

Task Force 5: Interventions to Prevent Relapse

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Relatively little is known about what are effective relapse-prevention intervention strategies. Simply adding booster sessions to treatment programs is generally unsuccessful in preventing relapse (see review by Kamarck & Lichtenstein, 1983). Major advances in relapse-prevention programming will require increased understanding of the natural history and processes of relapse and the development of models of relapse. Therefore, this report is necessarily speculative. We review treatment approaches to preventing smoking relapse and suggest avenues for future research.

This report is organized around a "stages-of-change" conceptualization (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1983). Because we are concerned with the maintenance of the cessation stage of the behavior-change process, we condensed the earlier phases of Prochaska's model to two stages—preparation and quitting—and expanded the latter part of the model to include three stages—early maintenance, late maintenance, and recycling (back to earlier stages).

There are two important corollaries to the use of such a model to discuss relapse-prevention strategies. First, to be maximally effective, relapse-prevention programming should begin in the early stages of the behavior-change process rather than after a person has been abstinent for a period of time. We suggest that efforts made even as early as the preparation phase to change how smokers view their smoking behavior and the quitting process can influence the probability of long-term success.

Second, we assume that the type of intervention strategy that will be most effective will vary across different stages of the change process (e.g., Prochaska & DiClemente, 1983). This assumption receives some empirical support from the study of self-help smoking cessation (Prochaska & DiClemente, 1983) and of smokers attending clinics to help them stop (DiClemente & Prochaska, 1982). Table 1 provides a heuristic of the major types of intervention strategies that we discuss here across various stages of change.

Relatively few of the intervention strategies discussed in this report are novel. A few of the approaches that we recommend, such as cue-exposure procedures, are new, but most have been employed by smoking-cessation researchers for several years. We disagree with the assumption that has driven much of smoking-cessation research, namely, that what we need are new techniques or yet one more procedure added to a multicomponent program. The history of smoking-modification research consists largely of investigators applying one innovative technique after another, usually with little or no improvement in long-term abstinence rates (Leventhal & Cleary, 1980; McFall & Hammen, 1971). In contrast, we advocate a systematic approach to intervention that emphasizes different techniques according to the stage of change clients are in. One goal for future intervention research should be to indicate the stages at which different intervention strategies are most appropriate.

In considering relapse-prevention strategies, we consider a wide variety of treatment modalities ranging from self-quitting to intensive group or individual treatment. Although most intervention approaches could be implemented via a variety of channels, particular modalities such as mass media, health provider, and worksite interventions may be particularly well suited to deliver certain relapse-prevention components (Table 2). Comprehensive intervention programming intended to make a public health impact would employ a coordinated effort across a variety of treatment modalities. Too often

TABLE 1
Matrix of Relapse-Prevention Components by Stage of Quitting Process

Stage of Quitting	Intervention Components				
	Motivation	Cognitive-Behavioral Coping Skills	Social Support	Cue Exposure	Pharmacotherapy
Preparation	_____	_____	_____	_____	_____
Quitting	_____	_____	_____	_____	_____
Early maintenance	_____	_____	_____	_____	_____
Late maintenance	_____	_____	_____	_____	_____
Recycling	_____	_____	_____	_____	_____

TABLE 2
Matrix of Treatment Modalities by Relapse-Prevention Components

Intervention Components	Treatment Modalities				
	Self-Help	Clinic	Health Provider	Mass Media	Worksite
Motivation	_____	_____	_____	_____	_____
Screening	_____	_____	_____	_____	_____
Cognitive-behavioral coping skills	_____	_____	_____	_____	_____
Social support	_____	_____	_____	_____	_____
Cue exposure	_____	_____	_____	_____	_____
Pharmacotherapy	_____	_____	_____	_____	_____

these different modalities have been contrasted with each other; they have not been viewed as complementary approaches for reaching different subgroups of smokers. Preliminary data suggest that combining different treatment modalities can significantly increase the overall success of a program (Flay, Hansen, Johnson, & Sobel, 1983). Another challenge for future researchers is to develop ways to integrate the intervention components outlined in Table 2 within each of the treatment modalities.

