

Background for a Comprehensive Community-Based Trial for Smoking Control

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INTRODUCTION Americans suffer greatly from diseases that are not the inevitable consequence of being born or growing old. Diseases that were rare in society prior to the 20th century, such as coronary heart disease (CHD), lung cancer, and chronic obstructive pulmonary disease (COPD), now have reached epidemic proportions (U.S. Department of Health and Human Services, 1989). The dramatic increase in these chronic diseases reflects changes in 20th-century American culture and lifestyle, including changes in dietary and exercise habits and the explosive increase in cigarette smoking during the first half of this century. Former U.S. Surgeon General C. Everett Koop considers cigarette smoking to be the single most important preventable cause of premature death and disability in society today (U.S. Department of Health and Human Services, 1988). It is sobering to note that this mass phenomenon was unknown in America prior to this century.

By the time of the first Surgeon General's Report in 1964, more than 50 percent of adult males and nearly 30 percent of adult females smoked cigarettes. The prevalence among men ages 20 to 30 was 70 percent (Warner, 1986). Since that landmark Surgeon General's Report, considerable progress has been made in the nonsmoking arena. By 1993, the prevalence of smoking in the United States dropped to 27.7 percent for males and 22.2 percent for females. The relatively small drop in prevalence for females has been attributed variously to the changing role of women in today's society and the marketing strategies of tobacco companies (Fiore et al., 1989). Most Americans, smokers as well as nonsmokers, are aware of the harmful effects of cigarettes (U.S. Department of Health and Human Services, 1989 and 1991); furthermore, most adult smokers say they would like to stop smoking (U.S. Department of Health and Human Services, 1990).

The dangers of environmental tobacco smoke (ETS) are now well established, and the U.S. Environmental Protection Agency has labeled secondhand smoke as a Class A carcinogen (U.S. Department of Health and Human Services, 1993a). Legislation and policies curtailing and even banning smoking in public places have increased dramatically in recent years (U.S. Department of Health and Human Services, 1993b).

Despite these positive signs, there remains much work ahead. Young people continue to acquire the smoking habit at an alarming rate (Pierce et al., 1989; U.S. Department of Health and Human Services, 1994); more than 46 million Americans continue to smoke (U.S. Department of Health and Human Services, 1990); and progress in the antismoking field is uneven.

African-Americans respond less well to antismoking campaigns than whites (Centers for Disease Control, 1990); the poor and least educated continue to smoke at a high rate (Pierce et al., 1989); and high smoking rates among women have boosted lung cancer past breast cancer as the number one cause of cancer death among American women (American Cancer Society, 1992).

**INDIVIDUAL
ORIENTATIONS
TO TOBACCO
CONTROL**

Research focusing on tobacco control began in the 1970's. A quick review of the smoking control research literature indicates that most research has focused on individual-oriented strategies (U.S. Department of Health and Human Services, 1991). Such interventions usually take place in clinics and involve labor-intensive treatments, often administered by professional therapists. The objective of such research is to identify interventions that produce high rates of smoking cessation. Unfortunately, the effects are limited to the relatively few patients or clients who can participate in such clinics. For example, multicomponent group intervention programs (Pechacek, 1979) are among the most effective clinical strategies available. They feature a synthesis of motivational, educational, and behavioral approaches to smoking cessation and use several behavioral strategies to help smokers acquire skills that will enable them to stop smoking and remain abstinent (Pechacek, 1979). Although multicomponent group intervention programs may yield impressive initial and long-term quit rates (Pechacek, 1979), their effectiveness suffers from the limited availability of skilled therapists, the limited numbers of smokers who can be accommodated, the cost of the treatment, and often, the reluctance of smokers to participate in intensive group or individual programs. However, most smokers stop on their own without the aid of a specific program, perhaps reflecting an environment that increasingly favors nonsmokers.

