigarette Labeling and Advertising Act preempted cigarette labeling except as required under the Cigarette Act. The U.S. District Court dismissed this claim, citing the legislative history of FHSA as evidence that the intent of the legislators was not to cover tobacco, but to protect against accidental poisonings by household chemicals.

In 1985, the Massachusetts Department of Public Health, acting under the authority of the State hazardous substance law, which was modeled after the Federal law, declared oral snuff to be a hazardous substance and required protective labeling on packages as of July 1985. The State law, unlike the Federal statute, was never amended to exclude tobacco. The Massachusetts action was followed by a wave of labeling bills in other States and, the following year, by Congress' passage of the Comprehensive Smokeless Tobacco Health Education Act of 1986 (Public Law 99-252). That Federal law preempted the Massachusetts labeling requirement. However, oral snuff is still classified as a hazardous substance in Massachusetts (Connolly et al. 1986).

Tobacco products have also been classified as hazardous substances in another State. In 1986, California adopted the Safe Drinking Water and Toxic Substances Enforcement Act, which requires warnings for and regulation of chemicals known to cause cancer and reproductive toxic effects (Kizer, Warriner, Book 1988). Tobacco has been identified as a carcinogen and reproductive toxicant under the law. In August 1988, four environmental groups announced plans to file a lawsuit that would require that a warning label about cancer and reproductive risks be placed on store shelves containing tobacco products that do not carry the Surgeon General's warning. These products include cigars, pipe tobacco, and roll-your-own cigarette tobacco (Matthews 1988). In a settlement reached on October 18, 1988, 25 tobacco manufacturers agreed to place a warning label on cigars and pipe tobacco sold in California (Wilson 1988a). Canada has also defined tobacco as a hazardous product in Federal legislation passed in 1988 (House of Commons of Canada 1988; C-204, 1988).

Currently, most Federal regulation of tobacco products is administered by the Bureau of Alcohol, Tobacco, and Firearms (BATF) of the Department of the Treasury, and by the Federal Trade Commission (FTC). Regulation by BATF involves tobacco taxation with no intended impact on public health concerns, while the FTC actions involve advertising of tobacco products and the disclosure of health risks, as described in detail in Part I of this Chapter.

Environmental Tobacco Smoke Exposure

The Occupational Safety and Health Act, passed in 1970, empowers the Labor Department's Occupational Safety and Health Administration (OSHA) to ensure that:

> Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

OSHA has set standards limiting occupational exposure to 24 airborne materials that are present in tobacco smoke, including carbon monoxide and acrolein. Even though environmental tobacco smoke (ETS) is not excluded from OSHA's review, the agency has not sought to regulate it. A 1986 petition (Home et al. 1986) requested OSHA to classify ETS as a category I potential occupational carcinogen. The petition was denied. In 1987, ASH, joined by the American Public Health Association and the Public Citizens Health Research Group, requested an emergency temporary standard to prohibit smoking in indoor workplaces under the authority of the OSHA law. As of November 1988, these petitions were pending (Public Citizen 1987).

The Clean Air Act of 1963 (Clean Air Act 1963) requires the Environmental Protection Agency (EPA) to regulate airborne pollutants. EPA has set standards for maximum acceptable exposures to pollutants that are also constituents of ETS, including carbon monoxide and nitrogen dioxide. However, EPA has interpreted the statute to apply to outdoor air pollutants only and has not moved to regulate exposure to ETS.

Tobacco Product Additives

Exclusion of tobacco and tobacco products from Federal health and safety laws also resulted in the exemption of tobacco product additives from regulatory review. The 1981 Surgeon General's Report, *The Changing Cigarette*, noted that additives may be in greater use in the low-tar brands to compensate for a loss in "flavor" brought about by tar reduction (US DHHS 1981a). The Report noted that it was impossible to assess the risks of the additives because manufacturers were not required to disclose the additives. The issue of additives was raised again in the 1984 Surgeon General's Report, citing the presence of powdered cocoa, which had been shown to enhance the carcinogenicity of tar. The Report observed:

> A characterization of the chemical composition and adverse biological potential of these additives is urgently needed, but is currently impossible because cigarette companies are not required to reveal what additives they employ in the manufacture of cigarettes (US DHHS 1984).

