
Chapter 2

Evolution of Smoking Control Strategies

CONTENTS

Introduction	35
Information and Education Campaigns	35
Cessation Program Strategies	37
Withdrawal Clinics	38
Medication	41
Behavior Modification	42
Self-Help Materials	46
Multiple-Component Programs	48
Prevention Strategies	48
Relapse Prevention	48
Efforts To Prevent Initiation	50
Comprehensive Approach to Smoking Control	51
The Political Sector	53
The Economic Sector	54
The Education Sector	56
The Communication Sector	57
The Health Professional Sector	58
The Health Voluntaries' Sector	59
Conclusions	60
References	61

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Chapter 2

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INTRODUCTION

Evidence linking cigarette smoking with cancer began to accumulate in the 1930's and rapidly increased in the late 1940's and early 1950's. Four retrospective studies of the smoking habits of lung cancer patients and controls were published in 1950 (Doll and Hill, Levin et al., Schrek et al., Wynder and Graham), and each noted a consistent, statistically significant association between smoking and cancer of the lung.

Between 1954 and 1958, Hammond and Horn reported the findings of their large-scale prospective study of 187,783 U.S. males that showed significantly higher overall death rates for smokers than for nonsmokers. In the same years, a prospective mortality study of 40,000 British physicians provided independent demonstration of the relationship between cigarette smoking and disease (Doll and Hill, 1954 and 1956). The strength and consistency of these results, combined with evidence from laboratory and autopsy studies, led a national scientific study group to conclude that there was a causal relationship between smoking and lung cancer (Study Group on Smoking and Health, 1957).

In the following sections, this chapter describes how strategies for reducing the prevalence of smoking in the United States have evolved from the simplest approaches to information dissemination, through clinics and self-help techniques, to contemporary, comprehensive approaches to smoking control—employing multiple strategies drawn from every relevant sector of our environment. The discussion is organized under topic headings, as follows:

- Information and Education Campaigns
- Cessation Program Strategies
- Prevention Strategies
- A Comprehensive Approach to Smoking Control
- Conclusions.

INFORMATION AND EDUCATION CAMPAIGNS

In the early 1950's, a few popular publications transmitted the new scientific findings about smoking to the lay public. There were several reports in *Reader's Digest* (Lieb, 1953; Miller and Monahan, 1954; Norr, 1952; Riis, 1950) and in *Consumer Reports* (1953, 1954, and 1955) that informed the public of the health hazards of smoking. By the mid-1960's, information

and education campaigns—both private-sector and Government-funded—became more intensive.

Recognition of the health hazards of smoking led to organized efforts to inform smokers about the risks of tobacco use, with the expectation that large numbers of smokers would be convinced of the need to quit (Flay, 1987a). Media-based messages and educational campaigns were the earliest smoking control activities.

The 1964 Surgeon General's Report on Smoking and Health accelerated the Government and the voluntary health organizations' efforts to educate and inform the public about the hazards of smoking (US DHEW, 1964). The attention generated by the legislative requirement for an annual Surgeon General's Report, and the media coverage surrounding its release, became one of the primary ways that the Federal Government informed the public about the health consequences of tobacco use. Since 1966, the Government has required a health warning on all cigarette advertising and on every package of cigarettes sold in the United States.

The National Clearinghouse for Smoking and Health and national voluntary health organizations were also among the early sponsors of newspaper advertisements against smoking and of antismoking campaigns on television and radio. The American Cancer Society, the American Lung Association, and the American Heart Association used mass distributions of pamphlets, posters, and films to detail the risks of tobacco use. The voluntary health agencies also developed antismoking public service announcements.

Interagency councils on smoking and health and Federal, state, and local health departments participated in the anti-smoking campaign. Educational materials and programs were introduced in local communities, schools, hospitals, and businesses. Medical, dental, and public health groups joined in the campaign to curtail smoking. As a result of the educational campaigns precipitated by the accumulation of scientific evidence, temporary declines in total per capita consumption of cigarettes occurred during 1953 to 1954, 1964, and 1968 to 1970. These declines coincided with periods of increased publicity about the health hazards of cigarette smoking (US DHEW, 1979).

The statutory ban on broadcast cigarette advertisements virtually eliminated antismoking messages, as well, from prime viewing hours after 1971. Some studies (Schneider et al., 1981; Warner, 1977) attribute the subsequent increase in cigarette consumption in 1972 and 1973 to the discontinuation of the antismoking commercials.

The tobacco industry responded to these public information campaigns by denying that cigarette smoking caused disease, and industry spokespeople used the media to dispute the link between smoking and disease. In addition, they adopted a strategy that included attacking weaknesses in individual scientific studies—as a method of discrediting the large and growing body of information that was establishing the risks of smoking—and confusing smokers about the level of scientific certainty about the causal relationship and the importance of quitting.

At the same time, cigarette manufacturers were developing and marketing new filter cigarettes to ease (and take marketing advantage of) smokers' growing health concerns. Filters were advertised as a technological improvement to remove the harmful elements of smoke (US DHHS, 1989). In 1952, when reports linking cigarettes to lung cancer first appeared, 1 percent of all cigarettes were filter-tipped (US DHHS, 1989). By 1954, the percentage of filtered cigarettes had increased to 9 percent. The filter-tip market share rose by at least 9 percentage points during each of the next 3 years, reaching 38 percent by 1957. By the time the 1964 Surgeon General's Report was published, the market share of filter cigarettes had reached 61 percent.

During the 1970's, the industry adopted a second marketing strategy in response to the increasing awareness and concerns of smokers. The advertising campaigns of this period encouraged smokers to switch to low-tar and low-nicotine cigarettes. Smokers' acceptance of low-tar and low-nicotine cigarettes accelerated rapidly.

At least 3 million people succeeded in quitting smoking in 1954 (Horn, 1978). In subsequent years, between 1 million and 3 million people gave up smoking each year (Horn, 1978); however, many more smokers tried to quit but did not succeed. Many smokers were dismayed to discover that long-term success was elusive.

Increasing awareness of the problems created by tobacco use, and the difficulties associated with achieving and maintaining cessation, led to the gradual adoption of more comprehensive and intensive approaches to the reduction of tobacco use.

Smoking cessation clinics were developed to address the difficulties smokers had in quitting on their own. Early clinics combined medication with educational lectures, pamphlets, and physician counseling over a 10-day course. During the 1960's, more than 100 smoking cessation programs were reported in the United States, Canada, 11 European countries,

**CESSATION
PROGRAM
STRATEGIES**

and Australia (Schwartz, 1969). During the 1970's, about 300 cessation methods were reported in the literature (Pechacek, 1979; Schwartz, 1977 and 1987).