The intervention components discussed do not emanate from any particular theoretical model. Currently, no single model of smoking relapse is sufficiently well validated to direct all future intervention research. However, there have been provocative models such as that proposed by Marlatt and Gordon (1980), and future advances in preventing relapse may well come from theoretically driven research (see the Task Force 2 report). In turn, relapse-prevention research may refine theoretical models of relapse. We recommend that future outcome research be designed to assess the processes and mechanisms through which various relapse-prevention approaches operate.

MOTIVATION AND COMMITMENT

Preparation of the Individual

Preparation for quitting may play a vital role in relapse prevention. Inculcation of realistic attitudes and expectations toward quitting and maintenance appears critical even at the early stages of the process (Shiffman, Read, Maltese, Rapkin, & Jarvik, 1985). Flaxman (1978) suggested the usefulness of a formal preparation period before a targeted quit date. Similarly, work by Shiffman (1982, 1984) suggested that the absence of coping following a cessation attempt is predictive of relapse. It appears crucial for individuals to iden-

rify personally relevant coping strategies—prior to abstaining—that encompass both cognitive and behavioral mechanisms (Shiffman, 1982).

During preparation, smokers can profit from self-assessment activities. For example, they can monitor their smoking consumption with emphasis on patterns of use and perceived needs met by cigarettes in different situations. This process of self-assessment can be aided by formal measures. Examples include the widely used Smoker's Self-Testing Scale (which is also self-scoring) and the Conditte and Lichtenstein (1981) Confidence Questionnaire.

Research should focus on identifying modifiable variables at the preparation stage that are associated with long-term abstinence. Bandura (1977) suggested that self-efficacy can be most readily enhanced through performance accomplishments. An example of such an accomplishment in smoking modification might be adherence to a nicotine-fading procedure in which individuals switch to brands containing progressively lower tar and nicotine ratings. There is evidence that individuals who attain higher levels of self-efficacy prior to a quit attempt are more likely to sustain abstinence (Colletti, Supnik, & Rizzo, 1981; Conditte & Lichtenstein, 1981; DiClemente, 1981). Both the modifiability of self-efficacy and the relation of this factor to long-term success are of considerable research interest.

Nonmodifiable variables may also be of considerable interest. In particular, the implications of a smoker's quitting history for maintained cessation are of interest. Survey data have indicated that approximately 40% of current smokers report 3 or more attempts to quit (U.S. Public Health Service, 1983). Furthermore, these data revealed that over half of both male and female smokers in the 21- to 24-year-old age group claim a serious quit attempt in the year prior to the survey. It is also noteworthy that more than 50% of former smokers report 3 or more quit attempts. Although these are cross-sectional data, they suggest that most smokers have considerable quitting and relapse experience. In addition, smokers' interpretations of their quit history may play an important role in later abstinence (see the Task Force 3 report).

Additional work is needed in developing assessment instruments (ideally self-scoring) that can be administered during the preparation stage. Such instruments (e.g., self-efficacy measures, prior quit history) may serve as useful diagnostics in developing individual coping strategies.

An argument can be made that the only real failure is giving up on trying to quit. However, care must be taken to avoid providing implicit permission for smoking or the expectation that a relapse episode is likely to occur. Marlatt's metaphor of holding fire drills but not expecting a fire is appropriate in this context. From a clinical perspective, it should be realized that admitting the possibility of relapse is somewhat akin to walking a tightrope. Smokers should not abandon cessation efforts after experiencing a slip (and this is at

the heart of the relapse-prevention model); however, slips should be avoided whenever possible because data suggest that slips predict relapse.

Enhancement of Motivation

Increasing an individual's commitment to quitting is critical throughout the smoking-cessation cycle, yet this is ignored in many smoking-cessation programs. Motivation enhancement should begin during preparation for quitting and may be especially important during late maintenance and recycling stages (when the smoker's dedication to continued abstinence may come under severe challenge). Emphasizing personally relevant consequences of both cessation and continued smoking can be important (e.g., feedback from biochemical indicators such as carbon monoxide).

