The Impact of Physicians' Brief Smoking Cessation Counseling: A MIRNET Study

Raymond Y. Demers, MD, MPH, Anne Victoria Neale, PhD, MPH, Robert Adams, MD, Cherolee Trembath, MD, and Sandra C. Herman
Detroit, Fenton, and South Lyon, Michigan

Although many family physicians may discuss smoking cessation with their patients, few do so consistently. A common belief among many physicians is that such efforts will not deter their patients from smoking. Others believe the time commitment required for a successful intervention is excessive. The present study addressed the above issues by examining the effect of a 3- to 5-minute unstructured physician discussion encouraging smoking cessation with family practice patients. Cigarette-smoking patients of two busy family practices in southeast Michigan were randomly assigned to either a control group receiving routine care or an intervention group receiving, in addition to routine care, smoking cessation counseling from their physician. A third comparison group was drawn from smokers in practices not involved in delivering the intervention. Two hundred thirty-eight patients from the intervention group, 178 from the control group, and 47 from the comparison group were followed up with a telephone interview at 6 months. Intervention group patients made significantly more quit attempts than did those in the control group ($P < .001$), which was similar to the comparison group. At the 6-month follow-up, 8% of intervention group members, and 4% of both the comparison and control groups reportedly were abstinent from smoking. Among those contacted at the 1-year follow-up, the respective percentages abstinent were 8%, 3%, and 4%. Although these differences in quit rates were not statistically significant, the findings suggest that physicians can positively affect patient smoking cessation. This intervention was feasible in busy family practices, highlighting its generalizability and applicability to other family practice settings in the United States. **J Fam Pract 1990; 31:625-629.**

The potential for physicians to reduce smoking-related morbidity by encouraging patient smoking cessation is receiving increased attention.[1-6] Although some physicians perceive themselves as lacking skill in smoking cessation counseling,[4,7,8] surveys indicate that most physicians do counsel their smoking patients. For example, Wechsler et al[7] found that 93% of 430 physicians routinely query their patients about smoking. Whereas 58% felt "very prepared" to counsel patients on smoking cessation, only 3% said they felt "very successful" in helping patients stop smoking. Wells et al[9] found that 52% of 441 internists counsel at least 75% of their patients on smoking cessation, and only 3% never counsel patients.

Other studies have found that smokers do not perceive or perhaps remember physician advice to stop smoking. For example, 70% of smokers in a national survey indicated they would quit if so urged by their physicians, but only 25% reported having received such advice.[10] Anda et al[11] found that only 44% of 2143 smokers in a random survey of Michigan adults reported that they had ever been told by a physician to quit. In a study of patient perception of physician smoking cessation messages, only 60% of 258 patients recalled receiving a documented smoking message, and 85% of these perceived it as a message to quit.[12]

In spite of the tendency of some smokers to fail to recognize that they may have been advised to stop smok-

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Michigan Research Network (MIRNET) is a voluntary collaboration of Michigan family practices interested in performing practice-based research.

From the Department of Family Medicine, Wayne State University School of Medicine, Detroit, the Fenton Medical Center, Fenton, and the Providence Family Health Center, South Lyon, Michigan. Requests for reprints should be addressed to Raymond Y. Demers, MD, Department of Family Medicine, 4201 St Antoine, Suite 4-J, Detroit, MI 48201.

ing, physicians in primary care settings can be effective in helping their patients to stop smoking. Kottke et al[13] found that 13% of patients who had simply been asked by their physicians whether they smoked claimed to have stopped 1 year later, compared with 9% of those who had not been asked. Randomized trials of physician recommendations for smoking cessation have indicated modest success rates, such as 4.6%,[14] 8.8%,[12] and 15%,[15] when the intervention was a brief discussion lasting less than 5 minutes.