A listing of cessation programs reported over the past four decades reveals a change in the emphasis of cessation methods (Schwartz, 1987). In the late 1950's, methods were primarily educational or medication-based (Schwartz, 1969). The leading programs in the 1960's and 1970's were 5-day plans, group discussion, and conditioning-based procedures such as rapid smoking and satiation (Schwartz and Rider, 1978). Other popular treatments in the 1970's were self-help in the form of "how-to-quit" manuals, books, filters, and over-the-counter drug products; group therapy; professional counseling; hypnosis; and cognitive-based, self-management approaches. The approaches that were emphasized in the 1980's (Schwartz, 1987) include self-help, multiple-component programs, hypnosis, acupuncture, physician advice and counseling, nicotine chewing gum, skills training and relapse prevention, and mass media and community programs.

Most of the early smoking cessation clinic approaches focused on changing smokers to enable them to alter their behavior and to resist environmental influences to smoke. The limited success of these early approaches, in terms of both smoker recruitment and long-term cessation, has led to a greater appreciation of the role of environmental influences on smoking behavior. A major emphasis of efforts to control tobacco use has been on altering the smoker's environment in ways that will promote cessation and facilitate long-term abstinence. Cessation clinic approaches are one component of the current comprehensive approach to smoking control, and they have incorporated awareness and manipulation of environmental factors in their program content.

Withdrawal Clinics

Following the lead of clinic programs in Europe, the National Interagency Council on Smoking and Health assisted local interagency councils in the development of smoking cessation activities. The National Council sponsored a series of workshops on smoking cessation and, with the American Cancer Society, initiated the First World Conference on Smoking and Health in 1967. The U.S. National Clearinghouse for Smoking and Health sponsored community antismoking campaigns in San Diego, California, and Syracuse, New York.

Local units of the cancer, lung, and heart associations also initiated clinic programs. The American Cancer Society developed a manual for withdrawal clinics based on a work conference attended by scientists who had experience with cessation methods. The Seventh-Day Adventist Church offered a highly

Health Volunteers'
Efforts

structured, intensive 5-day plan in many localities. Community health agencies, public health departments, hospitals, sanitariums, and group health plans also conducted cessation programs (Schwartz and Rider, 1978). The evolution of smoking cessation theories and programs through a variety of provider types is discussed below.

Clinic methods generally employed either an educational approach or a support-group format. The American Cancer Society "Helping Smokers Quit" clinics were an educational approach that was standardized throughout the United States via use of selected guides, printed materials, and trigger films presented by extensively trained volunteers (Schwartz and Rider, 1978). Groups met for eight 2-hour sessions, generally twice a week. Interaction of group members facilitated personal growth and helped to reinforce abstinence from smoking. The clinic had three phases: self-appraisal and insight development, practicing abstinence under controlled conditions, and maintaining abstinence. Volunteer clinic leaders were recruited from graduates who had quit smoking. American Cancer Society clinics spread to the organization's 58 divisions and 3,100 local units.

In the 1980's, the cancer society revised its clinic program. The revamped program, FreshStart, consists of four 1-hour, small-group sessions designed to help participants understand why people smoke, handle withdrawal symptoms, practice stress management, and assimilate tips to help them refrain from smoking.

Local units of the American Lung Association sponsored a variety of cessation clinics. The American Lung Association provided clinic guidelines to local units, but individual chapters designed their own programs. In the 1980's, the lung association produced excellent quitting and maintenance manuals that emphasized self-help. The lung association also developed a clinic program based on education and principles of behavior modification. The clinic used the *Freedom from Smoking* manuals in a seven-session format, a method that offered a systematic approach for reducing the stress of quitting. The American Lung Association initiated a national program to train staff members to run clinics, manage publicity, and recruit clinic leaders. The promotion's emphasis was to interest major corporations in sponsoring programs that used the self-help and clinic modes.

Many schools offered smoking prevention programs and cessation classes for high school students and adults; colleges and universities also provided quit courses (Schwartz and Rider, 1978). Hospitals, health departments, and physicians sponsored educational sessions for smoking cessation, generally

consisting of lectures, films, literature, instructions on how to quit, diet information, and responses to questions. The *Smoker's Self-Testing Kit* (US DHEW, 1969) was used often, and each person was paired with a "buddy."

Five-Day Plan

In 1960, the Seventh-Day Adventist Church launched the Five-Day Plan To Quit Smoking (McFarland et al., 1964), which consisted of five consecutive sessions of 90 to 120 minutes each. There were no followup sessions in the first several years of the program, but maintenance meetings were added later. Groups varied in size from 15 people to several hundred.

Usually, at the first session, a film showing surgery on a cancerous lung was presented. Immediate smoking cessation was prescribed, and participants were temporarily prohibited from drinking coffee, tea, cola, and alcohol. Physical fitness, exercise, balanced diets, increased fluid intake, warm baths, hot and cold showers, body rubs, deep breathing, and a "buddy system" were encouraged to offset the potential difficulties of withdrawal from nicotine. The physiological effects of smoking were discussed in these sessions, and lung specimens were displayed. Clergymen, psychologists, or physicians presented spiritual, mental, or medical lectures and conducted counseling.

The Five-Day Plan was copied widely, in modified form, by professionals and laypersons. The main aspects that other programs copied were the 5-day format and the buddy system.

Commercial Programs

Proprietary groups began offering cessation programs in the late 1960's (Schwartz and Rider, 1978; Schwartz, 1987). Smoke Watchers, formed in 1968, offered slow withdrawal and weekly goals. Smokers attended open group meetings, with new members joining and graduates and dropouts leaving the group.

SmokEnders, started in 1969, ran chapters directly and granted some franchises. SmokEnders did not build centers; instead, community facilities were used (e.g., churches, schools, and hotels). In terms of acceptance and marketing, SmokEnders has been the most successful commercial stop-smoking program. SmokEnders is a highly structured, systematic technique that emphasizes positive reinforcement and changing attitudes. The original format consisted of eight weekly meetings with a "cut-off day" after the fifth meeting (Schwartz, 1987). The last three meetings were intended as reinforcement, and all moderators were graduates of the program. The course was subsequently reduced to 6 weeks, with the quit day after the fourth session.

Schick Centers for the Control of Smoking started in 1971. The company operated all centers and invested in building

facilities and television promotion. When the public did not respond, Schick closed its Eastern U.S. units and concentrated in five states. The Schick method consists of 5 days of aversive conditioning (low-grade shocks and smoke satiation), followed by 6 weeks of predominately educational group meetings (Schwartz, 1987).

Two other national commercial organizations with similar programs were formed in the 1980's. SmokeLess and Smoke Stoppers license their treatment programs mainly to hospitals and businesses. These organizations conduct training and provide materials to licensees. The SmokeLess and Smoke Stoppers systems are educational, intensive, and highly structured. Attractive pamphlets guide the smoker through the program, with methods that include stress management, positive rewards and reinforcements, food management, and negative smoking practices. Four classes designed to enable smokers to quit are held the first week, followed by 2 or 3 weeks of maintenance sessions.