The use of incentives to increase motivation is generally neglected in smoking-cessation research despite the demonstrated utility of incentives in other areas (Brownell, Marlatt, Lichtenstein, & Wilson, 1986). Incentives are clearly applicable in both worksite and community settings (Glasgow, Klesges, Mizes, & Pechacek, 1985; Klesges, Vasey, & Glasgow, 1986; Shepard & Pearlman, 1985; Stitzer & Bigelow, 1983, 1985). Creative use of incentives may be applicable in other contexts as well (e.g., friends of the smoker could be encouraged to provide rewards for successful abstinence). An additional role of incentives might be to expand the number of smokers participating in cessation efforts even as the incentives facilitate quitting efforts (cf. King et al., 1986; Klesges et al., 1986; Pechacek et al., 1986).

Incentives can include a wide variety of options. One form of incentive that may be very effective in eliciting participation without requiring large monetary investments involves competition—for example, among various worksites, among subgroups within a single worksite, or perhaps even among different communities. Lotteries and monetary rewards are other possible incentives appropriate in both worksite and community settings (Ellis, 1978). To minimize possible nonsmokers' resentment of these rewards given to smokers, nonsmokers might also participate in lotteries and other incentives by sponsoring a smoker.

Screening

Screening of participants in treatment is a controversial issue. Brownell et al. (1986) addressed the possibility that given limited provider resources, treatment should be applied to those individuals most likely to profit from intervention. They also suggested that applying an intervention to nonmotivated participants may dilute treatment effectiveness for other individuals (especially in group settings) and may increase discouragement among treatment providers.

Screening may provide additional advantages. Treatment participants who believe they have passed a rigorous selection process may be more committed and may experience increased self-efficacy. Requiring entry criteria (e.g., 48 hr of nonsmoking prior to admission to a program) may facilitate learning experiences conducive to a successful outcome. Best (1975) asked treatment participants to either cut down to 25% of their baseline level or abstain altogether for a limited period. Adherence to such instructions may serve as a predictor of who will respond best to intervention. Screening may also be useful in assigning individuals to appropriate levels of intervention. Some smokers may profit from self-help or minimal treatment strategies, whereas others may require more intensive programs.

One corollary of screening is the need for valid screening procedures. Such procedures should provide an indication of probable success for prospective participants across a range of treatment options. Even if valid screening instruments are derived, however, they must be proved superior to individuals' self-selection of treatment.

Asking for a behavioral commitment (e.g., trial period of abstinence) appears reasonable, although this might eliminate smokers most in need of assistance. Denying interested individuals on the basis of an interview or a screening questionnaire may raise serious ethical issues. For example, such screening devices could systematically discriminate against specific subgroups.

QUITTING

For relapse prevention to be relevant, quitting must occur. It is widely assumed that an optimal approach to quitting should encompass both setting a specific quit date and abrupt cessation. However, the very limited supporting literature (cf. Flaxman, 1978) does not appear to justify the unquestioning acceptance of these assumptions. Presumably, setting a quit date focuses preparation efforts. Quitting "cold turkey" may also minimize the duration of withdrawal symptoms. There is some evidence (e.g., Solomon & Corbit, 1973) that withdrawal is prolonged in the face of continued smoking at dramatically reduced levels. Similarly, if a quit date is preceded by extended gradual reductions, the likelihood of deviations from targeted levels (with corresponding failure to achieve abstinence) may be considerable (Shapiro, Tursky, Schwartz, & Schnidman, 1971). Although studies assessing the efficacy of different initial quit strategies are needed, existing cessation programs may have focused too much on this stage of the process to the relative neglect of the other stages outlined in Table 1. Recent data indicate that the majority of individuals can achieve at least short-term cessation. The key is to assist smokers in maintaining long-term abstinence.

EARLY MAINTENANCE

Social Support

Social support may be relevant across all stages of the quitting process (see the Task Force 2 report). Social support can encourage initial quitting, sustain commitment in the face of withdrawal symptoms and immediate hurdles of quitting, and assist individuals through potential relapse situations long after cessation is achieved. Support may be especially critical during the early maintenance period because it is at this point that the temptation to smoke may be most intense.

