could provide convincing evidence of their ability to reduce smoking" (US DHEW 1978, p. 54).

The 1979 Surgeon General's Report was a watershed for smoking prevention, as well as other smoking issues. Two chapters were devoted exclusively to smoking among young people and its prevention, Chapter 17 ("Smoking in Children and Adolescents: Psychosocial Determinants and Prevention Strategies") and Chapter 20 ("Youth Education") (US DHEW 1979b). In merging considerations of psychosocial smoking determinants among youth with considerations of more traditionally phrased "educational" programs, the 1979 Report reflected a critical transition in the development of prevention approaches and in their treatment in the Surgeon General's Reports. The introduction to Chapter 17 began with "It is possible that prevention programs directed at children and adolescents have generally placed too much confidence in merely communicating knowledge about the dangers of smoking" (p. 17-5). The Chapter then reviewed the range of psychosocial influences on youths' decisions to smoke, and called for including developmental and social psychological theory in the conceptual basis of prevention programs.

Demographic and psychosocial correlates of smoking among adolescents and smoking prevention approaches, with special reference to young girls and gender differences, were reviewed in the 1980 Surgeon General's Report on the health consequences of smoking for women (US DHHS 1980b). The 1981 Report on the changing cigarette (US DHHS 1981) did not consider smoking prevention per se, but briefly reviewed data on preferences among young smokers for cigarettes with various tar and nicotine levels. The natural history and prevention of smoking among adolescents were considered again in the 1982 Report on cancer (US DHHS 1982). Consensus was reached in this Report: the newly developed prevention programs based on social psychological theory were capable of a 50-percent reduction in smoking onset. The 1982 Report also included data on smoking cessation among adolescents. Prevention programs were not considered in the 1983 Report on cardiovascular disease (US DHHS 1983a), the 1985 Report on cancer and chronic lung disease in the workplace (US DHHS 1985a), or, with the exception of its review of nonsmoking policies in the schools, in the 1986 Report on involuntary smoking (US DHHS 1986b). While several smoking prevention programs were reviewed in the 1984 Report's review of community studies of smoking control, it was noted that, for the most part, community studies focused on smoking cessation among adults, rather than on prevention (US DHHS 1984). Most recently, the 1988 Surgeon General's Report on nicotine addiction concluded that smoking prevention should be integrated into substance abuse prevention programs for youth (US DHHS 1988), though the specific program options available were not reviewed.

State Health Departments

State health department initiatives to curb tobacco use have increased in the past decade (US DHHS 1986d). Many State health departments have established smoking education programs (US DHHS 1986a). State departments of education and departments of health often serve as clearinghouses, compiling guides to existing prevention resources (e.g., University of the State of New York 1979). Several State health depart-

ments have organized special committees to develop comprehensive smoking control plans (Coye 1988; Minnesota Department of Health 1987; US DHHS 1986a), with most focusing on prevention rather than cessation. Several of these plans are cited in Chapter 7 (Table 20). Most notable among the plans is Minnesota's, which, in addition to a broad range of other prevention program and policy components, earmarks a portion of the State cigarette excise tax to support smoking control initiatives (Minnesota Department of Health 1987).

The 1986 inventory of State and local programs (US DHHS 1986d) described prevention programs operating through 20 State departments of health, State interagency coalitions on smoking and health, and State departments of education. These prevention initiatives include a variety of approaches: implementation of existing health curricula, the development of specific new resources and guidelines, teacher training programs, promotion of resource centers, and community and parent programs. In an additional nine States, county organizations, including departments of health and interagency coalitions, were listed as undertaking specific smoking prevention projects that were most often curriculum based.

Other Organizations and Agencies

Although tobacco control is not their central mission, other institutions, agencies, and medical societies integrate smoking prevention programs into materials for distribution through schools and other settings. The program materials include the March of Dimes' for (often) young, expectant mothers; National Institute on Alcohol Abuse and Alcoholism materials on substance abuse (US DHHS 1986a); and the American Dental Association materials on tobacco use, especially the use of smokeless tobacco and oral disease.

Through their professional organizations and as individuals, physicians and other health researchers have designed materials and presentations, primarily for school assemblies. The American Medical Association (AMA) (1987), the American Medical Women's Association, and Doctors Ought to Care (DOC) are among those organizations that have designed smoking prevention materials and currently promote their delivery through school assemblies. Volunteers for Health Awareness, a society of health researchers and health care providers in the Boston area, have delivered antismoking assemblies to junior high school students each year since 1969 (Reif 1976; US DHEW 1979b).

In collaboration with ALA and researchers at Lawrence Hall of Science at the University of California, Berkeley, the American Nonsmokers' Rights Foundation (formerly California Nonsmokers' Rights Foundation) has also developed smoking prevention curricula centered around a television documentary, "Death in the West" (Bailey 1985) and a film entitled "Second Hand Smoke" (American Nonsmokers' Rights Foundation 1986). Addiction and tobacco industry tactics are highlighted in the curricula (California Nonsmokers' Rights Foundation 1983). The foundation has also developed an adjunct peer-led program called "Teens as Teachers" to complement use of the films.

By 1979, it was estimated that there were thousands of smoking prevention activities independently undertaken by schools and community groups, programs largely neither

formally described nor evaluated (Evans et al. 1979; US DHEW 1979b). While there is increasing documentation of programs on the national and State level (US DHHS 1986a, 1986b), program development and implementation by schools and communities, as special events or as part of existing health education curricula, are far less likely to be systematically recorded and evaluated.

Problems in Dissemination of Smoking Prevention Programs

Evaluation of the development and progress of prevention programs must include both controlled, scientific examination of program efficacy and study of the factors characterizing actual and potential widespread use of programs and their public health impact. This represents a merger of perspectives only recently formally considered in the field of smoking prevention programs (NCI 1986b; Best et al. 1988; Cleary et al. 1988; Flay 1985b).

The current state of smoking prevention programs and resources reveals a gap between these two approaches. The research-driven smoking prevention curricula have most often been developed without a mechanism for widespread application and use. In turn, many of the materials likely to be used in the field by public health professionals, educators, and other policymakers responsible for young people's health have had limited evaluation, except for the comprehensive health education curricula, and the extent and process of their dissemination have generally not been systematically documented.

Once research-based programs are developed and initially found to have potential impact, there have not typically been mechanisms to encourage their active distribution to school systems and other organizations. Most at best can only respond to specific requests for information about their program or dissemination of their materials. Recognizing this research gap, NCI (1986b) has initiated research to determine the most effective method to integrate tobacco education programs that have been proven to be efficacious into school programs. It is encouraging research that is focused more on application and dissemination than on the development of new curricula and interventions.

Some of the issues bearing on program dissemination are reviewed in the smoking prevention literature (Best et al. 1988; Cleary et al. 1988); others are considered in broader literature on health education, program adoption, and the diffusion of innovation (Basch, Eveland, Portnoy 1986; Basch and Sliepcevich 1983; Murray 1986). Barriers specific to widespread institutionalization of smoking-specific programs within schools include demands on teacher time, cost of materials for specific programs and teacher training, and the variety of competing educational and health priorities found within a school system. (See also Kolbe and Gilbert (1984) for a discussion of obstacles to school implementation and maintenance of new health education programs.) Ideally, the likelihood of distribution and use of prevention programs in the field should be considered throughout the course of program design and evaluation and not restricted to end-stage discussions of the feasibility of disseminating already developed and evaluated programs.

The availability of funding to bolster dissemination of existing programs has varied over time. Federal funding for implementation and demonstration of health education programs was provided by the 1979 Health Education Risk Reduction Grant Program (Kolbe and Iverson 1984). Additional funds were appropriated in 1980 for grants to deter smoking and use of alcohol by adolescents. The reorganization of such categorical grant programs into a block grant structure in 1981 resulted in a shift of Federal funds to the State level. However, the reduction of total available funds and the restructuring of the funding mechanism created competition within States for these funds and eliminated smoking-specific demonstration grants. It also made for less secure support of health education in general (Kolbe and Iverson 1984). Although a variety of organizational, social, and political factors can affect the likelihood of adoption and use of a particular prevention program, the effect of availability of funds for teacher training, purchase of materials, and even the simplest of evaluations must be considered in any analysis of the history and prospects of prevention efforts.