A review of the 1967 through 1977 telephone yellow pages from more than 200 U.S. cities revealed that commercial stop-smoking programs were available in most major cities and many smaller communities (Schwartz and Rider, 1978). A similar review of the 47 largest U.S. cities for the years 1984 and 1985 showed an increase in such listings from 112 to 385 (Schwartz, 1987). What was striking about the differences between these two periods was that commercial programs, which made up about one-half of the listings in the first survey, accounted for only one-fifth in the later survey. Hypnosis programs made up 17 percent of the listings in the earlier survey but almost one-third in the second survey. The proportion of physician and acupuncture listings also increased in the second survey.

Medication

Chemical agents have been offered as smoking deterrents since before 1900. Early deterrents consisted of herbs, spices, and mouthwashes that produced a disagreeable taste for the smoker (Schwartz, 1969). Other products aimed at diminishing the sensory drives or creating a dry mouth (US DHEW, 1964). In 1982, a Food and Drug Administration panel concluded that drug products such as chewing gum, mouth sprays, and tablets containing silver acetate were not effective as aids to smoking cessation (Food and Drug Administration, 1982).

A variety of drug types, including anticholinergics, sedatives, tranquilizers, sympathomimetics, and anticonvulsants, have been used to reduce the psychological and physiological symptoms of withdrawal. Prior to the introduction of nicotine chewing gum, Jarvik and Gritz (1977) reviewed the literature and concluded that drug therapy was not particularly useful in curing the smoking habit.

Nicotine Gum

Nicotine polacrilex (Nicorette) is a prescription drug in the form of chewing gum that contains 2 mg of nicotine bound by an ion exchange resin that allows for a slow release of nicotine when chewed. Patients are advised to use the gum for at least 3 months. However, some smokers need to use the gum for 6 months or more to alleviate their urge to smoke.

In 1984, Lakeside Pharmaceuticals, a division of Merrell Dow, undertook a massive promotional campaign after the Food and Drug Administration approved its nicotine gum. The result of this campaign was that nicotine polacrilex became one of the fastest selling prescriptions ever introduced. Sales were \$42 million in 1984 and grew to \$60 million in 1987 (US DHHS, 1989).

The availability of nicotine gum has encouraged physicians and dentists to advise their patients to quit smoking because now these providers have some assistance to offer the patient who wants to quit. There are indications, though, that most physicians do not provide proper instructions on the use of the gum. Schneider et al. (1984) and Sachs (1986) have cautioned that the patient must understand the limitations of the prescription and be instructed carefully on its use. Practitioners who have experience in the use of nicotine gum, and who provide instructions and additional advice and counseling, have achieved good results (Fagerstrom, 1982; Hall et al., 1987; Killen et al., 1984; US DHHS, 1988). In the absence of counseling or therapy, success rates are low (Schwartz, 1987; US DHHS, 1988).

Other Drug Treatments

More recent approaches to drug therapy include citric acid spray, nasal nicotine solution (Jarvis, 1986), nicotine vapor (Russell et al., 1987), nicotine-containing skin patches (Rose et al., 1985), and clonidine, a drug used to treat hypertension. Clonidine has been found to reduce the urge to smoke, and researchers have speculated that it may relieve nicotine withdrawal symptoms (Glassman et al., 1988). A clonidine transdermal patch is currently being tested as an aid to smoking cessation (US DHHS, 1989).

Mecamylamine has been suggested as an antagonist to block the nicotine-mediated reinforcing consequences of cigarette smoking (Henningfield et al., 1982; Pomerleau et al., 1987). Mecamylamine is not meant as a cessation aid; rather, it is used to maintain abstinence. In one clinical trial, however, heavy smokers were treated with mecamylamine and showed short-term positive cessation effects (Tennant et al., 1984).

Behavior Modification

Behavior modification entails two divergent approaches to behavior change. One approach uses punishment and the other uses positive reinforcement—including self-management

Aversive
Procedures

procedures. For a detailed overview of behavioral methods, the reader is referred to reviews by Best and Bloch (1979), Glasgow (1986), Hall and Hall (1985), Lando (1981), Lichtenstein and Brown (1983), Pechacek (1979), Pechacek and McAlister (1980), Schwartz (1969 and 1987), and Schwartz and Rider (1978).

Aversion therapy for smoking developed in the 1960's and included electric shock, desensitization training, breath-holding, overexposure to stale smoke, and covert sensitization. The use of electric shock as a punishing stimulus to eliminate smoking behavior has had limited success. The most promising techniques use some form of smoke aversion.

Satiation. Wilde (1964) attempted to induce a dislike for the taste of cigarettes by combining satiation with aversive, avoidance, and instrumental conditioning. This procedure showed only limited success. Subjects were required to increase the number of cigarettes they smoked and the rate at which they smoked. Early reports by Resnick (1968) claimed positive results for satiation, but other investigators were not able to replicate that success. Satiation has generally been combined with other procedures. Lando (1977) and Best et al. (1978) designed successful multicomponent programs that included satiation.

Rapid smoking. Lublin and Joslyn (1968) combined hot, smoky air with rapid smoking and reported fair results. Their study was criticized for invalid methodology, but it set off a series of experiments by Lichtenstein and his colleagues, which subsequently produced impressive results for rapid smoking. Their procedure required the subject to inhale from a cigarette once every 6 seconds for the duration of the cigarette or until nausea developed.

In the early trials, Lichtenstein's group used warm, smoky air along with rapid smoking but dropped the warm air when they found it did not contribute to effectiveness (Lichtenstein and Brown, 1983). There was some concern that rapid smoking created a risk to the cardiopulmonary system, but serious consequences have not been evident. Nevertheless, subjects should be screened and monitored closely during treatment. Rapid smoking has continued to be a popular treatment for smoking, and multiple-component treatments that include rapid smoking have shown good long-term success (Hall et al., 1984; Pechacek, 1979).

Covert sensitization. The objective of covert sensitization is to produce avoidance behavior through use of the subject's imagination. Both the behavior to be modified and the noxious stimulus are imagined. This procedure showed promise in early case studies, but controlled trials failed to replicate the early success (Pechacek, 1979; Schwartz, 1987).

Other smoke aversion procedures. Other smoke aversion methods include the use of smoky air, chain smoking, regular-paced aversive smoking, and smoke-holding. Regular-paced aversive smoking may be performed in a variety of ways. Generally, the procedure is done at home. Subjects smoke at their usual rate while focusing on the negative features of cigarettes, such as the irritation in the mouth and throat, coughing, and the accumulation of smoke. When regular-paced smoking is the only treatment, the procedure yields low success rates, but when it is used with a treatment program, the quit rates are much improved (Schwartz, 1987).

Smoke-holding consists of retaining the smoke in the mouth for 30 seconds or until feelings of discomfort reduce the desire to smoke. This appears to be a safe procedure, but there are not enough data for assessing its efficacy in smoking cessation.