There is some evidence that "nagging" on the part of significant others is correlated with unsuccessful outcomes (Lichtenstein, Glasgow, & Abrams, in press). More data are needed on the role of supportive interactions in promoting successful outcomes. At this point, correlational data indicate a relationship between perceived level of support, especially from significant others, and long-term maintenance (Mermelstein, Cohen, Lichtenstein, Baer, & Kamarck, 1986). Unfortunately, several recent experimental attempts to enhance social support (e.g., by actively involving partners in treatment and instructing them in useful supportive skills) have proved unsuccessful (Lichtenstein et al., in press). Thus, although support from others may be important in facilitating positive outcomes, interveners have been unable to effectively manipulate this factor.

More research is needed relating to processes and mechanisms of social support (Cohen et al., in press). It is unclear, for example, whether the failure to improve outcomes through social support interventions is a function of lack of implementation of supportive techniques or of the ineffectiveness of the mechanisms under study. It may be possible to improve outcomes through introducing social support into the context of the intervention itself; in group contexts, participants themselves may be a major resource. For example, Lando (1981) speculated that group cohesiveness constitutes one of three vital components of his clinic interventions (the other two being specific target date for quitting and preparation for that date). Etringer, Gregory, and Lando (1984) reported preliminary evidence that experimental enhancement of group cohesiveness was effective in improving long-term abstinence.

"Buddy" systems have been applied in treatment with some evidence of effectiveness (cf. Janis, 1983). Unfortunately, buddies are not consistently called on in crisis situations. When assistance from buddies is solicited, needed support is not always forthcoming. Furthermore, if the buddy returns to smoking, a potentially important source of aid may be lost, and this loss can undermine an individual's commitment to remain abstinent.

Perhaps one reason for the failure to demonstrate incremental effectiveness with social support interventions is that these interventions have typi-

cally been applied within the context of relatively intensive treatment. It may be that social support procedures will have their greatest impact within self-help and minimal-treatment contexts.

Some data indicate that high proportions of smokers in social and occupational networks are associated with less successful outcomes. The likelihood of relapse in individuals who live with family members who smoke appears to be significantly increased (cf. McGovern, 1984). Such individuals may be less supportive of quit attempts. Furthermore, the presence of other smokers in the home should increase the difficulty of avoiding smoking cues. Interventions might focus on increasing the supportiveness of other smokers in the environment, minimizing negativity, and encouraging these smokers to reduce smoking and the amount of smoking materials in the presence of the target individual.

Reinforcement

Self-reward strategies may be especially important during early maintenance but may need to continue in some form thereafter. Self-reward should be encouraged as evidence that the individuals recognize the significance of their accomplishments in quitting. The literature on self-quitting has consistently suggested that the use of self-reward procedures is associated with improved cessation rates (e.g., Glasgow et al., 1985; Perri & Richards, 1977).

Individuals might be encouraged to formally contract for tangible self-rewards contingent on clearly defined and relatively limited periods of abstinence (Lando, 1977). Rewards should be realistic and quickly accessible. Provision of incentives may both encourage increased commitment to abstinence and reduce subjective feelings of deprivation. Self-reward guarantees tangible recognition of the individual's success independent of existing levels of social support.

Coping Skills

Coping skills in early maintenance should be a logical extension of coping strategies identified and rehearsed prior to the quit date. Additional work is needed to address effectiveness of specific cognitive and behavioral coping strategies. Perhaps a few key techniques will prove critical across most quitters, whereas other techniques will vary in effectiveness depending on individual circumstances. Complexity of intervention should be considered during all phases of the quitting process, but especially in early maintenance. Practitioners may have erred in the direction of including an excessive number of techniques across the spectrum of treatments.

The theme of simplicity may be consistent with data reported by Shiffman (1982), who suggested that the use of coping strategies (especially cognitive

mechanisms) was associated with resistance to relapse in crisis situations. Preliminary findings have indicated that *implementation* of a strategy is more important than the specific strategy selected. Perhaps identification of relatively few, personally meaningful coping techniques will have greater impact than inclusion of a more extensive (and less fully implemented) coping repertoire. However, recent quitters should realize that no single strategy is likely to be effective in all situations.

It may be that the content of coping will differ more from early to late maintenance than will the essential nature of cognitive and behavioral strategies. Especially in early maintenance, smokers may be counseled to avoid tempting situations. Even at this point, however, avoidance is not always practical. Furthermore, some smokers may profit from encountering certain high-risk situations immediately when their commitment is at a peak level.