More impressive results have been reported when the physician intervention is more intensive.[16,17] For example, Russell et al[14] found that quit rates rose from 4.6% to 7.5% when patients received a pamphlet along with a brief discussion. In a recent review, Schwartz[16] summarized 28 physician-based smoking cessation studies, noting that trials that used advice or counseling alone resulted in patient quit rates between 5% and 10%, whereas those that provided more intensive physician intervention often resulted in success rates of 20% to 25%. Richmond and Webster[18] found that an extensive physician intervention, which included clinical tests, questionnaire interview, smoking diary, and information on the adverse health effects of smoking, including photographs illustrating examples of lung and heart disease, resulted in a 33% quit rate at 6 months, compared with 3% in a control group. Janz et al[15] found that over 20% of smokers who received an intervention consisting of physician discussion, nurse counseling, and a self-help manual were abstinent at 1 year. In Rose and Hamilton's study,[19] the physician intervention lasted 15 minutes and resulted in abstinence rates of 51% at 1 year and 36% at 3 years, compared with 10% and 14%, respectively, in the "normal care" group.

Most research on the effectiveness of physician interventions employ experimental conditions with a standardized intervention. There has been little study, however, of the effectiveness of a physician intervention that is individualized according to both the risk factors of the patient and the counseling style of the physician. If an individualized smoking cessation intervention designed by practicing physicians can be effective in motivating smoking patients, then primary care physicians may be more confident and active in undertaking smoking cessation counseling. This study examined the effectiveness of individualized encouragement to stop smoking delivered by primary care physicians in private practice.

METHODS

Practice Descriptions

Participants in this study were recruited from two medical practices between February and May of 1987. One practice consisted of 4 physicians and 1 certified physician assistant, and the other of 6 physicians. Both practices were located in small towns in rural areas of Michigan, one with a population of approximately 60,000, and the other about 35,000. The two practices had a combined annual visit rate of approximately 51,000. The 10 physicians, 5 men and 5 women, had a mean age of 37.5 years (range 30 to 55 years). All were board certified in family practice and graduates of US medical schools. The physician assistant had been in practice for 10 years. None of the physicians were cigarette smokers during the time of the study.

Three other family practices were asked to serve as comparisons for the purpose of determining the baseline smoking quit attempts and quit rates. These practices were also in rural areas, with populations ranging from 20,000 to 40,000. Each practice was asked to administer a health habit questionnaire to 100 consecutive office visit patients 18 years of age and older. Sixty-five smokers were identified from these comparison practices. These comparison practice smokers were also interviewed at 6 months and 1 year.

Sample Recruitment

Smokers were entered into the study as they came to the family practice offices for routine care. The following procedure was used for random assignment of smoking patients to one of two groups. The practice receptionist asked all patients 18 years of age and older to complete a brief health habits questionnaire that consisted of five questions pertaining to lifestyle. One of these questions simply asked, "Do you currently smoke cigarettes?" Those responding "yes" were systematically assigned to either an intervention or control (routine care) group based on the last digit of their medical chart. The receptionist identified intervention group participants by marking their charts with a colored sticker, cuing the physician to spend 3 to 5 minutes discussing smoking cessation. The physicians were encouraged to develop their own intervention approaches rather than using a standardized intervention. American Lung Association smoking cessation literature was provided to be used at their discretion.

A total of 519 patients were initially recruited into the study: 155 from practice A (86 [55%] of whom were assigned to the intervention group) and 364 from practice B (206 [57%] of whom were in the intervention group). The number of smoking patients assigned to each physician ranged from 9 to 88. In an effort to avoid patient awareness of the study, the only information collected at the time of enrollment was name, age, sex, telephone number, and group assignment.

Six months after the physician intervention, trained telephone interviewers attempted to contact everyone (in-

TABLE 1. CHARACTERISTICS OF PARTICIPANTS CONTACTED 6 MONTHS AFTER STUDY ENROLLMENT, BY INTERVENTION, CONTROL, AND COMPARISON GROUP STATUS

Characteristic	Intervention Group (n=238)	Control Group (n=178)	Comparison Group (n=47)	Statistic	P Value
Sex				$\chi^2 = 6.6$	<.05
Female (%)	65	65	84		
Male (%)	35	35	16		
Age (years)				$\chi^2 = 8.6$	NS
≤29 (%)	46	36	43		
30–49 (%)	47	52	55		
≥50 (%)	7	12	2		
Age started smoking (years)	16.2	16.9	17.0	F = 2.8	NS
Number of cigarettes smoked daily	21.3	22.1	22.1	F = 0.4	NS

cluding comparison group members) to obtain a smoking history. At the 6-month interview, study participants were asked their age of smoking onset, number of cigarettes currently smoked per day, whether they had attempted to quit in the last 6 months, whether they had actually quit for any length of time, and whether they were currently still smoking. At the 1-year interview they were asked whether they were currently smoking.