Self-Management Techniques

Strategies for quitting smoking through self-management encompass a variety of techniques, some of which are employed with aversive methods. These techniques generally are initiated and directed by leaders or therapists. Predominant self-management methods are those based on concepts of self-monitoring, nicotine fading, stimulus control, contingency contracting, systematic desensitization, and restricted environmental stimulation therapy. Self-management techniques also have been employed in multiple-component programs, discussed below.

Self-monitoring. Program requirements for self-monitoring have differed greatly—from having the participants count the number of cigarettes smoked in just 1 day to having them keep elaborate records for 1 or more weeks, noting the time, place, activity, and mood when smoking each cigarette and somehow rating or ranking the perceived need for each. McFall (1970) demonstrated that, when people begin paying close attention to their smoking behavior, it is likely to change even though no change may be intended or desired. Glasgow (1986) commented that self-monitoring can be useful, provided that monitoring assignments are not overly complex, are varied, and are not continuously required throughout a lengthy program.

Nicotine fading. Slowly reducing nicotine intake by changing to brands with lower nicotine content (brand fading) or cutting down the number of cigarettes smoked (tapering) are ways of gradually withdrawing from nicotine. Smoke Watchers, the first national commercial program, based its method on gradual withdrawal and weekly goals assigned by the group leader (Schwartz and Rider, 1978). Although Smoke Watchers had some success with tapering, the evidence for gradual

reduction in numbers is not very positive. As the number of cigarettes is reduced, each remaining cigarette can become more reinforcing. However, with nicotine fading, individuals can continue to smoke the same number of cigarettes while reducing their nicotine intake. Some investigators have shown good results with brand fading. Several commercial filters are marketed with the aim of progressively reducing the tar and nicotine content of a cigarette as a way of helping smokers to break the habit.

Nicotine fading by changing brands was introduced by Foxx and Brown (1979), who advocated nicotine content reductions of 30, 60, and 90 percent over a 3-week period. Some investigators use a different schedule, and most include other procedures in the treatment. The many trials conducted in the 1980's attest to the level of interest in nicotine fading. Brown and Lichtenstein (1980) combined nicotine fading with relapse training, whereas Lando and McGovern (1985) used it with smoke-holding.

Stimulus control. In the mid-1960's a number of behavioral investigators used stimulus control techniques as a treatment for smoking (Schwartz, 1969). Stimulus control is intended to eliminate undesirable behaviors by altering the situations in which the maladaptive response occurs. Either the situation can be altered or the individual's response to the situation can be altered. Generally, smoking is associated with a variety of specific environments and internal events, and these associations trigger the smoking response.

One strategy seeks to increase the stimulus interval through use of a cueing device (e.g., pocket timer or signal device). Once the new smoking cue is well established, it is gradually faded out via increased time intervals.

Another type of stimulus control is hierarchical reduction. Subjects are asked to monitor their smoking activity carefully and identify situations in which they are more likely or less likely to be smoking. The subject then eliminates smoking in a cumulative and progressive fashion, from the easiest situation to the hardest. Limiting the circumstances in which smoking is allowed is another strategy. The procedure permits smoking only in a deprived setting, one devoid of all possible distractions and accompanying reinforcers.

The reported studies do not provide evidence to support stimulus control as an effective cessation procedure (Schwartz, 1987). Keeping a detailed account of the subject's feelings and activities related to smoking provides insight to the habit, which can assist the smoker in quitting as long as the treatment also includes other features, such as counseling, maintenance, and relapse prevention.

Contingency contracting. The purpose of contingency contracting is to enhance the smoker's motivation through commitment. Two forms of these contracts are monetary deposits and social contracts with peers. Early studies (Elliott and Tighe, 1968; Winett, 1973) demonstrated that refunding portions of deposits to subjects for continued abstinence influenced long-term cessation.

Signing formal contracts with subjects is one program aspect that achieved good success rates (Lando, 1977). Subjects pledged to forfeit money for every cigarette smoked and agreed to undergo an aversive booster treatment after any smoking. Stitzer and Bigelow (1982) offered contingency payments to subjects who reduced their smoking and thereby reduced their carbon monoxide levels by 50 percent. Including contingency contracting as one aspect of a multicomponent program may contribute to success, but it has limited application as a primary treatment.

Systematic desensitization and relaxation. Desensitization was intended to strengthen responses that are incompatible with smoking. It was hypothesized that smoking behavior is frequently cued by anxiety, and if the prior and proximal stimuli leading to smoking were desensitized, then smoking would diminish. Other investigators suggested that subjects could be conditioned to relax as an alternative to smoking. Still others believed that reducing the stress generated by quitting would help to create positive results.

Many investigators have incorporated desensitization and relaxation training into their programs. However, controlled studies do not support desensitization as a treatment for smoking. Although relaxation seems to make sense as a helpful procedure, nicotine has primarily stimulating effects, and the smoker seeking stimulation may not find a satisfactory replacement in relaxation.

Restricted environmental stimulation therapy. The form of therapy known as restricted environmental stimulation derives its rationale from evidence that a period of sensory deprivation increases persuadability and responsiveness to external cues (Suedfeld and Best, 1977; Suedfeld, 1984). Although several investigators have demonstrated success with this method, the need to keep a subject in a soundproof chamber and provide a monitor has discouraged use of this procedure.

The large number of smokers who attempt to quit each year, coupled with the reluctance of smokers to participate in cessation clinic promotions, has led to the production of a variety of aids to assist smokers in their self-directed efforts to quit smoking (Schwartz and Rider, 1978; Schwartz, 1987). The earliest materials were stop-smoking books, quit kits, and

filters; later, audiotapes, correspondence courses, and smokeless cigarettes were marketed. Videocassettes and computer programs have become available more recently (Schwartz, 1987).

The *Smoker's Self-Testing Kit* was used by several million smokers (Horn, 1972; US DHEW, 1969). It helped smokers gain insight about their habit by providing an understanding of how one feels about cigarettes, how one uses them, and the factors that inhibit or enhance the effort to quit.

Several dozen quit-smoking books and guides have been produced (Schwartz, 1987). In 1977, the American Cancer Society developed the *I Quit Kit*, which consisted of portions of the *Smoker's Self-Testing Kit*, instructions for quitting, and tips on how to stay away from smoking. The Federal Office on Smoking and Health provided smoking cessation pamphlets, and NCI designed the *Helping Smokers Quit Kit*, which contained materials for the smoker and the physician.

The American Lung Association produced two manuals for people who aim to quit on their own: *Freedom From Smoking in 20 Days*, a 64-page cessation guide, and *A Lifetime of Freedom From Smoking*, a 28-page maintenance booklet. The cessation guide includes part of the *Smoker's Self-Testing Kit*, identifies smoking triggers, and offers information about controlling weight, handling smoking situations, and performing deep breathing and relaxation exercises. The maintenance booklet supports ex-smokers after they quit. These are well-designed manuals that have proven to be very popular (Lando et al., 1990).