Novice quitters may need to be especially attentive to such issues as weight gain and withdrawal symptoms. These issues should be discussed during preparation, and realistic expectations should be established. At this point, it may be advisable for smokers concerned about eating to practice moderation in eating. This recommendation is not based on empirical data, and research is clearly needed.

Withdrawal symptoms appear to play a significant role in precipitating early relapse (see the Task Force 4 report). Pederson, Baskerville, and Wanklin (1982) found that more than half those in their study who relapsed reported having done so because of cravings for cigarettes. Gottlieb (1985) reported that smokers who relapsed in the first 2 weeks after quitting displayed more severe withdrawal symptoms on the first day of abstinence than did successful abstainers. Withdrawal symptoms may be viewed as cues for coping. Symptoms can be reinterpreted as signs of the healing process (e.g., increased coughing as evidence that the lungs are beginning to cleanse themselves of accumulated mucus).

Various behavioral techniques may be used to confront urges. Thus, in a stressful situation, simple deep-breathing exercises may lessen withdrawal reactions. Escape from urge-producing situations is sometimes both feasible and appropriate. Although withdrawal symptoms may be physiologically based, behavioral and cognitive coping strategies may be useful. Cognitive imagery may also be useful in resisting urges, although evidence for the effectiveness of such strategies is lacking.

Pharmacological Agents

Use of pharmacological agents is discussed in detail in the Task Force 4 report. Pharmacological agents such as nicotine gum may be presented in appropriate context as one coping strategy, especially during early maintenance. Although various nicotine substitutes (e.g., lobeline sulfate) have

been available for a number of years, these agents have not proved superior to placebos. However, more promising alternatives are currently available, including nicotine-containing gum and beta-adrenergic blockers such as clonidine. At present, nicotine gum is the only apparently effective pharmacological agent in widespread use. (See the Task Force 4 report for a detailed discussion of nicotine gum.)

LATE MAINTENANCE

Monitoring and Vigilance

Because there are no data to suggest the existence of a safe period after which individuals do not relapse to smoking, some form of continued vigilance or monitoring may be required to maintain nonsmoking status. This recommendation is consistent with conclusions reached in a recent review of self-regulation processes in general (Kirschenbaum & Tomarken, 1987). It seems important for ex-smokers to view the late maintenance phase as an integral part of their change effort, rather than as a passive period following their quit attempt. For example, data from Curry (see Appendix) suggest that individuals who expected initial quitting to be more difficult than maintenance of cessation were more likely to relapse than those who did not have this expectation.

Some of the most successful clinic-based smoking-cessation programs, such as the Multiple Risk Factor Intervention Trial (MRFIT), have involved continued contact with professional staff over an extended period of time (Hughes et al., 1984; Ockene, Benfari, Nuttall, Hurwitz, & Ockene, 1982). The lack of success of attempts to enhance maintenance by providing booster sessions (e.g., Danaher, 1977; Elliott & Denney, 1978) suggests, however, that it may not be contact per se, but rather the perception that one is part of a continuing change process that is important. It may also be possible to enhance vigilance with procedures that do not involve extended direct contact with professional staff. For example, making telephone hot lines or maintenance contests available for recent quitters or providing self-help materials such as the American Lung Association's maintenance manual (Davis, Faust, & Ordentlich, 1984) may serve a similar function.

Self-help manuals may prove to be particularly beneficial at this stage of the quitting process. Although the initial abstinence rates resulting from self-help books and brochures are low (see review by Glasgow, 1986), such materials may be effective in keeping recent quitters from returning to smoking. Some studies of self-help approaches have even found sleeper effects in which abstinence rates are actually higher at long-term follow-up than at

earlier points (Best, 1980). These data suggest that a benefit of continued monitoring and vigilance is to prevent slips from becoming relapses.

General Life Style Changes

Sustained smoking cessation inevitably requires the loss of a powerful reinforcer (Pomerleau & Pomerleau, 1984) and the modification of a range of social skills. The removal of an ingrained personal and social habit leaves a void that must be filled by new reinforcers, new social skills, or general life style changes to prevent relapse.