Dissemination mechanisms also include providing information about programs. Federally funded databases and programs with potential for aiding the dissemination of smoking prevention programs are available. The Combined Health Information Database includes information on State and local programs listed in the National Status Report on Smoking and Health (US DHHS 1986a), as well as information on programs funded under the 1979–81 smoking and alcohol grant program (US DHHS 1986a).

The NDN of the National Institute on Education includes data on extent of diffusion of evaluated and validated curricula. While health education is not its primary focus, NDN does include five comprehensive health education and substance abuse prevention programs into which smoking prevention has been integrated, including "Growing Healthy" (NDN 1988b). Other promising programs, such as "Know Your Body," are currently under review. By providing information on the programs, awarding grants to further the dissemination of selected curricula, and maintaining annual records on program dissemination among participants (NDN 1988a), NDN functions both in the active dissemination of programs and in monitoring the extent of use of various curricula nationwide.

Complementing the need to get research-derived programs into the hands of schools and other organizations, continued program evaluation is needed once they are out in the field. These data are needed to address questions concerning the applicability of programs, the extent and quality of implementation, and their effectiveness once outside of controlled research settings. Additionally, through inquiry into factors affecting actual distribution and use of programs, these evaluations could also contribute to the development of guidelines supporting effective dissemination of smoking prevention programs.

In these evaluations of the dissemination process, statistics need to go beyond data such as number of sets of program materials distributed, to include surveys of actual use and degree of implementation as well as program impact. The evaluation of two ACS elementary school health education programs, for example, included data on teacher use of materials (Pigg et al. 1985). There was considerable variation in the percentage of teachers reported to have used materials in those schools that had kits available. The ACS "Usage Report Card," a record-keeping system for use by teachers to

document numbers of children exposed to the materials, was not always completed and mailed as requested, according to 75 percent of schools surveyed. Variability in extent of use and in documenting such use contributes to the difficulty of interpreting levels of implementation even when, in the case of this study, approximately 80,000 copies of the programs had been distributed to schools.

Best and colleagues (1988) have outlined research needs on the diffusion of smoking prevention programs—research the authors consider at least as vital as that evaluating effectiveness of program content. Diffusion studies, they conclude, should entail consideration of five sets of factors: planned diffusion strategies, program packaging, provider training, implementation monitoring, and costing (both cost of materials and cost-effectiveness of the program).

Problems in Evaluation of Smoking Prevention Programs

Prevention efforts within the psychosocial, more general health education, and media approaches have operated with very different goals, intended mechanisms for effect, and standards for evaluation. As reviewed above, the psychosocial influence smoking prevention curricula have been subjected to years of research development and evaluation (e.g., Best et al. 1988; Biglan and Ary 1985; Flay 1985b; McCaul and Glasgow 1985; Snow, Gilchrist, Schinke 1985). The literature contains much detail about their effects in university-administered research projects. However, far fewer data are available on the extent of their adoption and use by others in the field and on their impact when implemented in less-controlled settings (Best et al. 1988; Cleary et al. 1988). In most cases, active mechanisms for dissemination of the research products are lacking. These programs are most often not part of a system to ensure their dissemination once the typical 3- to 5-year development and evaluation phase of the research is complete. (See Prevention Section, Problems in Dissemination of Prevention Programs.)

Prevention programs based on PSAs, posters, brochures, and other curriculum resources sponsored by Federal agencies and professional and voluntary organizations have been widely distributed through the tremendous efforts of these agencies and organizations. However, their effectiveness has generally been less thoroughly evaluated than that of the psychosocial smoking prevention curricula. Reflecting the priority of using their limited resources for dissemination, the programs and their outcomes rarely receive a level of evaluation comparable to that found in the peer-reviewed research literature on smoking prevention.

Continuing methodological problems in prevention research include variations in criteria for measuring smoking outcomes in different studies, problems of attrition (Biglan et al. 1987; McAlister and Gordon 1986), limitation to white middle-class subjects (Gilchrist and Schinke 1985; Glynn in press), differences in level of analysis of effects and level of assignment to treatment or control group (Flay 1985a), and limited long-term followup.

Need for Long-Term Followup

The need for long-term perspectives and followup of the effects of smoking prevention programs has been noted in the 1979 Surgeon General's Report (US DHEW 1979b) and by Chassin and colleagues (1985), Evans (1984), and others. Prevention effects need to be maintained and monitored throughout the high school years to ensure that youth pass through this risk period without becoming smokers. Although long-term evaluation of prevention programs is frequently included in review article recommendations for future research (Biglan and Ary 1985; McAlister, Perry, Maccoby 1979), reports of 2-year or, less frequently, 3-year impact (for study subjects most often originally in junior high) constitute the most common long-term followups (Telch et al. 1982; Johnson et al. 1986; Chassin et al. 1985). A recent report by Flay, Thompson, and colleagues (1987) included results for a 6-year followup of students in the Waterloo Smoking Prevention trial. While prevention of onset of experimental smoking persisted through the end of grade 8, at the next assessment, during grade 12, no significant effect remained. Another NCI-funded smoking prevention project is currently tracing subjects through the important transition beyond high school (Murray, described in Glynn, in press).

There are data suggesting that *delay* in initiation can constitute a desirable prevention outcome: delayed onset has been found to be associated with decreased mortality (US DHHS 1986a) and increased likelihood of quit attempts and cessation during the school years (Ershler et al., in press). However, variations in age of onset considered in these studies were naturally occurring and not the result of a specific prevention program. Thus, it remains to be confirmed that program-induced delays in onset among contemporary youth have the same relationship to later smoking behavior and health outcomes as do the naturally occurring variations.

Construct Validity

Another major methodological challenge posed in the evaluation of prevention programs is the problem of construct validity (Flay 1985a; McCaul and Glasgow 1985). With even the most highly developed programs, given their use of a multiple component format, it has been difficult to determine the key elements responsible for a prevention effect. Best and colleagues (1984, 1988), among others, express the more general need to study the factors mediating program impact in order to understand what program components work for whom. Given the current gender differential in smoking prevalence among young people (Chapter 5), and the possibility of gender differences in effectiveness of intervention strategies, further attention should, for example, be given to gender differences relevant to prevention programs (Gilchrist, Schinke, Nurius, in press; Gritz, 1986).

The studies of Hops and colleagues (1986), Murray and associates (1984), Perry and colleagues (1983), and Botvin, Renick, and Baker (1983) are among efforts to pursue construct validity and develop data on the efficacy and necessity of the specific program components. Hops and colleagues (1986) focused on refusal skills training and assessment of program impact through audiotaped test situations (offers to smoke). While

this study of seventh grade students did not include a sufficient number of smokers to test for program impact in preventing smoking, analysis of student responses to the test situations found that students who received a smoking prevention program involving refusal skills training took less time to respond to the taped offer to smoke, and gave longer responses than did the control subjects, thus confirming several measures of behavioral impact of the program.

The studies of Murray and associates (1984) and Perry and colleagues (1983) compared program conditions varying instructors (adult or peer) and program content (long-term health consequences, social consequences, and immediate health effects). Murray and colleagues found the short-term-influences material, both social and physiological, to be most effective in preventing onset of smoking. Delivery of short-term-influence messages material by same-age peer leaders was more effective than by adult leaders. Perry and colleagues found a similar instructor by material interaction. In this study of 10th grade students, college-age peer leaders were more effective in delivering material on social pressures; adult classroom teachers were more effective with the traditional health effects curriculum. In this study, however, no differences were found overall between the effectiveness of the different curriculum programs. The curriculum emphasizing long-term health effects was as effective as those emphasizing more immediate social and physical effects.

In their study of the impact of characteristics of program delivery of the Life Skills Training material, Botvin, Renick and Baker (1983) found that an intensive "mini-course" format had comparable preventive effects at 1 year as the same material offered one classroom session per week. By the end of the second year, however, the more intensive format had greater impact on several measures of student smoking. The addition of "booster" sessions also added to the program's effectiveness.