"How-to-quit-smoking" books have been written primarily by ex-smokers and psychologists. Glasgow et al. (1981) compared the cancer society's *I Quit Kit* to two behavioral self-help books, one by Pomerleau and Pomerleau (1977) and the other by Danaher and Lichtenstein (1978). Under self-help conditions, the American Cancer Society manual was rated best. Glasgow (1986) postulated that subjects using relatively complex self-administered behavioral programs would have great difficulty in following them. When a therapist led the treatment using the same materials, the behavioral books came out better than the cancer society's manual.

An early aid to quitting, still marketed today, is a filter that reduces the nicotine level in cigarette smoke and permits the smoker to be weaned from the chemical addiction (Schwartz, 1987). The device, marketed by Teledyne Water Pik, consists of four reusable filters that reduce the nicotine content of inhaled smoke progressively. The smoker is supposed to use each filter for 2 weeks. As with any cessation method that does not attack the psychological addiction to smoking, evaluations of filter use have shown little long-term success.

A new filter system is currently being marketed by Vipont Pharmaceuticals; it consists of three nicotine-fading filters to be used over 21 days. To address psychological addiction, the system includes a deck of cards to help in overcoming dependence and provide coping tips to be used after quitting.

Other self-help cessation aids include quitting by mail, taped telephone messages, cigarette holders and dispensers, videotapes, and several types of computer-based methods.

Multiple-Component Programs

Many clinic approaches combine several procedures in their methods. Almost all multiple treatments include self-control procedures (e.g., nicotine fading, abstinence training, relaxation, or stimulus control). Many multicomponent programs include smoke aversion as a way of breaking the habit and self-control to maintain nonsmoking (Best et al., 1978; Lando, 1977). Some of the very best results have been achieved with multiple-component programs (Hall, 1980; Killen, 1984; Lando, 1977).

Lando (1977) has used satiation, contractual management, and group support for his multicomponent program; and Pomerleau et al. (1978) provided a multicomponent treatment consisting of stimulus control, covert conditioning, contingency management, relaxation, and use of pocket timers.

Multicomponent programs have achieved the highest quit rates at 1-year followups (Schwartz, 1987). For example, Lando (1977) reported 76 percent success at 6 months after combining satiation, contractual management, and group support; and Hall et al. (1984) achieved a 52 percent quit rate at 1 year by using rapid smoking and relapse prevention. On the other hand, Beaver et al. (1981) scored only 6 percent success at 6 months with the combination of nicotine fading and anxiety management training, which suggests that not all multicomponent programs are highly successful.

Lichtenstein and Brown (1983) and Glasgow (1986) have cautioned that more is not always better. Too many procedures may confuse subjects and make it difficult to provide an integrated treatment. Multicomponent treatments remain attractive because they deal with the multiple factors involved in smoking, as well as the considerable differences among smokers (Lichtenstein and Brown, 1983).

PREVENTION STRATEGIES **Relapse Prevention**

Once smokers have quit, there are myriad environmental, social, and psychological forces that act to influence them to return to smoking (Schwartz and Rider, 1978). During the first 4 months after treatment, many successful quitters become recidivists, and during the next 8 months, other ex-smokers return to smoking. Some people return to smoking after a year or more of abstinence (Schwartz, 1987). During the 1980's,

investigators studying relapse identified high-risk situations. Multicomponent programs included training in cognitive behavioral skills to help quitters develop strategies for identifying and coping with high-risk situations.

Relapse Situations

Marlatt and Gordon (1980) found that the majority of relapse situations involved social pressure to smoke. They indicated that causes for relapse fell into three categories: social pressures, coping with negative emotional states, and coping with interpersonal conflict. They concluded that effective maintenance requires that the smoker be taught coping responses to relapse stimuli.

Shiffman (1984) interviewed people who called a relapse counseling hotline and found that most of their relapse crises were associated with negative feelings (e.g., anxiety, anger, depression). One-third of the crises however, were linked to positive emotional states and frequently involved other smokers. Ex-smokers who used coping responses more often were able to refrain from smoking.

Maintenance Strategies

Lichtenstein (1979) identified three maintenance strategies: social support, coping skills, and cognitive restructuring. Social support is based on the theory that a group of close companions can provide support or influence to help the ex-smoker sustain the motivation to continue abstaining. Coping skills are required to help the new nonsmoker deal with withdrawal symptoms, develop substitute responses that will replace smoking, and learn to recognize and modify cues to smoke (Lichtenstein, 1979). Cognitive restructuring involves changing attitudes and self-perceptions related to smoking.

Support may come also from a support group or from the teaming of two or more clients as "buddies" to telephone each other and provide mutual support. Another support tactic is continued contact between the program and the client via telephone, letters, and personal meetings. Other support techniques include contingency contracting, bonuses, self-rewards, and positive feedback.

Effective treatment procedures include cognitive recognition and behavioral training in coping with abstinence violation (defined as a slip by a quitter that leads to backsliding) and self-efficacy factors (Marlatt and Gordon, 1980). Investigators caution that effective maintenance calls for minimizing the impact of slips as a way of coping with abstinence violation.

Skills Training

Coping strategies can be used both to prevent high-risk situations and to respond to them (US DHHS, 1988). Both knowledge and performance of relapse prevention skills are needed to maintain change. Lichtenstein and Brown (1983) cite a number of studies that yielded favorable results from use of coping skills or self-management training.

Schwartz (1987) found differences between some programs that offered self-management procedures and those that offered coping skills, relapse management training, or abstinence training. For example, Hall et al. (1984) combined rapid smoking with a relapse prevention program that included both behavioral and cognitive components. The coping skills addressed withdrawal symptoms and situational factors related to relapse (skills training for high-risk situations). This program attempted to individualize techniques. Relaxation was presented as a means of coping with the anger and anxiety that often precipitate a relapse. Four relapse prevention sessions were devoted to skills training, and subjects role-played alternate responses to high-risk situations.

Another example is the relapse prevention program devised by Brown and Lichtenstein (1980), which was based on strategies suggested by Marlatt and Gordon (1980). It consisted of five components: identification of high-risk situations, coping rehearsal, avoidance of the abstinence violation effect, lifestyle balance, and self-rewards.

Killen et al. (1984) studied the effects of skills training and nicotine gum, as separate methods and combined, in promoting abstinence after smoking cessation. Therapists demonstrated how strategies for selected target situations might be implemented. Participants then rehearsed coping responses specific to personal high-risk situations in front of the group. Therapists and group members provided corrective feedback after each rehearsal. Positive results were obtained in both skills training treatments.

