

Counseling Medical and Dental Patients about Cigarette Smoking: The Impact of Nicotine Gum and Chart Reminders

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Abstract: To investigate methods for improving and expanding the counseling of smokers by physicians and dentists, we assigned 112 physicians and 50 dentists (in separate studies) to one of the following conditions: the control or advice-only group received a one-hour lecture on the consequences and management of smoking and a booklet detailing a four-step protocol for counseling patients about smoking; three other groups received, in addition, either,

protocol reminder stickers placed on their patients' charts; nicotine gum made freely available to their patients; or both chart reminders and nicotine gum. Exit interviews of 1,091 medical and 647 dental patients indicated that the presence of chart reminders and/or the availability of nicotine gum increased the time spent counseling and altered the nature of the smoking cessation counseling provided by both physicians and dentists. (*Am J Public Health* 1987; 77:313-316.)

Introduction

Cigarette smoking is the leading preventable cause of illness in the United States¹ and is linked to 320,000 premature deaths a year.² In spite of these facts, there are still more than 50 million Americans who continue to smoke cigarettes.³

Although most smokers have expressed a desire to quit, the vast majority appear unable or unwilling to enroll in the variety of organized smoking cessation programs that exist. In a survey of adults expressing a desire to quit smoking, only 3 per cent were willing to attend a smoking withdrawal clinic.⁴ Similarly, a Gallup poll indicated that 50 per cent of the smokers interviewed expressed a desire to quit, but only 18 per cent evidenced interest in attending an organized stop-smoking clinic.⁵

In contrast, most smokers will be in contact with a physician and/or dentist during the course of a year. In 1980, approximately 71 per cent of the civilian, noninstitutionalized population was seen by a physician,⁶ and in 1978, 54 per cent of Americans made an annual visit to a dentist.⁷ Thus, physicians and dentists, in continuing contact with millions of smokers, are in a position to influence the smoking habits of their patients.

In examining the impact of physician's advice on patients' smoking cessation, Pederson concluded that the most compliant patients are those who have more severe, smoking-related diseases and who are in imminent danger from continued smoking.⁸ Furthermore, the greater the intensity of the education and advice given by the physician, the higher the percentage of smoking cessation, with the highest one- to three-year quit-rates ranging from 19 to 62 per cent.⁹⁻¹¹

However, many cigarette smokers report that their physicians have never advised them to stop smoking. One survey indicated that while 75 per cent of smokers felt that their physicians' advice would be "somewhat" to "very effective" in getting them to reduce or stop smoking, two-thirds of those questioned stated that they had never been advised to quit by their physician.¹²

We carried out a randomized controlled trial of interventions designed to improve the effectiveness of physicians and dentists in helping their patients quit smoking.

Methods

Physician Subjects

The physician subjects included 97 internal medicine residents and 15 faculty general internists who staffed the outpatient general medicine clinic of a city/county teaching hospital. Each physician had his or her own panel of patients to whom continuous care was given. Before participating in the study, all physicians completed a questionnaire concerning their personal smoking histories, their beliefs about involvement in convincing others to stop smoking, their current smoking management practices, their interest in learning new smoking cessation techniques, and their self-assessment of personal effectiveness in helping patients stop smoking.

Procedures and Study Design

All physicians either attended a one-hour lecture or received personalized instruction from a general internist (DMS). Both approaches presented evidence of the medical consequences of smoking, the benefits of quitting, the effect of nicotine chewing gum on smoking cessation, and evidence that physicians' advice can be effective in helping some patients quit smoking. The following four-step protocol was suggested for counseling patients: Step 1) Ask your patients about smoking; Step 2) Deliver a firm quit smoking message; Step 3) Mutually agree on a quit date; and Step 4) Check on your patients progress at each regularly scheduled visit.¹³

Prior to the lecture, physicians and their entire panel of patients who smoked cigarettes were randomly assigned to one of four study groups. The study conditions were implemented at the first clinic following the lecture. Physicians in the advice (i.e., control) group were given a booklet¹³ containing the four-step care protocol and were encouraged to counsel their patients who smoke. Physicians in the other three groups received the same instruction as the advice group plus additional instruction:

- For one group, physicians were told that patients with fluorescent red stickers attached to their chart were eligible to receive up to a 10-box supply of a nicotine chewing gum at no cost. If the physician wanted that patient to receive the gum, he or she must indicate that desire by a notation on the patient's clinic encounter form. Once the gum was prescribed for an individual patient, the sticker was removed and never replaced.

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● For another group, two fluorescent stickers were placed on the charts to help physicians remember to follow the step-care protocol. The green sticker, asking "Did you talk to the patient today about smoking? Yes or No," was placed on the chart of patients during all regularly scheduled clinic visits. The orange sticker, stating "The patient has agreed to the following quit date," was removed and never replaced once a patient agreed to a quit date.

● For the final group, all interventions and stickers pertained, with physicians instructed to use both the reminders and the nicotine gum.