Although the early maintenance stage of smoking cessation is concerned primarily with the short-term avoidance of situations that might encourage relapse, long-term maintenance depends on ex-smokers modifying their life styles to address and cope with risk situations. One strategy that may strengthen an individual's ability to avoid relapse is the cultivation of new, more health oriented reinforcers, or positive "addictions" (Glasser, 1976). For example, exercise, relaxation training, and meditation have shown promise in preventing relapse in weight-loss and alcohol studies (Marlatt & Gordon, 1985).

Whether formal programs to promote positive addictions are of value, ex-smokers clearly must make some life style changes if they are to successfully remain ex-smokers. It is appropriate to present quitting smoking as one part of life style change, and the concepts of life style balance (e.g., Marlatt & Gordon, 1980, 1985) may be useful during the late maintenance phase. Attempts should be made to provide alternatives to smoking that are enjoyable.

Our enthusiasm for life style modification is dampened somewhat by data suggesting that it is extremely difficult to get people to adhere on a long-term basis to physical fitness and diet programs (Dishman & Ickes, 1981; Dunbar & Stunkard, 1979) and by research showing that less complex smoking-modification programs are often more effective than more elaborate interventions (Danaher, 1977; Lando, 1981). Additional research varying the complexity of recommended life style changes is indicated. Future research on the benefits of adding life style change components during the late maintenance phase are clearly needed.

Cue Exposure as a Relapse-Prevention Technique

Although most scientists agree that nicotine plays an important role in the maintenance of smoking, smokers' reports of urges and cravings pose an interesting paradox. Abstinent smokers report urges and cravings months and sometimes even years after cessation, in spite of the fact the *physiological* withdrawal is generally considered to be virtually complete by 2 to 4 weeks

after quitting. Recent research on physiological responses to smoking-related cues confirms these subjective reports. Abrams, Niaura, Monti, and Pinto (1985) exposed smokers who had abstained from cigarettes for a period of 90 min to another smoker who was lighting up and measured physiological responses (heart rate) and subjective responses (urges and anxiety). Those smokers who would later relapse following treatment showed greater physiological and subjective reactivity than those who would successfully maintain abstinence. These data have important implications for relapse prevention. They suggest that craving (which can be defined as the physiological *and* subjective components of the desire to smoke) exists independently of actual nicotine deprivation. Cravings can become conditioned to many situations in the smoker's life—exposure to smokers and cigarettes or internal cues such as anxiety or anger. From this perspective, craving is viewed primarily as a conditioned appetitive response rather than as an aversive deprivation state. A related view, with some empirical support, suggests that physiological responses such as electromyogram activity can be operantly reinforced by cigarettes (Lewin, Biglan, & Inman, in press). An implication of these perspectives is that urges to smoke may occur many months or even years after cessation when ex-smokers are exposed to cues (e.g., an old friend is smoking) to which cravings have not been extinguished.

Treatment approaches oriented toward cessation rather than toward long-term maintenance of cessation can promote conditioned craving. Avoidance of cigarette or smoking cues through stimulus control strategies, for example, although appropriate for the initial stages of quitting, does nothing to reduce conditioned craving. In the late maintenance phase, we need techniques that serve to break the conditioned link between smoking cues and craving. One approach could be systematically graded cue exposure. A hierarchy of smoking cues could be constructed by the smoker alone, in self-help programs, or with the therapist in a clinic program. This hierarchy could be ranked from situations producing the weakest cravings to the strongest. Smokers could systematically expose themselves to these situations both in and outside the treatment setting. Ex-smokers would be encouraged to use the coping methods discussed elsewhere in this report to deal with their feelings of craving. Extrapolating from the literature on cue-exposure techniques to overcome anxiety disorders (e.g., Foa, Steketee, Grayson, Turner, & Latimer, 1984; Mavissakalian & Michelson, 1983), it would be important to ensure that ex-smokers remain in situations until their cravings passed and that they be prevented from smoking during the exposure trial. Otherwise, conditioned cravings might inadvertently be strengthened rather than weakened. A variant of this technique would be a flooding procedure in which the ex-smoker is exposed for long periods of time to very strong smoking stimuli in a controlled setting. For example, this could take the form of a simulated barroom where other people drink, smoke, and offer cigarettes. Eventually, the

goal would be for ex-smokers to be able to expose themselves to a variety of smoking cues without experiencing disruptive cravings.