Fortmann et al. (1988) studied self-directed relapse prevention in combination with nicotine polacrilex. Sixteen modules were written to provide self-instruction on avoidance of smoking in specific high-risk situations. All subjects perceived efficacy in coping with different high-risk situations. The study demonstrated that relapse prevention could be self-directed.

Efforts To Prevent Initiation

The recognition of the disease risks associated with tobacco use led to efforts to educate nonsmokers and to prevent adolescents and women from initiating tobacco use. These efforts evolved from preexisting campaigns to prevent women and children from smoking, programs that were based on concerns about the effects of smoking on morals and behavior (Troyer and Markle, 1983).

During the 1950's and 1960's, the major efforts directed at preventing initiation focused on adolescents. Unfortunately, little effort was directed at countering the advertising and promotional campaigns of the cigarette manufacturers that were directed to women, blacks, and Hispanics. The cigarette manufacturers' targeting may be largely responsible for the

current higher prevalence of cigarette smoking among young women than among young men, and the higher prevalence of smoking among black males than among white males (see Chapter 3).

The efforts directed at preventing adolescent initiation fell into two categories: school-based smoking prevention education and restrictions on the availability of cigarettes to adolescents. However, the perception that either or both of these approaches could eliminate use of tobacco by adolescents has led to disappointment and to recognition of these efforts as important components of a comprehensive smoking control strategy that requires the support and activity of other channels to be maximally effective.

We now have several comprehensive and effective curricula that deal with tobacco use (see Chapter 5); however, these curricula are not being used in the majority of U.S. school districts. Most states have mandates requiring that health education be taught in schools, but the task of implementing these mandates has often proven difficult or impossible. School health educators have come to realize that community perception of the importance of smoking as a problem, financing the costs of curricula and teacher training, and involvement of parents and the community in implementation of the curriculum are as important as the curriculum content for the success of these programs.

Similarly, the efforts to restrict adolescents' access to tobacco have been largely unsuccessful. Although 44 states have laws restricting the sale of cigarettes to adolescents, young people report little difficulty in obtaining cigarettes from stores and vending machines. Passage of legislation to limit tobacco sales to adolescents is ineffective in the absence of community support and enforcement.

**COMPREHENSIVE
APPROACH TO
SMOKING
CONTROL**

The recognition that most adult smokers first become regular smokers as adolescents led to an early and continuing concern about the role of mass media, particularly through their advertising, in promoting tobacco use by adolescents. Some gains were made initially, most notably the effort to reduce the positive images of smoking in motion pictures, the ban of advertising on radio and television, and the elimination of sports personalities from cigarette ads. However, these early efforts did not prevent the continued targeting of adolescents, minorities, and women in the advertising and promotional efforts of the tobacco industry.

Perhaps the most visible failure to prevent use of tobacco by adolescents came in the late 1970's, with the reintroduction of smokeless tobacco products. These products were advertised on television with endorsement by sports personalities, and

adolescents were induced to use them through give-away programs. All of this activity occurred at a time when the scientific evidence establishing the carcinogenicity of these products had already been published. Once again, the failure in the effort to prevent initiation occurred secondary to the absence of a societal consensus and concern rather than an absence of knowledge or effective programs.

The recognition that efforts directed at educating the individual smoker and treating the individual to change smoking behavior had limited impact has led to an appreciation of the role of environmental influences in changing smoking behavior. Examples of more environment-related strategies that are believed to have had substantial impact on tobacco use include the nonsmokers' rights movement, which is changing the image of the smoker and restricting the number of locations where smoking is permitted, and the increase in taxes on cigarettes, which is creating a financial disincentive to smoke. These approaches reflect a growing understanding of environmental influences on the smoker, but even more important, they acknowledge the necessity of approaching the control of tobacco use through multiple channels and multiple programs. We now recognize that changes in the community's perception of smoking risks influence the adoption of school curricula and their effectiveness. By bringing all of the elements of society to bear on the problem, we hope to reduce initiation of smoking, provide persistent and inescapable messages to the smoker to quit, and create an environment where the smoker who is trying to quit has a better chance of success.

Six major subsystems, or sectors, are important in a comprehensive approach to smoking control: (1) the political sector, in which laws and policies are made; (2) the economic sector, which includes general taxation, workplace, business, and insurance policies concerning smoking control; (3) the educational sector, in which youth are educated about tobacco use; (4) the communication sector, through which information is disseminated to the general public; (5) the health care sector, in which health professionals play a crucial role in smoking control; and (6) the health voluntary sector, which provides many of the resources and coordination efforts directed to control of tobacco use.

Any system contains a number of established structures that can be mobilized to address smoking control; however, each structure must be examined for what the subsystem itself can do, for the opportunities it provides for multiple activities related to smoking control, and for opportunities for synergism with other sectors. In the following sections, the six subsystems named above are reviewed in this light.

The Political Sector

The political sector is viewed as the major authority in determining what behavior is considered normative and what is deviant. This sector is especially important in defining ambiguous norms, because it is often the final arbiter in the interpretation of societal norms. In addition, societal norms are frequently codified into laws and/or policies; the political sector provides the mechanisms for such codification.

The political sector has already contributed enormously to tobacco restrictions. At the Federal level, tobacco use restrictions have been placed on transportation and in Federal Government workplaces (US DHHS, 1989). Through a number of initiatives, more than 40 states and the District of Columbia now have laws restricting smoking in at least one public place (US DHHS, 1989). Some states have comprehensive restrictions, and there is a trend toward increasing restrictiveness in such legislation. Local jurisdictions are rapidly taking the lead in tobacco use restrictions; close to 400 cities and counties have enacted smoking control ordinances (Pertschuk and Shopland, 1989).

Diverse groups that have some interest in smoking control have banded together, an increasingly common tactic, to present a united front to legislatures. Recruiting support from their various constituencies, such coalitions have been influential in convincing state legislators to increase cigarette taxes (Pertschuk and Shopland, 1989), provide smoke-free schools (Minnesota Department of Health, 1984; New Mexico Health and Environment Department, 1988; Pennsylvania Department of Health, 1986), and restrict sales of tobacco products to minors (Minnesota Department of Health, 1984; Pennsylvania Department of Health, 1986).

Enacting legislation at the local rather than the state level has been hailed as a method for controlling tobacco use while minimizing the influence of the tobacco lobby. This method has resulted in a number of local initiatives that range from control of minors' access to tobacco to mandated nonsmoking restaurant seating (Pertschuk and Shopland, 1989).

Interventions within the political sector are appealing for many reasons. First, smoking control activities may be implemented at multiple levels—by Federal, state, and local governments. Second, the political sector is the most likely sector to reach all members of the smoking population. Third, there is a high potential for synergy between the political sector and other subsystems within our society; legislative actions may be accompanied by economic resources for tobacco control activities, media attention, or cessation opportunities. A good example of how synergy can occur is found in the response of Iowans to a smoking ban on commercial airlines: A local group

produced "quitters' survival kits," distributed them to smokers at the municipal airport on the effective date of the ban, and garnered a great deal of local publicity in the process.