A 1978 amendment to the Public Health Service Act (Public Law 95-626) contained a number of tobacco-specific provisions. One called for a Department of Health and Human Services (DHHS) study of the health risks of cigarette additives. Attempts by DHHS to obtain complete, updated lists of additives from tobacco manufacturers were unsuccessful (Cummins 1983). As discussed in Part I of this Chapter, the Comprehensive Smoking Education Act of 1984 (Public Law 98-474) required manufacturers to provide the Secretary of DHHS with a list of all ingredients. However, the Secretary's authorities were limited to conducting research on the additives and reporting back to Congress with findings on their potential health effects. No authority was granted to restrict or eliminate ingredients found to he harmful.

In 1988, CA. Blockers, Inc., announced development of a cigarette additive that allegedly blocks the action of nitrosamines and its carcinogenic metabolites contained in tobacco smoke. The company intended to introduce the product into the market without FDA approval, stating that the company would make no health claims (CA. Blockers, Inc. 1988). However, the company's prospectus describes the action of the additive as blocking receptors in the lungs and states that its goal is "to eliminate a health risk associated with cigarette smoking" (CA. Blockers, Inc. 1987). The FDA has initiated an investigation of this matter, which was under review as of November 1988.

Fire Safety of Cigarettes

Over 1,500 deaths each year are caused by fires ignited by burning cigarettes (Hall 1987). Even though this number is low in comparison with the estimate of 390,000 deaths caused by smoking-related diseases (Chapter 3), public concern is high because many victims are nonsmoking infants and children or disabled persons (Botkin 1988). Congressional legislation calling for "fire-safe" (e.g., self-extinguishing) cigarettes was first introduced in 1974 and reintroduced in 1979. In 1983, eight States considered similar legislation but none was enacted (McGuire 1983; Garner 1985). In 1984, Congress passed the Cigarette Safety Act (Public Law 98-567). The purpose of the law was to

> determine the technical and commercial feasibility of developing cigarettes and little cigars that would he less likely to ignite upholstered furniture and mattresses (CPSC 1987).

The Act established an Interagency Committee (IAC) for Cigarette and Little Cigar Fire Safety that included representatives from CPSC, DHHS, and the U.S. Fire Administrator's Office. The IAC was advised by a Technical Study Group (TSG), which was charged with undertaking "such studies and other activities as considered necessary and appropriate to determine the technical and commercial feasibility" of developing a fire-safe cigarette. Following 2 years of work, TSG concluded that it is technically feasible and may be commercially feasible to develop a cigarette with a significantly reduced potential for igniting fires. After reviewing these findings, IAC concluded that issues concerning the economic feasibility, consumer acceptance, and health implications were unresolved. IAC recommended the formation and funding of a new advisory committee that, within 2 years of its formation, would develop and test a prototype of a less ignition-prone cigarette. Two months before IAC made its report to Congress, a major cigarette manufacturer announced the development of a new product, commonly referred to in the press as a "smokeless cigarette" that, when lying flat, is purportedly unlikely to ignite most materials with which it comes into contact (R.J. Reynolds Tobacco Co. 1987) (see below). Legislation was introduced in the 100th Congress to fund work of the new advisory committee and also to require the FDA to set fire safety standards (H.R. 3440, S. 1763).

Smokeless Tobacco Products

When the 1964 Surgeon General's Report was issued, the use of snuff and chewing tobacco was on the decline and there was little interest in Congress or the public health community in dealing with smokeless tobacco. In 1965, the Federal excise tax on smokeless tobacco products was repealed. Smokeless tobacco products, particularly moist snuff, were more aggressively marketed in the late 1970s by tobacco manufacturers and promoted as an alternative to the cigarette (Connolly et al. 1986).

In the absence of restrictions on advertising, moist snuff was marketed without warning labels on television and in other media. From 1978 through 1985, sales for moist snuff rose by 55 percent. By 1985, there were an estimated 13 million users nationally, of whom 3 million were below 21 years of age (US DHHS 1986c). Tobacco manufacturers developed low-nicotine snuff products that may be used as a "starter" to snuff use. A graduation strategy was employed in which the new users were encouraged to switch to higher nicotine brands over time (Connolly 1986; Connolly et al. 1986; Feigelson 1983).