Cue-exposure approaches to enhancing maintenance seem appealing given the recent data on cue reactivity (Abrams et al., 1985) and the success of similar treatment approaches in other areas (e.g., Foa et al., 1984). However, it should be emphasized that cue-exposure strategies have not been reported in the smoking-cessation area, and they need to be tested empirically.

Another approach to relapse prevention is programmed relapse, a controversial procedure that involves a planned, clinically controlled experience with smoking cigarettes and that occurs sometime after cessation (Marlatt & Gordon, 1980, 1985). The technique is designed to discourage a slip from becoming a relapse and to encourage a focus on the negative aspect of the smoking experience. Optimally, participants learn from the experience that after having a cigarette they can return to abstinence. Although presented as part of Marlatt and Gordon's (1985) relapse-prevention formulation, this technique is seen as a "last-ditch" effort to prevent an oncoming relapse, because the procedure could cause participants to relapse (cf. Cooney & Kopel, 1980; Supnick & Colletti, 1984).

Stress Management and Weight Control

Coping strategies and efforts appear to be important in all stages of maintenance (Shiffman, 1984). The focus and types of coping that are most relevant will vary by stage of maintenance. During later maintenance, emphasis should be on stress-management strategies because studies consistently show that the major precipitants of relapse involve negative affect (Marlatt & Gordon, 1980; Shiffman, 1982). It is important to emphasize that such coping processes need not be very complex or require training by professionals; they should simply prepare individuals to cope actively with commonly occurring relapse precipitants.

The later maintenance phase may also prove to be an opportune time to cope more intensively with weight gain and with changes in food preferences (Grunberg, 1982, 1986). It is at this stage that more systematic programming for weight loss may be appropriate. Future research exploring the efficacy of adding weight-control procedures to smoking-cessation programs as a relapse-prevention aid are indicated.

RECYCLING

Often smokers and health professionals view the quitting process too narrowly. We tend to think in terms of a single isolated quit attempt, although most smokers require several quit attempts before they achieve permanent

abstinence (Schachter, 1982). The concept of relapse prevention could profitably be extended to include a recycling notion, much as drinking careers have been considered in the case of alcoholism. Similarly, what are the implications of different quit-relapse episodes for eventual success?

Most current relapse-prevention models appear to stop after a relapse has occurred. However, a relapse represents an additional point for intervention. Prochaska (1985) presented data showing that over 85% of relapsers "recycle" back to earlier stages such as contemplation or action. What can be done to facilitate this process? What modifiable variables are related to change at this point? Despite the almost total lack of data relevant to such questions, we feel that studying the recycling process is sufficiently important to merit adding it as a separate phase in the stages-of-change model illustrated in Table 1. (Recycling is also discussed in the Task Force 2 and Task Force 3 reports.)

Perhaps it is in recycling that some relapse-prevention notions will have their greatest impact. Thus, treatment that acknowledges the possibility of relapse may not prevent a relapse but may be conducive to earlier renewed quit attempts. Similarly, a procedure that allows nonabstinent smokers to retain some sense of accomplishment about controlling their smoking may lead to faster initiation of renewed quitting.

Related to the notion of recycling is the need for long-term (e.g., 3-year) follow-up data on study participants. Future research should study the patterns of change and shifts in smoking status over time rather than report only point-prevalence abstinence data at follow-up assessments (e.g., Ockene, 1984). Rather than dropping participants once they relapse, as is done in survival-analysis and related approaches for addressing continuous abstinence (e.g., Curry, Marlatt, Peterson, & Lutton, in press), increased attention needs to be devoted to relapsing smokers. At minimum, research should be conducted on the efficacy of introducing recycling notions as the next logical step after relapse-prevention attempts have failed to prevent resumed smoking.