The Economic Sector

In terms of the relative influence and importance of smoking control activities, there are three major aspects of the economic sector to review: taxation of individuals, workplace policies on smoking, and practices in other economic institutions (e.g., businesses).

Taxation

The taxation of tobacco products has a predictable effect on tobacco use (Harris, 1982; Lewit and Coate, 1982). Studies have examined the decrease in smoking prevalence that accompanies a tax increase on tobacco products (Harris, 1982; Lewit and Coate, 1982; Warner, 1986); this type of decrease was particularly pronounced among adolescent and young smokers (Warner, 1986). In addition to a Federal cigarette tax, all states now have their own cigarette taxes (US DHHS, 1989), and some municipalities and counties have added taxes on tobacco products as well (Pertschuk and Shopland, 1989; US DHHS, 1989).

A few state governments have allocated a portion of the tobacco taxes to general health-promotion activities, and a few have dedicated some portion of the taxes to antitobacco activities (US DHHS, 1989). Early in 1989, California imposed a large additional tax on cigarettes (25 cents per pack), with a portion of the funds going to antitobacco research and activities (US DHHS, 1989). This strategy has a direct economic effect on smoking behavior and provides the resources to support a comprehensive, long-term intervention designed to alter tobacco use. Municipal and county government units could also examine taxation as a method of increasing resources for smoking control.

Taxation is an especially appealing form of smoking control intervention, because only tobacco users bear the costs. When accompanied by prevention activities in other channels, taxation appears to be especially effective in preventing young people from beginning to smoke. Its synergistic potential is enormous, because taxation can help fund smoking control activities in multiple intervention channels.

Workplaces

Working adults spend nearly one-half of their waking hours on the job. They are strongly affected by the norms of the environment in which they work, and managers of workplaces are rapidly adopting policies to restrict tobacco use (Bureau of National Affairs, 1986; US DHHS, 1987).

Although restrictive policies are a key factor of worksite involvement in smoking control, there are other smoking cessation opportunities in the work setting as well. Worksites

have engaged in internal and external competitions, as well as incentive programs, to encourage employees to stop smoking (Cummings et al., 1988; Klesges et al., 1986; Rosen and Lichtenstein, 1977). The basic philosophy behind such an approach is that the workplace can provide a supportive environment for smoking cessation; furthermore, incentives for smokers to achieve and maintain cessation can add to the environmental support and lead even more smokers to try quitting.

Employers have collaborated with other groups to offer smoking cessation programs at the worksite, both on and off company time (Klesges et al., 1987; Omenn et al., 1988; Schilling et al., 1985). Synergy is assumed to occur when a program is offered in a setting where coworkers are also attempting cessation and providing support for fellow quitters. Results of such programs are generally comparable with those of clinic-based programs, but costs are considerably lower. Some employers have institutionalized regular smoking cessation programs at the worksite, in which employees are free to enroll at their own convenience. Other programs go even further and encourage the smoker's spouse and/or significant others to participate.

Typically, the American Cancer Society's annual Great American Smokeout has a segment designed for workplaces, and employers can use that opportunity to encourage smokers to quit for a day by organizing smoking cessation activities for the day. Similarly, the American Lung Association sponsors an annual Non-Dependence Day and produces many materials and suggestions for worksite participation in nonsmoking activities. The American Heart Association promotes a Sweet-Heart Day in February, with smoking cessation opportunities, advice, and materials incorporated in the day's activities.

Workplaces afford multiple opportunities to promote smoking cessation, and a restrictive smoking policy can establish not smoking as the appropriate behavior in a particular workplace. Smokers may be encouraged to attempt cessation as regular smoking control events are incorporated into the work environment. Incentives and competitions can increase smokers' motivation to try cessation. Activities that build on national or local events can reinforce the messages that a non-smoking environment is desirable and that the employer supports such an environment. As a group, these smoking control activities in the workplace can have a powerful influence on smokers.

Other Economic Influences

Restaurants. A number of states have laws that require restaurants to offer nonsmoking sections (Hanauer et al., 1986; US DHHS, 1986). Public opinion surveys support the value of such restrictions. In one poll, 85 to 91 percent of restaurant-goers

expressed a desire for restrictions on smoking in restaurants (Gallup, 1983); in another, 39 percent of people surveyed said they would not return to a restaurant that did not offer a no-smoking section (Gallup, 1985).

Insurance. The insurance sector offers an economic incentive for smoking cessation and prevention that cuts across both employment and other business sites. Reductions in insurance premiums for nonsmokers and smoke-free workplaces offer individuals and organizations an added stimulus for smoking control activities. Although insurance premium reductions are not as influential as other sectors might be, they can add to the economic benefits that accrue from avoidance of tobacco use.

The insurance industry has reacted to the demonstration of the disease risks associated with smoking by discounting life insurance premiums for nonsmokers who purchased their own policies (Cowell, 1985). The vast majority of states now allow differential pricing of life insurance premiums according to smoking status (National Association of Insurance Commissioners, 1987a). Movement in other forms of insurance incentives has been slower. Health insurance providers have had difficulties in offering reduced premiums for nonsmokers because (1) the vast majority of health insurance policies are written for groups where smoking prevalence is difficult to determine; (2) actuarial data that support reduced health insurance premiums for nonsmokers are scarce; and (3) Federal regulations make it difficult for some health insurance plans (e.g., health maintenance organizations) to set premiums based on smoking status (US DHHS, 1989). Property and casualty insurance has fared somewhat better—homeowner policies are routinely offered at reduced premiums to nonsmokers. A few companies also provide nonsmoker discounts for automobile policies (National Association of Insurance Commissioners, 1987b).

To the extent that premium differentials by smoking status become institutionalized within society, and depending on the amount that insurance carriers reimburse for cessation treatment, a number of synergistic effects may result: (1) worksites and businesses could offer encouragement for nonsmoking; (2) worksites and businesses could make smoking cessation assistance available; and (3) the political sector could place economic sanctions on smokers.

The Education Sector

The education sector can have an influence on children and their possible initiation of tobacco use. In the educational setting, there are opportunities to expose children to anti-tobacco information and provide them with nonsmoking role models. Educational interventions have focused on incorporation of tobacco information in school curricula; however,

when such programs are provided without a companion community intervention, their effects appear to be small. Current research is examining ways to increase the influence of the educational programs by linking them with community and parent-related activities.

Educators can have an influence on children in ways other than the formal school curriculum. Educational facilities that are smoke-free for employees as well as for children can provide good models for nonsmoking environments. Students may participate in antitobacco activities through the schools; for example, many schools collaborate with advocacy groups to sponsor poster contests for children, sports activities with antitobacco sponsors, and other antismoking activities in the community.