Failure to Reach Dropouts and Other Youth at Higher Risk for Smoking

An intrinsic limitation of school-based prevention programs includes failure to reach truants and dropouts who are at higher risk for smoking (Flay, Thompson et al. 1987; Pirie, Murray, Luepker 1988). Numerous studies have suggested that those adolescents who skip classes and have lower grades and educational aspirations are more likely to smoke (Flay et al. 1983; Johnston, O'Malley, Bachman 1987). The recent studies by Pirie, Murray, and Luepker (1988) and Flay, Thompson, and coworkers (1987) confirmed that high school dropouts are more likely to be smokers. This limitation has implications both for the effectiveness of the intervention efforts and their evaluations. The need for more attention to high-risk youth, those young people apt to smoke and, more generally, to be involved in multiple risk behaviors (e.g., other forms of substance use, early sexual activity, and pregnancy) is particularly acute. Groups of youth who are at especially high risk of smoking are likely to receive more attention in new research (Glynn,in press), paralleling trends in the field of adult cessation, where interest has turned to heavy smokers who appeared to experience the most difficulty in smoking cessation (NCI 1984, 1986a). Gilchrist and Schinke (1985) have called attention to the need for broader strategies for high-risk youth. Sussman and colleagues (1987) have noted ethnic group differences in rates of smoking and in psychosocial predictors of

smoking among seventh and eighth grade students in southern California, differences bearing on the effectiveness of various prevention strategies. (See Chapter 5.)

Differences in likelihood of smoking among subgroups of youth led Best and colleagues (1988) to raise a question of strategy for young smokers: Should efforts be focused on groups at high smoking risk, or should prevention programs seeking full population coverage be continued? The need to address high-risk youth, and in particular those from blue-collar socioeconomic backgrounds, is apparent in the face of the continuing marked differences in the likelihood of smoking among youth who drop out of school (Pirie, Murray, Luepker 1988; Flay, Thompson, et al. 1987), those who stay in high school but without plans for further education, and those who go on for postsecondary education (Johnston, O'Malley, Bachman 1987). (See Chapter 5.) Marked occupational differences in smoking prevalence further reinforce socioeconomic differences in smoking when young people enter the workplace (US DHHS 1985a).

Population Factors Related to Diversification of Smoking Prevention Programs

The evidence so far does not support the hypothesis that a single program has been or can be developed to prevent adolescent smoking across the board. Rather, successful smoking prevention may result from the aggregate of multiple types of programs and avenues of delivery, thus supporting continued diversification of program approaches. (See Glynn, in press; Perry et al. 1983.) Consideration of secular trends of smoking attitudes and behavior as well as other characteristics of the population also supports the need for program change and diversification over time.

Shifts in the effectiveness of prevention or intervention strategies may reflect as much the target population and the historical era as the inherent quality of their design. As Green and Green (1977) stated, any health education effort, any diffusion of a new program or behavior must consist of a series of "time-dependent strategies." Approaches effective with the early cohorts—for instance, the approaches that showed promise in influencing the first cohorts of young people to avoid smoking—may not be effective with later cohorts or with the remainder of the first cohort that was not affected by the initial intervention. Flay (1987a,b), for example, with regard to media-based adult smoking cessation programs, suggested that there are differential potentials for program impact as the level of knowledge about the health risks of smoking changes. Best and associates (1988) and Chassin and others (1987) have also considered the changes in optimal prevention target populations that can occur with either differential prior program impact or changes in secular trends in knowledge and behavior.

The effectiveness of different prevention programs has also been influenced historically by the social and demographic shifts of age and gender in smoking among young people that occurred over the last 25 years (Chapter 5). The young smokers of the early 1960s started at more advanced ages than contemporary youth; smoking was more prevalent among males than females. In the mid-1970s through the 1980s, the rate of smoking by girls first matched and then exceeded the rapidly declining rate of smoking by boys. (See Chapter 5). Many schools used to grant students smoking privileges. Now schools have revoked or seem increasingly likely to revoke student smoking

privileges and to strengthen and enforce existing nonsmoking policies. Society, as a whole, is in a new period of increased disapproval and regulation of smoking (Chapters 4 and 7).

The relationship between these larger social trends in smoking behavior and attitudes and the impact of prevention programs on the prevalence of smoking by youth should also be considered. The increasing social disapproval of smoking by both adults and young people (Johnston, O'Malley, Bachman 1987) may reinforce prevention program effects. Prevention programs implemented during the time when smoking behavior was increasing among youth were swimming against the secular stream of increasing pressures and examples to smoke; later programs could, on the other hand, benefit from the growing attitudinal and behavioral momentum against smoking. Moskowitz (1983, p. 239) observed that "The current social climate regarding cigarette smoking may be essential to the success of recent programs in preventing cigarette smoking." In contrast, the generally unsuccessful smoking prevention programs of the 1950s, 1960s, and early 1970s were conducted during a period of increasing acceptance of smoking by youth, the creation of new school-sanctioned smoking privileges, and rising rates of smoking by young females. The prevalence of smoking by American youth did not begin to decrease until the mid- to late 1970s, precisely the time that research on the more successful social influence curricula began (Evans 1976). The sharpest decrease in the smoking prevalence among youth occurred during the late 1970s.

As presented in Chapter 5, the rate of smoking among high school seniors failed to decline in the 1980s. Should this plateau of smoking prevalence by high school seniors persist, further shifts in prevention approaches may be needed. This could include changes in the content balance of program and policy approaches and in increased efforts to ensure wider dissemination of existing programs. More broadly, it highlights the need for continued adjustment of prevention strategies and the importance of diversified approaches upon which to draw.

PART II. SMOKING EDUCATION AND CESSATION ACTIVITIES

Changes in Cessation Activities Over Time

As medical research has increasingly related smoking to disease, efforts to aid smoking cessation have proliferated. Organized efforts to assist smokers in stopping actually began in the late 1950s with the "Five-Day Plan to Stop Smoking," developed by the Seventh Day Adventist Church (McFarland 1986). This program emphasized both the physical and psychological aspects of addiction to cigarettes. Components of the Five-Day Plan, such as a buddy system, a public pledge to stop smoking, increased physical activity, and changes in diet, are important elements of many of today's cessation programs.

Smoking cessation treatments have been available since before 1900 (Dillow 1981). Many different methods have been advocated as effective treatments for stopping smoking. These have included drug treatments such as amphetamines, tranquilizers, lobeline, and nicotine gum, hypnosis, acupuncture, professional counseling, aversive

conditioning procedures such as rapid smoking and satiation smoking, and a wide range of behavioral self-management strategies. Different types of treatments have been emphasized during different time periods: conditioning-based approaches were emphasized in the 1960s, cognitively based self-management procedures were emphasized in the 1970s, and relapse prevention and pharmacologic interventions were emphasized in the 1980s. The new generation of strategies concerned with relapse prevention focus attention on weight gain, high-risk situations, and cognitive and behavioral coping behaviors.

While the emphasis given to different cessation treatments has varied over time and certain relapse prevention strategies and pharmacologic approaches have been added, other specific methods for helping people stop smoking have not changed much over the past 25 years (Schwartz 1969, 1987; Schwartz and Rider 1978). The packaging and marketing of cessation aids and services have become more sophisticated, with increasing emphasis on tailoring approaches to special groups (e.g., worksites, pregnant women, and black and Hispanic smokers).

In addition, the last decade has seen a rapid increase in the accessibility of smoking intervention activities in community channels such as physicians' offices, worksites, and the media (Ockene 1987). This increasing availability of activities in the smoker's natural setting has in large part been a response to smoking as a public health issue and the recognition that about 90 percent of former smokers report stopping without the use of a special program (Fiore et al. 1988).

Smoking cessation researchers have long recognized smoking to be a complex behavior influenced by physiological, psychological, cognitive, and social factors. (See Chapter 5.) In recent years there has been a trend toward combining elements of different cessation methods into programs that respond to the multifactorial nature of smoking (Pechacek 1979; Schwartz 1987; US DHHS 1988). Research on multicomponent cessation programs has been encouraging, generally producing the best results, although evidence suggests that even with such methods the majority of smokers return to smoking within 1 year (Schwartz 1987; US DHHS 1988). In general, most cessation treatments yield 1-year quit rates (based on all original participants) between 10 and 40 percent (Danaher 1980; Glasgow and Lichtenstein 1987; Schwartz 1987; US DHHS 1986a; US DHHS 1988). Variation in cessation rates among treatment methods is probably due more to differences in smoker selection of the various programs than to the treatment methods themselves (Schwartz 1987). (Table 1 provides a summary of 6- and 12-month outcomes for different cessation methods.)