SPECIAL CONCERNS ACROSS STAGES OF CHANGE

There are two crosscutting issues that can have a significant impact on relapse across the various stages of change and that are thus worthy of separate discussion. The first is the *social context* of smoking and its effect on maintaining abstinence. Social context refers to societal attitudes about smoking and the expression of these attitudes, particularly through restrictions on smoking. There are enormous changes under way in the social acceptability of smoking: workplace smoking restrictions, indoor clean-air acts and public smoking restrictions, greater assertiveness by nonsmokers, increasing num-

ber of nonsmokers, discounts on insurance premiums and other incentives, and a growing concern over the effects of passive smoke on the nonsmoker. These changes proscribe smoking behavior and thus may support maintenance of cessation and prevent relapse. However, beyond intuitive judgments of their impact, we do not understand the nature of their effect or their potential for aiding in relapse prevention. What causes some smokers to react positively to such changes as supporting their efforts to quit and others to react negatively to societal pressures as restrictions on personal freedom?

At another level, it has been argued that smoking-cessation efforts will have greater impact when combined with smoking-control (restrictive) and smoking-discouragement (educational) efforts (Dawley, Fleischer, & Dawley, 1984). Identical worksite smoking-control programs may have quite different effects in different worksites, depending on the organization's regulations regarding smoking on the job, the prevalence of smokers in the work force, and the general stance of the company regarding health promotion (Glasgow & Klesges, 1985). Similarly, community self-help programs for quitters may have quite different results in states that have recently increased sales taxes on tobacco, in communities that have instituted rigorous no-smoking rules in public places, or in conjunction with quitting contests sponsored by health organizations. Increased attention needs to be devoted to the social context in which relapse-prevention programs are offered.

There is also a countervailing element of social context: the extensive advertising, promotion, and public relations programs of the cigarette manufacturers. The over \$2.5 billion spent in smoking advertising and promotion, including magazines and billboards, sporting-event sponsorship, and promotional inserts in popular movies, represents an enormous source of cues that may affect an ex-smoker's ability to avoid slips or relapses. This countervailing element should be considered in the design of interventions, particularly in developing coping and cue-exposure strategies. Recent studies have begun to explore the impact of cigarette advertising and public service announcements concerning smoking on national smoking trends (e.g., Warner, 1981).

The second crosscutting issue concerns the *generalizability of intervention programs*. Although the core structure of relapse-prevention interventions may remain constant across different groups, interventions may be strengthened by considering the unique needs of the target population. Recently, the particular smoking-cessation concerns of women, of high-risk medical patients, and of blue-collar workers have received attention.

Women are reported to have lower cessation rates and higher rates of smoking relapse than men. Although the reasons for this poorer performance are not well understood (Jarvis, 1984), certain modifications for intervention programs directed at women are suggested. At the motivational level, women may be more likely to be concerned with aesthetic issues (e.g.,

the influence of smoking on skin, weight, and aging) than men are. Incorporating into motivational enhancement issues that may be more relevant to women may be valuable.

Due to the immediate threat smoking poses to high-risk medical populations (e.g., patients with heart disease or pulmonary disease, pregnant women), these groups have been targeted for special smoking-cessation interventions (e.g., Burling, Singleton, Bigelow, Baile, & Gottlieb, 1984; Hall, Bachman, Henderson, Barstow, & Jones, 1983). Differences in approaching these groups arise in the site and source of intervention. Health settings are frequently used, with health-care professionals providing the intervention. Strong, directive stop-smoking advice from an authoritative medical professional has been shown in some research settings to be of value in promoting smoking cessation with high-risk populations (Kornitzer, Dramaix, Kittel, & DeBacker, 1980; Li et al., 1984; Rose, Heller, Pedoe, & Christie, 1980; U.S. Public Health Service, 1984). Although this professional advice component may be a critical motivator of smoking cessation within high-risk populations, the lack of appropriate cessation or support programs for immediately channeling these high-risk patients may negate the ultimate impact of physicians' advice. Alternative support groups (i.e., risk-reduction groups) may be of value in aiding high-risk patients in maintaining smoking abstinence after hospital discharge.

Finally, demographic data from prevalence surveys have shown that blue-collar workers are smoking at higher rates than white-collar workers are (Remington et al., 1985; Shopland & Brown, 1985). Clinical research on cessation and relapse has more than likely suffered from underrepresenting smokers of lower socioeconomic status. We need to determine whether there are significant differences among smokers at different socioeconomic levels, particularly with respect to their attitudes about smoking and quitting and their knowledge, social support, and skill requirements for avoiding relapse.