Curricula that incorporate annual segments on tobacco use, a smoke-free environment, and annual smoking control activities in the community could be instrumental in developing the norm of not using tobacco. Activities in the educational sector can be synergistic with other sectors; for example, students may be enlisted to participate in a supervised "sting," where minors' success rates at purchasing tobacco products are documented, which can raise community awareness about the accessibility of tobacco products to minors, thereby melding the political and educational sectors.

The Communication Sector

The media play a pivotal role in smoking control activities. Mass media provide information to the public on facts and issues related to smoking, and they also influence public perceptions of appropriate behavior by portraying certain people either engaging in or abstaining from a particular behavior. The media have presented images and taken direct action against smoking. Media information dissemination has been designed to stimulate help-seeking behavior by smokers (Danaher et al., 1984; McGuire, 1984). Public service announcements have been used to encourage people to call a hotline for information (Cummings et al., 1986) and to recruit smokers into treatment programs (Jason et al., 1988; Mogielnicki et al., 1986).

Electronic media campaigns designed to assist people in achieving smoking cessation have been somewhat successful (Flay, 1987b). The American Lung Association "Freedom From Smoking in 20 Days" program has been used in many mass media markets, and the results appear quite favorable (Flay, 1987b). Print programs for smoking cessation have been successful as well (Cummings et al., 1987).

There is little doubt that the media can keep tobacco news and messages in the public eye; however, there is evidence that the media are somewhat constrained by the influence of the

tobacco companies. Media that carry tobacco advertisements give differential attention to tobacco issues compared with those that do not carry such advertisements (Warner, 1985; Whelan et al., 1981). In spite of these constraints, the media can be used for creative smoking control activities.

The communication sector is the conduit by which other sectors may publicize and disseminate their smoking control information and activities. The communication sector can be synergistic with all other sectors in four ways: (1) It can reinforce norms that promote smoking control by presenting positive images with respect to nonsmoking behavior and refusing to portray smoking as glamorous or desirable; (2) it can raise the public's awareness of smoking as an important issue; (3) it can provide direct information to the public about tobacco use; and (4) it can provide direct services in recruiting people into smoking cessation activities.

The Health Professional Sector

As a group, health professionals are an extremely influential force for reaching smokers. The vast majority of smokers see a physician each year (Ockene, 1987), providing an excellent opportunity for physicians to advise and counsel smokers to abandon their habit. Health professionals also can have an influential role in national policymaking and in promoting societal norms related to healthy living.

Increasingly, health professional associations are adopting an assertive stance with respect to controlling tobacco use. The American Medical Association has recognized smoking as a "serious health problem" since 1964 (Lundberg, 1985) and has advocated education about smoking since 1969 (Rosenberg, 1983). As early as 1964, the American Dental Association urged its members to educate patients about tobacco use, and it recently hosted its first national dental symposium on smoking cessation (McCann, 1989). The American Pharmaceutical Association has recommended that pharmacies not sell tobacco products (Smith and Fincham, 1989). Other health care provider groups, including nurses, have not taken official antismoking stands but are beginning to address the issue. Counseling against tobacco use is an appropriate topic for physicians' and dentists' continuing education, and many medical and dental schools are now incorporating such training into their disease prevention curricula.

Health professionals' advice about ceasing tobacco use is accompanied by inherent opportunities for expanding the effect of a single message about cessation. An office system that identifies smokers will help ensure that smoking patients receive repeated messages about smoking cessation and assistance with quitting. Smoke-free health care environments will support that goal by providing positive sanctions for a norm that health professionals are advancing.

In addition to multiple opportunities for intervention, health professionals' activities can lead to synergy with other intervention channels. For example, physicians have participated in the cancer society's Great American Smokeout by organizing activities, staffing information booths, and prescribing nicotine replacement therapy for their smoking patients. Some physician groups, such as Doctors Ought to Care, have participated in many visible antitobacco events. There is an increasing awareness of the importance of joint activities with other health professional groups in smoking control activities.

Just as physician input can be synergistic with other channels of smoking control activity, other sectors can be synergistic with physician efforts. The development of standards for physician management of smoking patients in the outpatient care setting and the implementation of these standards through the quality assurance auditing process are examples of how governmental and regulatory agencies can influence physician motivation and behavior. Physicians have an important role in establishing societal norms, particularly with respect to health issues, but societal norms and expectations are also important determinants of physician behavior. For example, the majority—about two-thirds—of prescriptions for nicotine gum as a smoking cessation aid are written at the patient's request rather than on the physician's initiative (US DHHS, 1989).

**The Health
Voluntaries'
Sector**

Three national voluntary groups, the American Cancer Society, the American Heart Association, and the American Lung Association, have a rich history of smoking control efforts. In addition to these three groups, a number of other voluntaries, such as Americans for Nonsmokers' Rights and Fresh Air for Nonsmokers, emphasize smoking control activities in their mandates. These organizations are influential in that their staffs and volunteers form networks that extend to almost all geographic sections of the United States.

The cancer society, heart association, and lung association have a variety of events and activities that support tobacco control. Each of the groups has a major annual event that emphasizes nonsmoking. The American Cancer Society sponsors the Great American Smokeout in November; the American Heart Association promotes SweetHeart Day in February; and the American Lung Association coordinates activities around Non-Dependence Day in July. The voluntaries have also produced various smoking cessation materials and free or low-cost programs for smokers who are trying to quit. Special programs have been developed for some targeted populations, such as low-income pregnant women—the cancer society's "Special Delivery" and lung association's "Freedom from Smoking for You and Your Baby." The voluntary groups also offer self-help programs.

The strength of the health voluntaries lies in their networks of volunteers throughout the country, and antitobacco activities that build on that strength are likely to be successful. Door-to-door fundraising campaigns also serve as public education opportunities. Collaboration with other sectors, such as smoking cessation media campaigns, may be successful (Flay, 1987b). Multiple opportunities for smokers to attempt cessation are available, because the voluntaries provide on-going cessation services and resources. Public information campaigns detailing the available resources will help ensure that smokers are aware of the assistance that is available in any geographic location.

In terms of synergism, voluntaries may be considered the resource centers of diverse cessation activities and events in the community. To the extent that information on smoking control activities, on smoking cessation opportunities and materials, and on special communitywide events is widely available and publicized, this sector helps to coordinate all sectors of the community in promoting smoking control efforts.

CONCLUSIONS

- Smoking control strategies have evolved and expanded during the last 40 years as our understanding of smoking behavior and its risks has developed.
- Attempts to educate smokers and treat them individually have given way to more comprehensive efforts to treat both the individual smoker and the environment within which smoking takes place.
- Multiple channels and approaches to all sectors of the social environment characterize the state of the art in comprehensive control of tobacco use. This approach is used because different channels may reach different groups of smokers and because the synergism of multiple inputs to the smoker may create an effect greater than the sum of the effects of the individual channels.

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