As described in Part I, legislation to require health warning labels on smokeless tobacco packages was pending in 26 States when manufacturers, faced with the possibility of multiple different State labeling requirements, sought a uniform national law that preempted State action (Connolly et al. 1986). One State (Utah) considered but did not pass legislation to ban smokeless tobacco use (Utah House of Representatives 1986). Existing policies for cigarettes (excise taxes, prohibition on sales to minors, ban on television advertising, and warning labels on packages and print ads) were extended to apply to smokeless tobacco at the Federal and State levels.

Alternative Nicotine-Containing Products

Beginning in 1985, tobacco manufacturers introduced a variety of new products that delivered nicotine to the user and produced little or no smoke. The public health impact of the marketing of these new products is unknown because limited information is available about the products or their appeal. The 1988 Surgeon General's Report on nicotine addiction compared the use of the alternative nicotine delivery systems, in combination with regular cigarettes, with the "nonmedically approved use of methadone by opioid-dependent individuals when their drug of choice (e.g., heroin) is not available, and they are not involved in treatment for opioid dependence" (US DHHS 1988). The public health community has expressed concern that the alternative nicotine delivery systems will encourage experimentation among non-tobacco-using adolescents, will be used as an alternative to cessation by current smokers, may encourage relapse among former smokers, and may be used where smoking is prohibited (Slade 1988b; AMA 1988; Coalition on Smoking OR Health 1988b). The 1988 Surgeon General's Report called for an evaluation of the potential toxic and addictive effects of new nicotine-containing products (US DHHS 1988).

Whether these alternative nicotine delivery products are "drugs" or "devices" as defined by the FFDCA (and therefore subject to FDA jurisdiction) is being addressed

on a case-by-case basis. The Commissioner of the FDA took the following position in testimony before Congress:

> [T]he Agency must attempt to differentiate between the traditional tobacco product marketed without medical claims, and therefore not regulated by FDA, and the newer innovations designed to deliver nicotine to satisfy a nicotine dependence or otherwise to affect the structure or function of the body. FDA must decide, on a case-by-case basis, which product is subject to the FDC Act (Young 1988).

The FDA has reviewed or is reviewing four nicotine-containing products described below. In three cases, the FDA exerted jurisdiction over the product: two of these were removed from the market and one was approved for sale as a new drug. A decision in the fourth case has not been reached, as of November 1988.

A device called the Favor Smokeless Cigarette was introduced in 1985. This cigarette-sized white plastic tube had a fibrous plug impregnated with nicotine at one end. Users sucked air through the other end, drawing a nicotine aerosol into the oral cavity. The product contained nicotine purportedly derived from tobacco but did not contain tobacco leaf. In February 1987, the FDA determined that Favor was "a nicotine delivery system intended to satisfy a nicotine dependence and to affect the structure and one or more functions of the body" (FDA 1987a; Young 1988; FDA letter to Congressman Waxman 1987b). As such, it met the FDA definition of a drug. The FDA also determined that Favor was a "new drug" within the meaning of the FFDCA because its composition was not generally recognized as safe and effective under the prescribed or recommended conditions of use (Young 1988). The FDA went on to state in the regulatory letter (FDA 1987a):

> The medical literature clearly recognizes that nicotine is well absorbed from the lungs; that it has potent pharmacologic effects, including effects on the nervous system; and that nicotine is a drug of dependence. . . [I]t is our position that Favor is a nicotine delivery system intended to satisfy a nicotine dependence and to affect the structure and one or more functions of the body. Because of its intended uses, Favor is a drug as defined within section 201(g) of the Federal Food, Drug, and Cosmetic Act.

In 1987, the Pinkerton Tobacco Company introduced Masterpiece Tobacs, a tobacco chewing gum containing approximately 1 mg of nicotine. By the appearance and function of the product, the FDA determined that it was a food and because it contained tobacco, which is generally not considered safe for use in foods, it was an adulterated food. Both products, Favor Smokeless Cigarettes and Masterpiece Tobacs, have been removed from the marketplace (FDA letter to Congressman Waxman 1987b). A tobacco toothpaste containing ground snuff was introduced for sale in Indian food stores in the United States in 1987. Possible regulation was under review by the FDA as of November 1988.