Over the decades, studies of long-term outcomes in smoking cessation programs have consistently demonstrated that abstinence maintenance rates fall as time passes, making maintenance procedures an important adjunct to cessation (Hunt and Bespalec 1973; Lichtenstein and Danaher 1976; US DHHS 1986a). Thus, more recent smoking cessation research has focused on ways to prevent relapse and facilitate abstinence maintenance (Hall, Rugg et al. 1984; Lichtenstein and Brown 1983; Marlatt and Gordon 1985). Relapse prevention strategies have included: (1) efforts to teach smokers how to recognize cues to smoke and use behavioral strategies for dealing with urges to smoke (Hall, Rugg et al. 1984; Emmons et al. 1988); (2) interventions to enhance support for not smoking (e.g., extra group sessions, telephone contacts, use of spouses and

TABLE 1.—Summary of followup quit rates (percentages) of 416 smoking cessation trials, by method, reported 1959–85

Intervention method	Quit rate (at least 6-mo followup)				Quit rate (at least 1-yr followup)			
	Number of trials	Range	Median[a]	Percent 33%[b]	Number of trials	Range	Median[a]	Percent 33%[b]
Self-help	11	0–33	17	18	7	12–33	18	14
Educational	7	13–50	36	71	12	15–55	25	25
Five-day plan	4	11–23	15	0	14	16–40	26	21
Group[c]	15	0–54	24	20	31	5–71	28	39
Medication	7	0–47	18	14	12	6–50	18.5	17
Nicotine chewing gum	3	17–33	23	33	9	8–38	11	11
Nicotine chewing gum and behavioral treatment or therapy	3	23–50	35	67	11	12–49	29	36
Hypnosis, individual	11	0–60	25	36	8	13–68	19.5	38
Hypnosis, group	10	8–68	34	50	2	14–88		50
Acupuncture	7	5–61	18	29	6	8–32	27	0
Physician advice or counseling	3	5–12	5	0	12	3–13	6	0
Physician intervention, more than counseling	3	23–40	29	33	10	13–38	22.5	20
Physician intervention, pulmonary patients	10	10–51	24	20	6	25–76	31.5	50

TABLE 1.—Continued

Intervention method	Quit rate (at least 6-mo followup)				Quit rate (at least 1-yr followup)			
	Number of trials	Range	Median[a]	Percent 33%[b]	Number of trials	Range	Median[a]	Percent 33%[b]
Physician intervention, cardiac patients	5	21–69	44	80	16	11–73	43	63
Risk factor					7	12–46	31	43
Rapid smoking	12	7–62	25.5	33	6	6–40	21	17
Rapid smoking and other procedures	21	8–67	38	57	10	7–52	30.5	50
Satiation smoking[d]	11	14–76	38	64	12	18–63	34.5	58
Regular-paced aversive smoking[d]	13	0–56	29	31	3	20–39	26	33
Nicotine fading[d]	7	26–46	27	29	16	7–46	25	44
Contingency contracting[d]	9	25–76	46	89	4	14–38	27	25
Multiple programs[d]	13	18–52	32	38	17	6–76	40	65

NOTE: Quit rates provided suggest overall trends. Most quit rates were based on self-reports. Some quit rates were recalculated to include all subjects, but most quit rates were based on reports by investigators. Some quit rates omitted subjects who did not complete treatment or persons who did not reply to followups. Definitions of followup may vary between trials.

[a]Median not calculated for fewer than three trials.

[b]Percentage of trials with quit rates of at least 33 percent.

[c]Three group trials had 5-month followups.

[d]Other procedures may have been used, and some trials may be included in more than one method.

SOURCE: Schwartz (1987).

coworkers) (Lichtenstein, Glasgow, Abrams 1986; Ockene et al. 1982); and (3) cognitive interventions to facilitate changes in self-perception, attitudes, and cognitions (Lichtenstein and Brown 1983; Marlatt and Gordon 1985). In general, findings in studies using relapse prevention strategies as part of a cessation program have been inconsistent (US DHHS 1986a).

Providers and researchers also have become more responsive to the idea that smoking cessation involves a process of change rather than a discrete act. (See Chapter 5 for a discussion of stages of cessation.) The process of cessation has been characterized, for example, as occurring in four stages: precontemplation, contemplation, action, and maintenance or relapse (Prochaska and DiClemente 1983). The stage model of cessation posits that separate influences are at play at different stages and that differing interventions may need to be tailored to these stages of smoking behavior change. This stage approach to cessation intervention has evolved over the last decade and is still in an early phase of development with no data available to test its effect.

Although the number and sophistication of cessation programs have grown over the past several decades, this does not fully account for the decreasing rate of smoking, because about 90 percent of former smokers report stopping without the benefit of any program or device (Fiore et al. 1988). During this same period, a separate but related development can be traced: the growing recognition of smoking as a socially mediated practice susceptible to change in its social environment (Bailey 1986; Iglehart 1986; Nuehring and Markle 1974; Slade 1985; Warner 1986a). Although most health agencies continue to sponsor programs to assist individual smokers in stopping, these organizations also are increasingly advocating policies addressing the environmental factors that support or discourage smoking (e.g., smoking control regulations) (ACS 1976, 1978; Blum 1986; US DOD 1986, 1987; Lundberg 1985; Lundberg and Knoll 1986; Warner et al. 1986; Whelan 1984; see Chapter 7).

As noted above, the evaluation of cessation programs and techniques has been adequately covered in numerous past and recent reviews and is not the subject of this Section. (For recent extensive reviews of cessation activities, see reviews by Schwartz (1987) or US DHHS (1986a).) The remainder of this review will be devoted to a historical perspective of the efforts of the many diverse groups involved in promoting cessation activities.

National Voluntary Health Organizations

The three major national voluntary health organizations, ACS, ALA, and AHA, have played an important role over the last 25 years in disseminating information about the hazards of smoking and in providing assistance to those who want to stop. Introduced in Part I, these efforts have included such interventions as the production and distribution of print and broadcast materials, including pamphlets, posters, and television and radio public service advertising; public educational programs; direct provision of services to smokers who want to stop smoking, including self-help materials and clinics; and training and materials for such intermediaries as educators and health care providers who influence smokers to stop. While the resources devoted to the antismoking effort have varied over time and among agencies, it was estimated that the sum total of finan-

cial resources available from the major voluntary organizations has never exceeded 1 or 2 percent of tobacco industry expenditures for the promotion of cigarettes (ACS 1978). It is also true that these voluntary agencies receive support in the form of donated public service time and space and contributed effort. However, even with this support, the level of resources devoted to antismoking efforts represents a small fraction of tobacco industry expenditures to promote smoking.

In 1965, ACS initiated its "The Time to Stop Is Now" campaign based on recent epidemiologic studies showing that smokers can ameliorate the ill effects of cigarettes by quitting. ACS followed this with a series of television commercial campaigns focusing on the negative aspects of smoking. In 1968, ACS issued a posthumous PSA featuring television actor William Talman, a smoker who died of lung cancer. At the same time, ACS was producing films (one nominated for an Academy Award) and pamphlets providing advice on quitting (Patterson 1987) and was initiating a small-group public education campaign that by the late 1980s had reached more than 60 million people.

In 1964, AHA issued the pamphlet *Where There's Smoke There's Danger from Heart Disease* and in 1966 distributed to affiliates a kit containing broadcast media materials, posters, pamphlets, and newspaper features. In 1967 and 1968, AHA issued television spots highlighting nonhealth advantages of not smoking (e.g., saving money, no bad breath). In 1968, AHA produced the film "Smoking and Heart Disease" and in 1969 issued the pamphlet *How to Stop Smoking*, which was its first effort to develop material to assist smokers in stopping. Since then, AHA has produced other pamphlets and films; however, a primary focus of its smoking control efforts has been prevention of smoking by youth.