RESULTS

Two hundred thirty-eight patients (82%) from the intervention group, 178 (78%) from the control group, and 47 (72%) from the comparison group were contacted for telephone interview 6 months after the recruitment-intervention period. The demographic characteristics of these individuals are described by group in Table 1. The intervention and control groups were both 65% female, while the comparison group had significantly more women ($P < .05$). The groups were similar in age at baseline, age started smoking, and the number of cigarettes smoked daily.

In Table 2 smoking status is summarized at the 6-month and 1-year interview. The intervention group had significantly more individuals who both attempted and were able to quit smoking for some duration during the 6-month period ($P < .001$ for both relationships). Twice as many members of the intervention group (8%) were not smoking at the time of the 6-month interview, compared with the 4% who had quit in both the control and comparison groups, although these proportions were not significantly different. At the 1-year follow-up, 181 (62%) individuals in the intervention group, 134 (59%) in the control group, and 24 (37%) in the comparison group were contacted. A similar pattern was found as at the 6-month follow-up:

TABLE 2. SMOKING OUTCOMES AT THE 6-MONTH AND 1-YEAR FOLLOW-UP

Smoking Outcome	Intervention Group No. (%)	Control Group No. (%)	Comparison Group No. (%)	χ^2	P Value
At 6-month interview					
Attempted to quit				21.1	<.001
Yes	99 (42)	40 (23)	9 (19)		
No	139 (58)	138 (77)	38 (81)		
Quit for some duration				15.7	<.001
Yes	82 (35)	30 (17)	9 (19)		
No	156 (65)	148 (83)	38 (81)		
Smoking status				2.7	NS
Successful quitters	18 (8)	7 (4)	2 (4)		
Still smoking	220 (92)	171 (96)	45 (96)		
At 1-year interview					
Smoking status				4.0	NS
Successful quitters	15 (8)	4 (3)	1 (4)		
Still smoking	166 (92)	130 (97)	23 (96)		

TABLE 3. COMPARISON OF 1-YEAR NONSMOKERS AND SMOKERS

Characteristic	Nonsmokers (n = 19)	Smokers (n = 319)	Statistic	P Value
Percent women	60	70	$\chi^2 = 0.5$	NS
Average age at baseline (years)	34.5	33.7	F = 0.1	NS
Cigarettes smoked per day at baseline	22.8	22.9	F = 0.00	NS

members of the intervention group were twice as likely to be nonsmokers than members of either the control or comparison groups.

Of the 18 successful quitters in the intervention group at the 6-month interview, 10 were still nonsmokers at the 1-year follow-up, 2 had started smoking since that time, and 6 were lost to follow-up. Five people who were smoking at the 6-month interview were nonsmokers after 1 year. There were 7 in the control group who were successful quitters at the 6-month interview. Four of these were still nonsmokers at the 1-year follow-up and 3 were lost to follow-up. There was no one in this group who quit smoking between the 6-month and 1-year interview. Of the 2 comparison group nonsmokers at 6-months, 1 was still a nonsmoker at 1-year, and the other could not be located. The proportions of those lost to follow-up were not statistically different.

The 19 patients who were nonsmokers after 1 year are compared with those still smoking in Table 3. The descriptive variables of sex, average age at baseline, and the number of cigarettes smoked at baseline were unrelated to smoking status after 1 year.

DISCUSSION

This study randomized family practice patients into an intervention group who received physician counseling to stop smoking, and a control group receiving routine care (which may have included counseling for some). The individual physicians were encouraged to use any relevant teaching or clinical skills in their smoking cessation intervention discussion. Although the quit rates between the intervention and control groups were not quite statistically significant, the minimal and feasible intervention appeared to result in improved cigarette smoking quit rates at the end of 1 year, suggesting that physicians could have a significant impact on cigarette smoking habits and resulting morbidity if they would discuss smoking cessation with all their smoking patients. As the physicians in this study developed and individualized their own approach to smoking cessation counseling, these findings should be generalizable to other family practices in the United States.