The FDA has approved and allowed for sale nicotine polacrilex chewing gum, intended and labeled as a smoking cessation product and available only with a physician's prescription. The manufacturer subjected the gum to new drug safety and efficacy testing as a smoking cessation aid, and a New Drug Application for the product was approved in January 1984 (FDA letter to Congressman Waxman 1987b; Chapter 6).

In the fall of 1987, R.J. Reynolds Tobacco Company (RJR) announced the development of a new product whose exterior resembles a cigarette but whose composition is based on a technology not previously associated with conventional cigarettes. The device contains an insulated carbon fuel element at one end that is ignited and emits heat that is drawn across a bead-filled aluminum chamber, around which tobacco is wrapped. The chamber contains nicotine from a tobacco extract, flavorings, and a humectant. These are nebulized to form a smoke-like aerosol containing nicotine, carbon monoxide, carbon dioxide, and other ingredients. The company claims that less sidestream smoke is released into the environment. RJR also claims that the new product results in a substantial reduction in the number and concentration of compounds delivered to the user (RJR 1985b, 1987, 1988). However, many of the toxic and carcinogenic constituents typically present in the "tar" component of tobacco smoke (e.g., benzo(a)pyrene) are still present in the aerosol (RJR 1988). In addition, concern has been expressed that the product can be manipulated easily to allow it to be used to deliver "crack" cocaine (Cone and Henningfield 1989).

In October 1988, R.J. Reynolds began test marketing this product under the name Premier. The FDA has been petitioned by the American Medical Association and the Coalition on Smoking OR Health to exert jurisdiction over the new product on the grounds that it is a drug or medical device and that health claims are being made (AMA 1988, Coalition on Smoking OR Health 1988b). As of November 1988, the FDA had both petitions under review. (See Chapter 5.)

Summary

Since the first Surgeon General's Report in 1964, a number of proposals have been made for FDA or other agencies to regulate tobacco products or their ingredients because of their effects on health and safety. These efforts have been unsuccessful except in a few cases when manufacturers made health claims or when FDA deemed the product to be a food. Since there are no known safe levels for tar, nicotine, or other tobacco ingredients, in the absence of legislation, FDA regulation would probably have resulted in a ban of tobacco products, even those that might have been made less hazardous than conventional cigarettes. Instead of allowing regulation by Federal agencies, Congress in most cases reserved to itself jurisdiction over tobacco products, banned tobacco advertising in broadcast media, and required a disclosure of risks on packages and print ads (See Part I of this Chapter). This approach, however, allowed tobacco manufacturers to modify products and introduce new ones without subjecting them to the scrutiny of Federal agencies concerned with health and product safety.

During the early 1970s, low-yield cigarettes were introduced and implicitly promoted as being less hazardous than conventional products (Davis 1987; US DHHS 1981a; Chapter 5). Beginning in the late 1970s smokeless tobacco was more aggressively marketed as an alternative to smoked tobacco. Sheppard (1985) has described this as the "controlled" tobacco product cycle in which cigarette manufacturers manage existing demand and create new demand by varying the form of the tobacco product as public awareness about the dangers of traditional cigarettes increases.

Several approaches have been proposed to increase the regulation of tobacco products without resulting in a total ban. The first proposal would regulate new products or new product modifications while exempting existing products from regulatory review. An international example of this approach to product regulation concerns the introduction of smokeless tobacco products into countries with no established smokeless tobacco users. In 1987, the World Health Organization Study Group on Smokeless Tobacco recommended that such countries prohibit smokeless tobacco products before their use became common (WHO, in press). Based on this recommendation, four nations whose residents have no history of using oral snuff (Australia, New Zealand, Hong Kong, and Saudi Arabia) banned the manufacture, sale, or importation of oral snuff; Ireland banned the sale of snuff, and Great Britain had legislation pending as of November 1988. A second approach to tobacco product regulation would continue to recognize the special status of tobacco products but regulate their marketing and sales in line with the marketing of other drugs and alcohol. A third approach is to use legislation to bring tobacco products under the jurisdiction of Federal regulatory agencies without banning them by explicitly limiting the power of the Federal agency. Legislation introduced in Congress in 1987 included provisions that would bring tobacco products under regulatory control of the FDA and the CPSC (H.R. 2376 and H.R. 3294), but these bills were not enacted.