In an attempt to broaden the reach of clinical interventions, strategies have been "repackaged" for use in other settings. If the successful ingredients of the multicomponent programs can be packaged into a self-help manual or videotape that can be used by many smokers with minimal or no professional supervision, the potential public health effect of the intervention can be vastly expanded. During the past decade, research interest has shifted from the search for more effective clinical treatments to an exploration of ways to repackage existing treatments to enhance their public health impact (Hymowitz, 1992; Lichtenstein and Glasgow, 1992; Cohen et al., 1989), and the National Cancer Institute Smoking and Tobacco Control Program has supported numerous studies in this area. This interest has led to research on bibliotherapy and self-help manuals (Glasgow et al., 1981), computer-assisted cessation technologies (Schneider and Benya, 1984), quit-smoking contests and lotteries (Glasgow et al., 1985), hot lines (Ossip-Klein et al., 1991), and imaginative use of print (Cummings et al., 1987) and electronic (Flay et al., 1988) media.

Another relatively new emphasis is the focus on different channels for reaching smokers and delivering interventions. Nontraditional settings, such as worksites (Sorensen et al., 1990-91; Hymowitz et al., 1991; Glasgow

and Terborg, 1988), hospitals (Hudzinski and Frohlich, 1990), physician offices (Ockene, 1987; Cummings et al., 1989), religious organizations (Lasater et al., 1986; Eng et al., 1985), and health clinics (Mayer et al., 1990) provide opportunities to reach many smokers from all segments of society, many of whom are missed by more traditional group-help or clinical approaches. Moreover, these settings often provide excellent opportunities for long-term intervention and followup, thereby increasing the likelihood of long-term success.

PUBLIC HEALTH MODEL OF TOBACCO CONTROL

In the past 15 years, the perceptions of smoking behavior have changed. Increasingly, it is seen as a public health problem as well as an individual problem. The public health model is based on the relationship among three factors: (1) the host or recipient of a disease, (2) the agent or cause of the disease, and (3) the environment or setting in which the disease occurs. Smoking fits this model. The agent of the disease is tobacco, the recipient is the smoker, and the environment includes all those cues and constraints within an individual's world that promote or inhibit the use of tobacco. Tobacco control efforts can be built around this model. Instead of intervening between the agent and the host, activities can be directed toward the environment that promotes the agent of the disease. For example, the tobacco companies spend more than \$4 billion annually to promote their products and increase the companies' legitimacy (Warner, 1986), despite the fact that cigarette smoking claims the lives of more than 400,000 Americans each year (U.S. Department of Health and Human Services, 1989). Policies that prohibit tobacco promotion and advertising, or keep it to a minimum, can have a large effect on smoking onset among youngsters. Similarly, as demonstrated in California, taxation of tobacco can fund counterpromotion activities (U.S. Department of Health and Human Services, 1989).

Societal norms—shared rules and expectations for behavior—produce a



complex system of formal and informal guidelines for the appropriateness of behaviors (Robertson, 1977). The most effective strategies for tobacco control are those that strike at the heart of the social mores and norms that support the smoking epidemic. However, norms vary by time, social network, and locality; thus, to produce large-scale changes in smoking behavior, intervention must target large social entities. To this end, health promotion researchers now are focusing on the community as the target of intervention.

Community-based interventions have both advantages and disadvantages over traditional individual-based interventions. As many researchers have observed, smoking is promoted through the social and physical environment of the community; thus, it is embedded in the smoker's way of life. Large-scale efforts to change this environment have the potential to affect many smokers at a lower cost per person. Some disadvantages of community-based programs, from a research perspective, are the broad secular trends in smoking behavior that are intertwined with program effect, the quasi-experimental and often complicated designs of studies that make it difficult to sort out cause-and-effect relationships, and the lack of long-term followup (Farquhar et al., 1984).

For these reasons, the mounting national and international experience in community control of smoking over the past 20 years has not produced conclusive evidence that these programs bring about either broad or long-term change in smoking behavior in target populations. However, the evidence is sometimes compelling and offers much value to designers of other large-scale studies. A brief review of this literature provides a good backdrop to the Community Intervention Trial for Smoking Cessation (COMMIT).

PAST COMMUNITY-BASED STUDIES OF TOBACCO CONTROL Experience with community intervention for health promotion derives largely from a host of multifactor studies of heart disease prevention (Hymowitz, 1987). Several excellent reviews of the community intervention literature are available (Hymowitz, 1987; Thompson and Pertschuk, 1992; U.S. Department of Health and Human Services, 1991 and 1987). A few of these are described below.