Each physician was interviewed regarding his or her approach to the smoking cessation intervention after data collection was completed. The physician survey results indicated a wide variation in the approach to smoking cessation counseling. For example, one half of the physicians individually tailored their intervention strategies to patient characteristics and risk factors, while the other half used the same approach on all patients. Those who individually tailored their approach focused on patient characteristics such as age, personality, family history, acute illness status, presence of children, pregnancy status, concurrence of cardiovascular risk, and economic issues. Of those practitioners advising specific quit techniques, the most frequent suggestions were to quit "cold turkey" and to use nicotine gum and group self-help programs. One half of the physicians stated they used an emotional appeal, whereas the remainder used facts and information only. Seven of the 11 stated they changed their typical approach toward smoking patients as a result of the study design, while all indicated at least some discussion of smoking cessation with control group members. Four stated they were more likely to discuss smoking with all patients as a result of the study. The amount of time spent discussing smoking cessation with intervention group patients range from 30 seconds to 8 minutes, with a mean of approximately 3 minutes.

More individuals in the intervention group, compared with those in the control and comparison groups, attempted to quit and did quit for some duration during the 6 months after the intervention. These quit attempts should result in a further increase in the quit rate differentials between the intervention and control group members in years to come. While group differences in smoking status at the 6-month interview were not statistically significant, intervention group members were twice as likely to be nonsmokers at the 1-year follow-up. Sample size calculations suggested that approximately 300 individuals would be needed in each of the intervention and control groups to detect, with 95% confidence, smoking quit rates of 10% in the intervention group and 5% in the comparison group.

Several limitations of this study are appreciated. As with most longitudinal studies, there was attrition of the baseline population at both the 6-month and 1-year follow-ups. This attrition may introduce a bias that limits the generalizability of findings. Second, some studies suggest

that a self-report of smoking tends to be underreported. Leupker et al[20] compared smokers' responses with a telephone survey and an in-home interview. The telephone methodology underestimated cigarette smoking rates by 3%. In addition, 28% who reported by telephone to be long-term quitters subsequently reported smoking during the in-person interview. Of course, quitting is an unstable category because of relapse. Some studies, however, have reported that self-reported smoking status is a valid and reliable indicator when compared with clinical measures.[21,22] As the individuals in this study were not aware of their group assignment, it is unlikely that a reporting bias would exist to a greater or lesser extent in the control group relative to the intervention group. There is no reason to believe that the intervention group was systematically exposed to any other health or smoking-related information during the study that would account for their higher quit rates. The attrition rates of those who had quit smoking at the 6-month interview were comparable among the three study groups.

Many resources have recently been developed to assist the busy practicing physician desiring to assist his or her smoking patients.[8] The challenge now is to impress upon practicing family physicians that they can have a positive impact on patient cigarette smoking quit rates. Although physicians often minimize their success with patients in this regard, they should be aware that a minimal intervention can increase their success in helping patients to stop smoking. This study suggests that 1 hour of physician effort, on the average, will result in one additional quitter (assuming that each physician spent 3 minutes with each of 238 intervention group smokers). This 12 hours (714 minutes) of time invested resulted in a net smoker quit total of 11 (18 quitters in the intervention group minus 7 in the control group). In addition, the intervention effort resulted in a 4% net increase in the smoking quit rate (8% quit rate in the intervention group less the 4% control group quit rate). If 200,000 US physicians consistently practiced this intervention, 800,000 new quitters could be anticipated annually.

Practicing physicians should also appreciate that system changes at the practice level may facilitate such endeavors. For instance, the identification of smokers at the reception desk, the tagging of charts of smokers, and the budgeting of time for smoking cessation discussions and follow-up mail or telephone reminders of that discussion can all contribute to successful outcomes. These minor changes, coupled with the physician's commitment to disease prevention, are likely to make a positive difference.

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