ALA, in 1965, produced a public education campaign against smoking, "New Viewpoint on Smoking," based on the 1964 Surgeon General's Report. ALA again produced significant public education antismoking materials in the late 1960s, when the Federal Communications Commission (FCC) ruled that broadcasters must present antismoking public service messages to balance prosmoking advertisements (Patterson 1987). As part of this campaign, ALA produced two pamphlets, *Me Quit Smoking? Why?* and *Me Quit Smoking? How?* These booklets present the health effects of smoking and describe cigarette use as a socially learned behavior to be broken either through quitting cold turkey or by gradual withdrawal.

As noted in the previous section, in 1964 the major national voluntary and Government agencies had joined to form the National Interagency Council on Smoking and Health to coordinate antismoking activities. In general, the voluntary organizations during the late 1960s and the 1970s stressed the public health education approach to disease control rather than the legislative approach.

In 1967, attorney John Banzhaf obtained a ruling from the FCC applying the Fairness Doctrine to cigarette advertising and requiring broadcasters to provide a significant amount of time to antismoking messages to balance the prosmoking message of cigarette advertisements (Patterson 1987). In 1968, Banzhaf formed a new organization, Action on Smoking and Health (ASH), with the immediate goal of legally defending application of the FCC Doctrine to cigarettes and monitoring broadcaster compliance. (See Section on Advocacy, this Chapter).

The FCC's ruling was ultimately upheld by the Supreme Court in 1969. Beginning in mid-1967, the ruling opened the airwaves to an unprecedented barrage of antismoking messages produced by the major national voluntary agencies (Warner 1986). At its peak in 1970, the donated television and radio time constituted a subsidy of approximately 200 million dollars (in 1985 dollars) (Warner 1986). These messages probably helped contribute to changing public opinion on smoking, not only because they provided information about its health effects, but also because their mere presence on television reflected, and may have contributed to, a normative change in attitudes toward the entire issue (Warner 1978, 1986). In 1971, cigarette advertising disappeared from broadcasting, and the frequency of antismoking messages fell dramatically (Warner 1977). (See Chapter 7.)

During the 1970s, the efforts of the voluntary agencies continued to focus on educating the public about the dangers of smoking, as exemplified by the title of a film produced by ALA in 1970: "Is It Worth Your Life?" ACS sponsored a series of programs on smoking cessation on the Public Broadcasting System and recruited actor Tony Curtis as its first national IQ (I Quit) Chairman. As early as 1964, ACS had used athletes and show business personalities in poster campaigns, both to draw attention to antismoking messages and to provide social validation of the messages. This trend continued through the 1980s.

In 1973, ALA was the first major voluntary organization to explicitly recognize the importance of fostering norms supportive of nonsmoking (ASH 1978). ALA had already begun addressing the issue of environmental tobacco smoke (ETS) in 1971 with a television public service campaign and a jingle, "Mind Very Much If They Smoke." This campaign and those that followed almost every year thereafter portrayed smoking as antisocial behavior and were intended both to inform smokers that their behavior offended others and to reinforce nonsmokers' rights to object to ETS.

In addressing the ETS issue, ALA had an advantage over ACS and AHA, whose activities were restricted by their mandates to control cancer and cardiovascular disease, which in the early 1970s had not yet been related to ETS. The 1972 Surgeon General's Report, the first to review the evidence that ETS harms nonsmokers, provided ALA with sufficient justification to initiate action (US DHEW 1972). In 1973, ALA established protection of nonsmokers as a major program priority and in 1975 became the first major agency to retain a full-time staff member dedicated to promoting smoking restrictions.

The nonsmokers' rights movement continued to build through the 1970s (see next section on advocacy and Chapter 7), but for the most part it was a local, grassroots campaign. In a report prepared for the Tobacco Institute, the Roper Organization (1978) called this movement "the most dangerous development to the viability of the tobacco industry that has yet occurred." The movement undercut the image of smoking as a socially acceptable and even socially necessary behavior, and it motivated many more people to join in the antismoking movement out of self-interest. However, the major voluntary organizations involved in smoking activities for the most part continued to focus their efforts on a public education approach to the smoking problem.

In 1976, ACS announced a new initiative against smoking entitled "Target 5." Among other goals, it aimed to persuade 25 percent of smokers to quit and to reduce

cigarette tar and nicotine levels by half (ACS 1976). Toward attaining the former goal, ACS in 1977 issued the "I Quit Kit," a sophisticated package of materials including booklets, posters, buttons, a calendar, stickers, and a phonograph record. The basic cessation techniques included: self-monitoring of smoking pattern, deliberate changes in daily routine, gradual reduction in the number of cigarettes smoked, and suggestions for nonsmoking maintenance. Two years later, ALA issued its "Freedom From Smoking"® program, similarly a handsomely packaged kit that has been experimentally evaluated (Davis, Faust, Ordentlich 1984).

The effort to educate smokers about the possible reduction in danger from low-tar and -nicotine cigarettes and to encourage the marketing of lower tar cigarettes culminated in the late 1970s when NCI scientist Dr. Gio Gori and a colleague published a paper speculating that some low-tar cigarettes, smoked in moderate amounts, might present little health risk (Gori and Lynch 1978). The voluntary and Government agencies responded with intense criticism. However, the perception existed among many smokers that some cigarettes are less hazardous than others (see Table 3, Chapter 4). This was probably related, at least in part, to efforts by the voluntary agencies and Government agencies suggesting that smokers could lower their risk with steps short of quitting (ACS 1978). This perception of the safe cigarette changed as evidence gathered that the use of lower yield cigarettes has almost no health benefit except for lung cancer (US DHHS 1981) and may even increase the health risk due to compensation (US DHHS 1988) (See Chapter 5).

In 1972, a no-smoking day was sponsored in Oklahoma by ALA and in 1974 in Minnesota by ALA, ACS, and AHA. In 1977, ACS adopted the Minnesota program and rechristened it "The Great American Smokeout" (GASO) (Smith 1977). The program can now be seen as a forerunner of contemporary programs to help smokers quit by fostering social support for cessation. A nationally publicized event held on the Thursday before Thanksgiving, GASO encourages antismoking activities in the community and provides materials to those wishing to conduct antismoking activities in places such as schools, worksites, and health care facilities.

Every year since 1978, ACS has commissioned a Gallup poll of public awareness and participation in GASO. Awareness has always been high; in 1978, 82 percent of adults polled were aware of GASO, a figure that reached 90 percent by 1987. Reported participation by smokers has grown over time also. In 1978, 6.7 percent of smokers interviewed reported abstaining from smoking on GASO day, with another 19.9 percent reporting they cut down. In the peak year, 1986, 12.8 percent reported that they did not smoke and 30.9 percent cut down (Figure 1).

Only two published studies provide data on how many people maintain cessation long term after GASO. In 1979, Dawley and Finkel (1981) followed 125 smokers at the New Orleans Veterans Administration Hospital who registered to quit on GASO day. Two months after GASO day, 66 percent reported that they had attempted to reduce or quit smoking on GASO day. Of those who attempted to stop smoking on GASO day, 13 percent (9 percent of the 125 smokers in the study) reported not smoking 2 months later. In 1984, Gritz, Carr, and Marcus (1988) followed a group of 240 smokers who