The Stanford Three Community Study was the first major community intervention trial. It began in 1972, with three communities randomized to mass media, mass media plus intensive face-to-face intervention, or control. Only the community with mass media and intensive face-to-face intervention showed a substantial decrease in the mean number of cigarettes smoked per day, with the high-risk group identified for the individual interactions showing a large and meaningful decrease (-42.3 percent) (Farquhar et al., 1977). However, the control city showed a decrease of 17 percent for a net reduction of -25 percent (Farquhar et al., 1977).

The North Karelia Project in Finland was also an initial major community intervention trial; it focused on the control of cardiovascular disease (CVD) in one county, with another county selected for control. This demonstration project, initiated in 1972, was a response to a request of the North Karelians for assistance in dealing with the high rate of CVD in their population.

Smoking was one component of the intervention (Puska et al., 1976). By 1982, 36 percent of North Karelian men ages 30 to 59 were current smokers compared with 42 percent in the reference community, a statistically significant difference (Puska et al., 1983 and 1989). The interpretation of the trial is difficult given that the community requested the intervention and that national legislative changes also may have contributed to the change in prevalence.

The Stanford Three Community Study described above was followed by three similar studies funded by the National Heart, Lung, and Blood Institute. These studies, the Stanford Five-City Project, the Minnesota Heart Health Program, and the Pawtucket Heart Health Program, further investigated the possibility of changing behavior at the community level. Final results of the Stanford Five-City Project, conducted in two treatment communities, showed a statistically significant 13-percent decrease in smoking in a cohort sample but no significant differences in a cross-sectional sample (Fortmann et al., 1993). The Minnesota project used three pairs of communities, and within each pair, one community was nonrandomly assigned to intervention and one to control. Both cohort and cross-sectional surveys showed no difference in smoking for males; however, the cross-sectional survey indicated a decline in smoking for females (Luepker et al., 1994). The Minnesota project also implemented interventions in schools and found that, in the intervention communities, 14.6 percent of students were smokers at graduation, compared with 24.1 percent in the comparison communities (Perry et al., 1992). Potential weaknesses of this study include the diversity among the communities, the lack of randomization, and evidence of a strong secular trend for smoking cessation that may have made it difficult to see any intervention effects. The Pawtucket project initially focused on social networks, such as worksites, schools, religious organizations, and other organizations, to spread an antismoking intervention but later added social marketing and communitywide activities. A "Quit and Win" contest showed good participation and good long-term results (Elder et al., 1986). Overall results from the Pawtucket project showed downward, symmetrical, and secular trends in smoking prevalence (Carleton et al., 1995).

The Australian North Coast Healthy Lifestyle Programme: Quit for Life used a social marketing approach to community intervention (Egger et al., 1983). Professional media and advertising techniques were used to prepare messages. The media included organizations from television, radio, and print, and stickers, posters, T-shirts, balloons, and self-help quit kits were among other advertising techniques used. In addition to the media campaign, a variety of community antismoking programs were offered in the community receiving media plus community programs. These programs included a 5-day plan, commercial quit-smoking groups, a quit club, a quit 1-day workshop, a quit 5-day clinic, hypnotherapy, and doctor's kits. The results of prevalence surveys taken at baseline and during years 2 and 3 suggest that the Australian North Coast Healthy Lifestyle Programme: Quit for Life was effective in reducing the prevalence of smoking in the experimental communities compared with the reference community

(Egger et al., 1983). The biggest change in the prevalence of smoking occurred in Lismore, the mass media and specific intervention community. Of the specific quit-smoking programs offered, the most popular were those that did not require face-to-face contact (kits, informational brochures, factsheets, and so forth) (Egger et al., 1983). Among smokers who reported quitting, most reported that they quit smoking on their own, a finding that emphasizes the importance of creating a social milieu that encourages and supports self-initiated quit-smoking attempts.

The National Research Program in Switzerland also focused on CVD prevention. This project involved two pairs of communities, with one community per pair randomized to intervention. The observed decrease in smoking prevalence was statistically significant. It also was found that light and moderate smokers were more likely to quit than heavy smokers (Gutzwiller et al., 1985). The major weakness of this study was low response rates to the outcome surveys.