CONCLUSIONS

Part I. Policies Pertaining to Information and Education

1. The Federal Government's efforts to reduce the health consequences of cigarette smoking have consisted primarily of providing the public with information and education about the hazards of tobacco use. Two of the most well-known mechanisms are the publication of Surgeon General's Reports and the requirement of warning labels on cigarette packages. A system of rotating health warning labels is now required for all cigarette and smokeless tobacco packaging and advertisements.
2. Current laws do not require health warning labels on all tobacco products and do not require monitoring of the communications effectiveness of the warnings. Furthermore, existing laws do not provide administrative mechanisms to update the contents of labels to prevent the overexposure of current messages or to reflect advances in scientific knowledge, such as new information about the addictive nature of tobacco use.
3. There is insufficient evidence to determine the independent effect of cigarette warning labels, particularly the rotating warning labels required since 1985, on public knowledge about the health effects of smoking or on smoking behavior.
4. Information about tar and nicotine yields appears on all cigarette advertisements but not on all cigarette packages. Levels of other hazardous constituents of tobacco smoke, such as carbon monoxide, hydrogen cyanide, and ammonia, are not disclosed on packages or advertisements. Little information is available to the public about the identity or health consequences of the additives in tobacco products.

5. Declines in adult per capita cigarette consumption have occurred in years of major dissemination of information on the health hazards of smoking. These include 1964, the year of the first Surgeon General's Report on smoking and health, and 1967-70, when antismoking public service announcements were widely broadcast on radio and television, as mandated by the Federal Communications Commission's Fairness Doctrine.
6. In 1985, when cigarette advertising and promotion totaled 2.5 billion dollars, cigarettes were the most heavily advertised product category in the outdoor media (e.g., billboards), second in magazines, and third in newspapers. Over the past decade, the majority of cigarette marketing expenditures has shifted from traditional print advertising to promotional activities (e.g., free samples, coupons, sponsorship of sporting events).
7. An estimated 1 percent of the budget allocated to disease prevention by the U.S. Department of Health and Human Services is devoted specifically to tobacco control. These expenditures totaled 39.5 million dollars in 1986.

Part II. Economic Incentives

1. Cigarette excise taxes are imposed by the Federal Government (16 cents per pack), all State governments, and nearly 400 cities and counties. On average, Federal and State excise taxes add 34 cents per pack to the price of cigarettes. Cigarette excise tax rates have fallen since 1964 in real terms because the rate and magnitude of periodic tax increases have not kept pace with inflation.
2. Studies demonstrate that increases in the price of cigarettes decrease smoking, particularly by adolescents. It has been estimated that an additional 100,000 or more persons will live to age 65 as a result of the price increases induced by the 1983 doubling of the Federal excise tax on cigarettes.
3. In 1964, smoking status was not considered in the determination of insurance premiums. Currently, nearly all life insurers but only a few health, disability, and property and casualty insurers offer premium discounts for nonsmokers. Few health insurers reimburse for the costs of smoking cessation programs or treatment.

Part III. Direct Restrictions on Smoking

1. Restrictions on smoking in public places and at work are growing in number and comprehensiveness, as a result of both Government actions and private initiatives. Forty-two States and more than 320 communities have passed laws restricting smoking in public, and an estimated one-half of large businesses have a smoking policy for their employees.
2. The goal of these smoking restrictions is to protect individuals from the consequences of involuntary tobacco smoke exposure, but they may also contribute to reductions in smoking prevalence by changing the attitudes and behavior of current and potential smokers. Insufficient research has been undertaken to determine the extent, if any, of these effects.

3. There are fewer legal restrictions on children's access to tobacco products now than in 1964, despite what has been learned since then about the dangers of tobacco use, its addictive nature, and the early age of initiation of smoking.
4. As of January 1, 1988, laws in 43 States and the District of Columbia restricted the sale of cigarettes to minors. Nevertheless, tobacco products are relatively easy for children to obtain through vending machines and over-the-counter purchases because of low levels of compliance with and enforcement of current laws.
5. Tobacco products have been exempted by law or administrative decision from the jurisdiction of Federal regulatory agencies under whose authority they might otherwise fall.

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