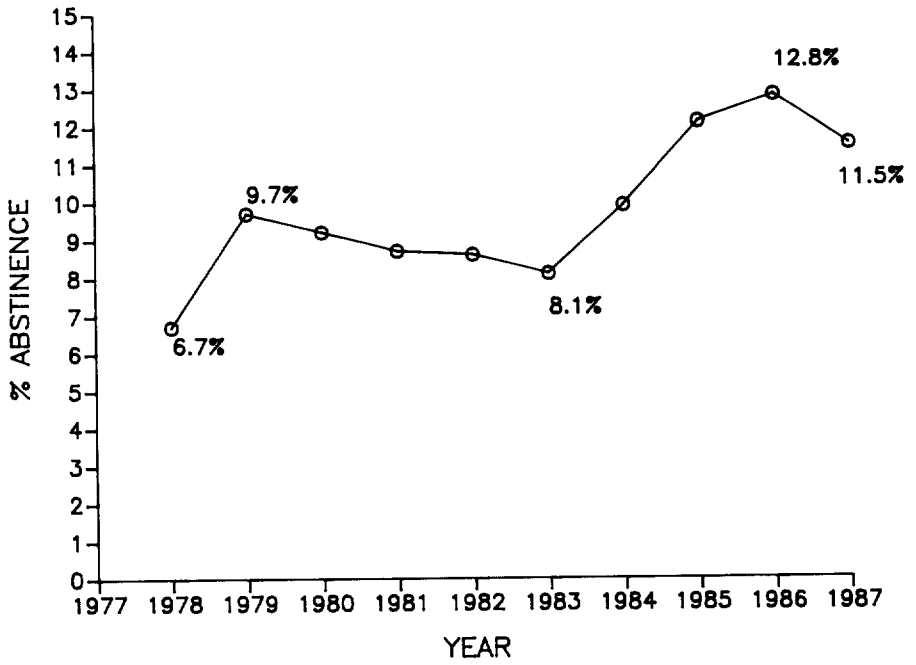

FIGURE 1.—Reported abstinence during Great American Smokeout

SOURCE:The Impact of the Great American Smokeout (1978–87), conducted by the Gallup Organization, analyzed by Lieberman Research, Inc.

pledged to quit smoking on GASO day. At 1-year followup, 25 percent reported not smoking and 13 percent had continuously quit for the entire year.

The voluntary agencies increased antismoking efforts in the early 1980s. By then, three of the five television spots ALA produced every year were antismoking messages. These, as many voluntary agency spots had done, used celebrities to call attention to the health consequences of smoking. In addition to vigorously promoting GASO, ACS released a series of attention-getting PSAs, including a simulated "Smoking Fetus" spot and Yul Brynner in a posthumous plea to smokers to quit.

Building on the nonsmokers' rights movement and the trend toward health promotion at worksites, the voluntary organizations have begun actively marketing smoking policy and cessation services to businesses. ACS, with a national policy prohibiting it from charging for any services, has been limited in its activities in this area, but both ALA and AHA have developed self-supporting intervention programs ("Freedom From Smoking® at Work" and "Heart at Work," respectively). Both include consultation on the development and implementation of smoking policies and provision of cessation clinics and self-help materials.

In 1985, ALA worked with a local television news show in Chicago to produce a stop-smoking series that aired during 4:30 p.m. or 10:00 p.m. news broadcasts (Flay 1987b). The series, based on the ALA "Freedom From Smoking"® self-help guide, has

been replicated in about 10 cities in the United States and has been planned for several others (Flay 1987b).

ALA and ACS have also developed programs to target pregnant smokers who have often gone unnoticed. In 1988, ACS developed a smoking cessation program, "Special Delivery," designed to reach low-income pregnant women in a variety of settings where they receive prenatal health, education, and social services. The package includes a video, slides, and a stop-smoking book. In 1986, ALA developed a smoking cessation program targeted at pregnant women, "Freedom From Smoking for You and Your Baby," which is distributed to health care professionals providing services to pregnant women. The kit includes instructions to the provider, posters, and information leaflets and self-help materials for the pregnant woman. ALA has also developed a special smoking intervention program for the Los Angeles Women, Infants, and Children (WIC) nutrition program's Healthy Mothers, Healthy Babies Coalition. This smoking cessation program for low-income pregnant women enrolled in WIC began in 1986 and includes slides, handouts, and reminder messages.

In 1982, the three major national voluntary bodies formed the Coalition on Smoking OR Health. The Coalition's major roles are to monitor Federal legislative and regulatory issues and to support those promoting nonsmoking (see the next Section). In 1986 the three national voluntary organizations, through the Tobacco-Free Young America Project, extended their coordinated efforts beyond the legislative sphere and began to coordinate strategies in public education and information. This project developed an educational approach, referred to in the preceding section, intended to produce a tobacco-free high school graduating class in the year 2000 (US DHHS 1986a).

Health Professional Associations

Medical and public health groups have played an important leadership role in directing efforts to curtail smoking and its promotion (Lundberg 1985). In terms of their own smoking behavior, physicians and other health professionals were among the first groups to respond to the evidence relating smoking and disease. In the early 1950s, 53 percent of U.S. physicians were cigarette smokers (Garfinkel and Stellman 1986). Subsequently, smoking rates fell steadily (US DHHS 1985a), and today, 9 percent smoke (Harvey and Shubat 1987).

Although in the early years many health professionals spoke out against tobacco, many did not fully accept the epidemiologic evidence (Patterson 1987; Rosenberg 1983). Officially, the American Medical Association (AMA) and most other medical and public health groups supported the position that research was needed to deal with the cigarette problem (Patterson 1987; Rosenberg 1983). It was assumed that smokers would stop smoking if the medical evidence linking smoking and disease was sound. With regard to public education efforts, AMA and specialty groups urged their members to persuade others to cut down or give up smoking (Cohen 1978; Rosenberg 1983) but did not otherwise extensively support public education efforts. Even today, data suggest that many physicians are not advising cessation to patients who smoke (Anda et al. 1988; Ockene et al. 1987). According to a 1986 national survey of 13,031 adults aged 17 years and older, only 45 percent of smokers reported that a physician had ever

advised them to stop smoking (Davis 1988b). In other studies it was determined that the presence of disease is positively related to whether physicians advised cessation (Anda et al. 1988; Ockene et al. 1987).

In 1964, AMA officially called smoking ". . .a serious health hazard" and recommended that health education programs on smoking be developed by AMA and be made available to the public through the media (Iglehart 1986; Lundberg 1985; Rosenberg 1983). However, no funds were appropriated to support the antismoking campaign. AMA opposed the addition of warning labels to cigarette packages, stating in a 1964 letter to the FTC that "The health hazards of excessive smoking have been well publicized for more than 10 years. . .they are common knowledge" (Rosenberg 1983). When warning labels were mandated by Congress in 1965, AMA reversed its position on the labeling issue. In 1969, AMA passed a resolution to discourage smoking through pronouncements and education programs (Rosenberg 1983).

In 1978, AMA published a report, *Tobacco and Health*, summarizing the results of a tobacco research program sponsored by the AMA Education and Research Foundation (AMA 1978) that included financial support from the tobacco industry. This report, which received wide media coverage, concluded that cigarette smoking was an important cause of cancer and chronic obstructive pulmonary disease and constituted a danger to persons with preexisting coronary disease. The preamble to the report stated that the findings from the project had not altered the conclusions of the 1964 Surgeon General's Report. Following issuance of the report, AMA allocated 45,000 dollars to support a public service antismoking campaign emphasizing smoking cessation and research (Rosenberg 1983).

Frustrated by the reluctance of medical organizations to take a stronger stand against smoking, a family physician, Dr. Alan Blum, in 1977 founded the organization Doctors Ought to Care (DOC), a group of health professionals who direct their attention at tobacco advertising (Blum 1979, 1980). (See Advocacy Section, this Chapter.) Other medical and public health organizations have recently taken strengthened stands against the tobacco industry.

In 1986, AMA accepted a proposal for a public awareness campaign that called for a localized public health initiative designed for implementation by local medical societies or individual physicians (Lundberg and Knoll 1986). The result of this proposal was the development of the "Physicians Leadership Kit" (AMA 1987). The kit contains information on developing smoke-free health care facilities, material to lobby legislators and other public health officials to enact antismoking laws, and information for presentation to school groups to encourage a tobacco-free lifestyle. The kit presents sample materials that have been used successfully in various locations around the country and includes camera-ready copies of materials that can be easily reproduced. A total of 3,000 kits was produced in 1987, with copies sent to 1,000 local medical societies and auxiliaries.

In addition to AMA, several other medical and public health groups have been active in promoting smoking control measures. As long ago as 1968, the American College of Chest Physicians (ACCP), in conjunction with the National Clearinghouse for Smoking and Health, cosponsored a national forum on office management of smoking problems (Soffer 1988). The proceedings of the conference were published in ACCP's

official journal, *Chest* (ACCP 1968). Beginning with the convocation at the 1979 Scientific Assembly and repeated at every convocation since, new ACCP fellows pledge to make their offices and clinics centers of smoking cessation (Soffer 1980). In 1982, ACCP prepared work kits for physicians to use as teaching aids in instructing patients about the dangers of smoking and techniques for smoking cessation (ACCP 1982).