Another Australian study, the Sydney Quit for Life Anti-Smoking Campaign, used mass media to reduce smoking prevalence in two Australian cities, Sydney and Melbourne. The remainder of Australia was used as a control area. The intervention was phased into the two cities, first in Sydney and a year later in Melbourne. The combined effect of the program was statistically significant in both intervention cities (Dwyer et al., 1986). Long-term effects of the trial were most dramatic for men in Sydney, where smoking prevalence dropped 2.5 percent in the first 6 months of the intervention and continued at a decline of 1.12 percent per year; similar trends were seen in Melbourne. However, after an initial decline, women did not continue to decrease their smoking prevalence rates (Pierce et al., 1989).

Several other important community or large-scale intervention studies have revealed positive effects on prevalence of cigarette smoking. Among them are the Community Hypertension, Atherosclerosis, and Diabetes (CHAD) program in Israel (Gofin et al., 1981 and 1986), the Cardiovascular Disease Prevention Program in an Austrian community (Rhomberg, 1991), and the Coronary Risk Factor Study in South Africa (Stenkamp et al., 1991). In addition, several community studies are under way in Germany, Ireland, Sweden, and the Netherlands that also target general risk factors related to health, including smoking.



**LESSONS
FROM
PREVIOUS
STUDIES**

The review of studies suggests several lessons on smoking.

- The recognition that behavior occurs within a social environment has implications for each level of the social environment. Although communities can be extremely influential in shaping that environment, communities exist within broader systems, including Federal and State systems, both of which are likely to have a great impact on smoking behavior. For example, the annual Surgeon General reports alert health care professionals about new findings in tobacco use and control. The Federal Government imposes regulations on the sale of tobacco; it also collects taxes on tobacco. Every State government in the United States has placed restrictions on youth access to tobacco. Most recently, one State, California, has experimented with dedicating State taxes on tobacco products to antismoking media campaigns. This “top down” support of the greater entities within which communities operate can be a powerful contributor to community change, as suggested by North Karelia legislative changes that came during the intervention period. The recent Canadian and California experiences with increased taxes and the subsequent greater decrease in smoking prevalence compared with the United States overall also emphasize the importance of support from the larger systems.
- It is important to recognize that cigarette smoking and associated adverse health consequences are community problems that require community solutions. Individual and clinical interventions have an important place in the antismoking arena, but true success will not be obtained until communities and their concerned citizens let it be known that “enough is enough.” Communities should take a stand to protect their youth from lung cancer, CHD, COPD, and the many other ill effects of smoking. Also, it is up to communities to implement rules and regulations that protect their citizens from the affliction of ETS. Communities can help create a social climate in which cigarette smoking is viewed as an unacceptable behavior.
- It is noteworthy that in both the North Karelia and the Australian studies intervention effects continued to be observed throughout the 10 years of the study. This finding documents the importance of long-term commitment. Community intervention studies are unique public health endeavors, and often, a considerable amount of time is needed to organize the community, mobilize diverse intervention channels, and introduce comprehensive social marketing and behavioral programs that not only lead to the prevention of smoking onset and the modification of existing smoking behavior but also contribute to changes in social norms and mores.
- An advantage of community interventions is that the effect of specific interventions is enhanced by their presentation within the context of an “enriched” milieu. Hence, coordination of several different interventions in communities may enhance the effectiveness of all.

- Prior community intervention studies underscore the importance of the considerable thought and attention required for coordination and planning to maximize community resource and intervention effects. Together, systematic programming can contribute to a change in the social milieu, so necessary for the long-term modification of smoking behavior.
- Although community-based smoking cessation and prevention approaches are likely to be less efficacious than individual or clinical programs, they are designed to be more cost-effective and to reach larger numbers of smokers, thus producing a larger public health effect.
- There can be little question that Federal, State, community, and individual approaches to smoking cessation have an important place in the antismoking arena. Smokers who desire clinical treatment and support ought to be able to obtain the help they need. However, in view of the magnitude of the smoking problem in the United States, the great numbers of smokers in need of assistance, and the terrible toll that cigarette smoking continues to take on the health of this Nation, it is also necessary to implement effective public health strategies.

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