In 1987, the American Academy of Family Physicians (AAFP) developed a stop-smoking kit for use by family physicians in their offices (AAFP 1987). The kit includes a physician and office staff manual, stickers to identify the charts of patients who smoke, a smoking history form, and cessation materials for patients. The American Society of Internal Medicine has produced three antismoking kits for its members, one with material for physician offices (e.g., posters, tent cards, lapel pins), another with material for lobbying, and a third with material to stimulate media coverage on smoking and health (Davis 1988b). The American Academy of Pediatrics (AAP) is a sponsor of the Tobacco-Free Young America Project (AAP 1987). The American Dental Association (ADA) in 1987 published a pamphlet describing the hazards of smokeless tobacco use. ADA has produced similar pamphlets on smoking and oral cancer.

Available evidence indicates that physicians can have a significant impact on the smoking behavior of their patients and that cessation outcomes increase as interventions such as self-help materials, development of a cessation plan, and groups are added (Kottke et al. 1988; Ockene et al. 1988; Russell et al. 1979; Russell et al. 1983). Medical organizations such as AAFP, the American Society of Internal Medicine, and the American Medical Women's Association are therefore supporting programs at their national and regional meetings to train physicians to be more effective in helping smokers to stop smoking.

Through funding in 1984 from NCI's Smoking, Tobacco, and Cancer Program, investigators involved in physician training have demonstrated that smoking intervention training programs can have a significant impact on physician skills (e.g., Ockene et al. 1988; Wilson et al. 1988). These investigators have produced their own training packages. Other NCI-funded investigators have demonstrated the importance of office management materials that are needed to provide systematic identification of smokers, who are then given advice to stop smoking (Cohen et al. 1987; Solberg 1988). With the use of office procedures such as chart stickers and a system to monitor smokers, significantly more smokers are identified and available for physician advice. These programs indicate that physician smoking intervention skills and office practices can be improved with relatively brief training programs. Concern has been expressed, though, about the lack of coordination among the many private medical organizations and public health agencies producing materials for use by physicians to encourage smoking cessation by patients (Davis 1988b).

The contemporary efforts of medical and public health groups to curb tobacco use have recognized that smoking control efforts must not only attempt to persuade individual smokers to stop, but also must help change the social environment that supports smoking (Iglehart 1986; Lundberg and Knoll 1986; Kottke et al. 1988). This is discussed later in this Chapter.

Federal Government Cessation Support

Office on Smoking and Health

In January 1968, the National Clearinghouse for Smoking and Health worked closely with ACS and the Public Broadcasting Service (PBS) to produce the "National Smoking Test," which was aired over the CBS television network during prime time. This 1-hr program was designed to give cigarette smokers suggestions on how to stop smoking (ASH 1978).

The Clearinghouse implemented the first study of a communitywide smoking control intervention in San Diego County, CA, between 1966 and 1971 (US DHEW 1976) (see Part I). This study included interventions aimed at schoolchildren, health professionals, and adult smokers. Although evaluation of the project was limited, the data collected suggested that the intervention had been successful. Survey results showed significant reductions between 1966 and 1975 in the percentage of adult smokers in San Diego compared with those in national samples (US DHEW 1976).

The first Government antismoking poster was produced by the Clearinghouse in 1968. The poster, carrying the message "100,000 Doctors Have Quit Smoking Cigarettes. Maybe They Know Something You Don't," appeared on U.S. Post Office trucks (Davis 1988b). Between 1967 and 1971, the Clearinghouse worked with ACS, ALA, and AHA to produce antismoking messages to be aired as a result of the FCC Fairness Doctrine ruling (Patterson 1987). Over the years, OSH has planned and produced several award-winning public education and information campaigns on smoking and health (US DHHS 1986a).

National Cancer Institute: Smoking, Tobacco, and Cancer Program

As discussed in the preceding section, the primary thrust of the Smoking, Tobacco, and Cancer Program (STCP) has been to study smoking behavior and to test intervention strategies for reducing tobacco use. Research programs have been supported in the areas of adolescent smoking prevention, self-help smoking cessation, mass media approaches to smoking control, and the use of physicians and dentists as interveners, as well as in special populations including blacks, Hispanics, women, and smokeless tobacco chewers (Fanning 1988; NCI 1986a). In 1986, STCP launched a multicenter study to evaluate the impact of a communitywide intervention effort to reduce smoking prevalence, particularly among heavy smokers. Costing 42.5 million dollars over 8 years, the effort is funding 11 institutions and involves 2 million people in 22 communities in North America; 11 of these 22 communities receive support to develop and promote cessation interventions. Interventions range from communitywide approaches including mass media and environmental change to those focused on groups of individuals, such as physician counseling, worksite programs, and self-help strategies. The campaigns will be linked with the existing programs of major voluntary and civic organizations in an effort to widely disseminate intervention components (Hamm 1988; Pechacek 1988).

Although research has always been the primary mission of NCI, in the mid-1970s, it began developing broad public and professional information programs on smoking through its Office of Cancer Communications (OCC) (US DHHS 1986a). In 1977, OCC published *Clearing the Air*, a self-help smoking cessation booklet. An updated version of the booklet was produced in 1987. This booklet is among the most popular NCI publications. It has been promoted through print and television announcements produced by OSH and through the OCC supermarket distribution program. Since the booklet was first produced, approximately 7 million copies have been distributed.

In 1978, OCC, in collaboration with AAFP and ALA, produced a speaker's kit for use by physicians and local organizations to present a community-based smoking education program. The kit, entitled "Everyone Can Do Something About Smoking," consisted of a slide–tape presentation narrated by Dick Cavett, "Smoking Digest," a planner's guide, physician guidelines, *Clearing the Air*, and a community action pamphlet. It was promoted initially through AAFP and ALA chapters, which resulted in about 250 orders for the kit. In 1979, the kit was duplicated for distribution through the National Audio/Visual Center.

OCC has been active in trying to increase the involvement of health professionals in counseling patients about cessation of tobacco use (NCI 1982). In 1978, OCC produced "Helping Smokers Quit," a cessation kit for use by physicians to help their patients stop smoking. The kit emphasized the "how-to" rather than the "why" of smoking cessation and contained a physician guide, followup note, memo to the nurse, waiting room posters, and a set of materials for 50 patients (including a repackaged version of *Clearing the Air*). The kit was promoted beginning in 1978 through two national mailings of a flier to 175,000 primary care physicians, several targeted direct mailings, special activities by outside organizations, and print advertisements and editorial placements in professional journals. About 150,000 kits were distributed over a 4-year period. A qualitative assessment of the kit showed that physicians were generally positive about using the materials (NCI 1982). However, a key finding was the failure of physicians to use the followup mail piece, emphasizing the need to develop practical ways to reinforce and maintain the smoking cessation effort begun in the physician's office.

In 1979, the "Helping Smokers Quit" program for physicians was adapted for use by dentists and dental professionals (NCI 1982). The program was called "Let's Help Smokers Quit." Beginning in 1980, this program was promoted by direct mail to 137,000 dentists, 37,000 dental hygienists, and 25,000 dental assistants; by a targeted mailing to specialized dental groups; through print advertisements and editorial placements in journals; and through exhibits at dental meetings and conferences. About 50,000 kits were distributed. User evaluation of the kit in 1981 found that the majority of dentists used the kit's guidelines to counsel 25 percent or fewer of their smoking patients. Most dentists found the kit materials to be useful and practical. The waiting room posters and followup postcards were the least-used components of the kit (NCI 1982).

"Quit for Good," developed in 1982, is a combined and streamlined version of the "Helping Smokers Quit" and "Let's Help Smokers Quit" kits and is based on the evaluation results of the earlier kits (NCI 1982). It features a health professional guide, waiting room materials, and 50 sets of two patient booklets, *Quit It*, a redesigned version

of *Clearing the Air*, and a new piece, *For Good*, which focuses on maintenance of nonsmoking rather than initial cessation. The "Quit for Good" kit was promoted beginning in 1984 by direct mail to 120,000 dentists, cardiologists, chest physicians, community health physicians, and black physicians, and through print advertisements, editorial mention in professional journals, and exhibits at major medical meetings. About 60,000 kits have been distributed to date. In collaboration with ACS, the kit is currently being revised in response to user feedback and an official protocol that NCI recently developed for physician stop-smoking programs.

The "Pharmacist's Helping Smokers Quit" kit program was developed in collaboration with the American Pharmaceutical Association and is similar to the physician and dentist kits (NCI 1982). The distinctive feature of this program is its focus on drug interactions in smoking. The kit contains a pharmacist's guide, counter cards, posters, and sets of take-home materials for 25 patients. In addition, OCC and the American Pharmacological Association worked with a private vendor to produce a special patient education label for containers that warn of possible adverse smoking–drug interactions. The program was launched officially in June 1986 at a national news conference at the American Pharmaceutical Association headquarters. The kit was promoted in succeeding months by direct mail to 25,000 members of the Association, a special mailing to chain drugstore owners, and print advertisements and editorial mention in pharmaceutical journals. A second wave of direct mail promotions was conducted during summer 1987 targeting the Nation's 67,000 retail and hospital pharmacies. Response to these direct mail promotions has been about 15 percent, with about 15,000 kits distributed.

In 1976, NCI established the Cancer Information Service (CIS), a toll-free telephone public inquiry system providing information about cancer (US DHHS 1986a). CIS offices are located near major cancer research centers across the United States. In addition to providing telephone assistance, CIS offers free printed materials on subjects ranging from types of cancer and treatments to smoking cessation. Many of the materials developed by OCC are distributed through the CIS network. CIS receives approximately 80,000 calls from smokers annually. In summer 1986, OCC collaborated with the NCI Division of Cancer Prevention and Control to develop a slide training program for CIS staff to help them better counsel patients who smoke on how to stop. This represented the first formal training effort for CIS staff on the topic of smoking since the service was launched.

National Heart, Lung, and Blood Institute

Like NCI, over the years, the National Heart, Lung, and Blood Institute (NHLBI) has devoted the majority of its smoking control dollars to biomedical research documenting the health hazards associated with tobacco use. Smoking has long been identified as one of the major risk factors for cardiovascular disease and the major risk factor for chronic obstructive pulmonary disease (e.g., Doyle et al. 1964; Hammond and Horn 1958; US DHHS 1983a, 1984) (See Chapter 2.). In the mid-1970s, NHLBI undertook a number of major clinical studies to evaluate whether risk factor intervention for cardiovascular disease could influence disease rates. The best known of these studies was the Multiple Risk Factor Intervention Trial (MRFIT), a randomized controlled trial to

investigate the effect of reducing cardiovascular risk factors in a group of asymptomatic men at high risk for cardiovascular disease (MRFIT Research Group 1982). A total of 12,866 men were randomized into two groups, special intervention (SI) and usual care (UC), with similar baseline characteristics. Those in the SI group received an intensive intervention program aimed at facilitating cessation of smoking, reduction in serum cholesterol by dietary changes, and reduction of blood pressure levels for hypertensives. Men in the UC group received annual medical checkups but no special program to modify smoking or other risk factors. The smoking intervention consisted initially of 10 weekly group classes that included smoking intervention and individual cessation counseling by health counselors and physicians (Hughes et al. 1981). After 6 years, the SI group reduced its prevalence of smoking 18 percentage points more than the UC group.

More recently, NHLBI has supported cardiovascular risk reduction studies involving entire communities (US DHHS 1984, 1986a). Smoking control has been a prominent element of these clinical research studies. Currently, NHLBI is funding several research projects on the topic of relapse prevention and cessation interventions aimed at special patient populations (e.g., post-myocardial-infarction patients) (NHLBI 1988). In 1984, NHLBI began a multicenter study of early intervention for chronic obstructive pulmonary disease, the Lung Health Study (NHLBI 1986). The objective of this study is to determine whether or not an intervention program of vigorous smoking cessation and use of an inhaled bronchodilator can slow the decline of lung function over the course of the 5-year period of followup. Approximately 6,000 men and women aged 35 to 59 years who are at high risk for chronic obstructive pulmonary disease based on lung function level have been entered into the study. Followup for the study will be completed in 1993.

In 1985, NHLBI initiated the Smoking Education Program (SEP), modeled after the highly successful National High Blood Pressure Education Program (NHLBI 1988). This program seeks to identify and implement strategies to reach critical target audiences that can serve as intermediaries in reaching smokers. For example, health care professionals have frequent opportunities to advise smokers to quit and are therefore identified as key targets of SEP. SEP also is developing materials for use in worksites where employee health programs provide an effective means of risk-factor reduction.

NHLBI efforts to develop and disseminate information to health providers on smoking control initiatives began in 1983 with the publication of the physician guide *How To Help Your Hypertensive Patient Stop Smoking* (US DHHS 1983b). This 24-page color booklet presented four simple smoking cessation procedures that emphasize patient commitment and physician followup. The guide was disseminated through print advertisements, and over 30,000 copies were distributed.

In 1983, NHLBI produced "We Can't Go On Like This," a series of seven video vignettes developed as part of MRFIT. From 3 to 7 min long, they provide a humorous approach to the subject of helping people stop smoking permanently. Each segment of this program helps workshop participants share and express their feelings and frustrations about their decision to stop smoking (US DHHS 1986a).

In 1986, SEP produced *Clinical Opportunities for Smoking Intervention: A Guide for the Busy Physician* (US DHHS 1986e). This physician guide represented an update

of the material presented in the guide for *Counseling Hypertensive Patients To Stop Smoking*. The guide describes a variety of methods for smoking intervention, including what can be done in a waiting room and what can be done during a physical exam, and how the briefest of interventions can have an impact on patients. Support material was also developed for the guide, including a slide kit that can be used as part of a medical training program to alert health professionals to methods they can use to have an impact on their smoking patients. In addition, the program distributes outreach materials, including reproducible print advertisements and guides to State and local programs designed to reduce smoking.

In 1986, SEP produced a guide for smoking policies at the worksite. This guide, *It's Your Business: Smoking Policies for the Workplace*, includes practical information about implementing smoking policies in the workplace. Facts are provided about smoking in the workplace and the effects of involuntary smoking. Short passages about companies that have successfully implemented smoking policies are included along with a resource section. SEP is continuing to plan and develop approaches to provide practical how-to information for worksites that plan to establish smoke-free or limited smoking environments. Future SEP initiatives will focus on reaching special populations, including patients with chronic heart or lung disease, minorities, and blue-collar workers (NHLBI 1988).

A joint conference on "Smoking Policies in the Workplace: Research Needs and Potential Applications" was convened in 1987 by NHLBI, and cosponsored by NCI and the Harvard Institute for the Study of Smoking Behavior and Policy. Proceedings of this conference are forthcoming in the *New York State Journal of Medicine* (Parker and Warner 1989).

Office of Disease Prevention and Health Promotion

ODPHP conducted a survey of worksite health promotion programs that included information on smoking cessation, education, and corporate policies (US DHHS 1987). It collaborated with OSH to produce "A Decision-Maker's Guide to Reducing Smoking at the Worksite" (US DHHS 1985b). Between 1984 and 1988, the Office managed the Department's "Healthy Older People" public education program, which targeted smoking cessation as one of six health promotion subjects of importance for people over 55 years of age. The U.S. Preventive Services Task Force, created and staffed by the Office, has published recommendations for clinical settings on smoking cessation counseling, together with a supporting scientific review (U.S. Preventive Services 1988). ODPHP staffed smoking and health workshops and participated in symposia organized by the International Union Against Cancer and delivered in Bolivia and Columbia (1983), Brazil, Paraguay, Ecuador, and Panama (1984), Costa Rica (1986), and Hong Kong and China (1987).

Department of Defense

There is a strong historical link between tobacco use and the military. Until 1975, cigarettes were part of the K- and C-rations provided to soldiers and sailors. In many