Medical Patients

Eligible patients were between the ages of 18 and 64, reported smoking one or more cigarettes daily, and had an alveolar breath carbon monoxide determination of more than eight parts per million. Patients with active smoking-related malignancies, gastric ulcers or acute gastritis, angina, myocardial infarction, arrhythmias, temporomandibular joint diseases, or chewing disorders were excluded. Also excluded were women who were pregnant or nursing.

All patients were recruited by research assistants who verified their eligibility for participation. Patients signed an informed consent form which indicated that their smoking habit would be monitored at each regularly scheduled clinic visit regardless of their decision to quit or continue smoking. (The participation refusal rate was 9.7 per cent of all medical patients contacted.) During the patients' exit interview, a research assistant asked whether their doctor had talked to them about smoking. When they answered affirmatively, they were questioned about the nature of the discussion, and asked to estimate how many minutes their doctor or another member of the office staff had spent discussing smoking with them.

Dental Subjects

Fifty dentists privately practicing in the greater Indianapolis area participated in a study closely paralleling the previously described physician's study. The dentists completed an identical attitude and practice questionnaire at the beginning of their lecture. A general dentist (AGC) replaced the general internist as the principal instructor. All dentists and their entire panel of eligible patients were randomized to one of the four experimental conditions as described previously.

The eligibility criteria for dental patients were identical to those for medical patients, although the recruitment procedure varied somewhat from that of medicine. When calling to reconfirm routine appointments, the dental receptionist determined each patient's smoking status. The subsequent list of smokers served as a source of patient contact by dental research assistants. Seven per cent of the dental patients contacted refused to participate in the study.

To determine the nature of the smoking counseling and the amount of time spent, research assistants interviewed patients who had just visited their dentist. Patients were asked questions similar to those asked of medical patients.

Results*

The prevalence of smoking among the physicians and dentists in the study was considerably less than the current national average (29 per cent) of American adults.¹⁴ Responses to the questionnaire on smoking and tobacco use showed

TABLE 1—The Percentage of Medical Patients Reporting That Their Physician Had Counseled Them about Cigarette Smoking

Physician Group	Physician Counseling		
	Asked About Smoking	Advised to Quit	Asked About Setting a Quit Date
Advice	41	27	2
Gum	84	61	10
Reminder	75	66	33
Both	95	84	58

TABLE 2—The Percentage of Dental Patients Reporting That Their Dentist Had Counseled Them about Cigarette Smoking

Dentist Group	Dentist Counseling		
	Asked About Smoking	Advised to Quit	Asked About Setting a Quit Date
Advice	37	18	3
Gum	72	32	6
Reminder	59	29	14
Both	85	54	31

that 77 per cent of the physicians had never smoked, 15 per cent were former smokers, and 8 per cent currently smoked. The results for the dentists were 62 per cent, 22 per cent, and 16 per cent, respectively. While both physicians and dentists overwhelmingly agreed with the concept of taking an active role in helping patients desiring to quit, less than half of the dentists and approximately two-thirds of the physicians had reported previously offering personal counseling to patients about quitting smoking.

For the questions asked of patients about the counseling, the outcome measure is the percentage of patients for each physician or dentist who responded affirmatively. Thus, if doctor X had 10 patients who were having their first visit after enrollment in the study and doctor X asked four of them about setting a quit smoking date, then doctor X would be credited with 40 per cent for counseling patients about setting a quit smoking date. For each physician and dentist, their counseling percentages were weighted in the analysis by the number of their patients interviewed.

The data displayed in Table 1 are based on the results reported by 1,091 medical patients. To meet the assumption of homogeneity of variances required for analyses of variance, arc sine transformations were performed on the percentages. The results of the analysis of variance of the transformed data (weighted for number of patients) indicated that physicians were more likely to ask about cigarette smoking when reminders were present, or when gum was available. There was also an interaction between the two interventions. While physicians in the both group were more likely to ask about smoking than were physicians in either the gum or the reminder groups, the increase was less than the sum of those two groups.

The study group to which the physicians were assigned influenced their giving advice to patients to quit smoking cigarettes and their asking patients about setting a date for quitting smoking. Analysis of variance of the transformed data indicated effects for the reminder conditions and for the gum conditions. There were no interactions.

The data displayed in Table 2 are based on the results reported by 647 dental patients as to the nature of the smoking

*The data and statistical analyses are available upon request to authors.

TABLE 3—Patients' Report of the Number of Minutes Their Doctors Spent Talking to Them about Smoking

Experimental Group	Medicine			Dentistry		
	Mean	Standard Deviation	Range	Mean	Standard Deviation	Range
Visit 1						
Advice	1.33	0.78	0.00– 2.73	2.10	2.39	0.00– 7.20
Gum	4.84	2.67	1.57–10.50	7.28	2.83	3.23–12.50
Reminder	3.70	1.67	0.83– 7.57	4.36	3.38	0.50–12.70
Both	5.48	2.16	0.25–11.08	7.38	1.71	4.49– 9.58
Visit 2						
Advice	1.22	1.02	0.00– 3.50	2.09	2.52	0.00– 8.00
Gum	3.33	2.12	0.50–10.00	2.14	1.10	0.00– 3.63
Reminder	3.69	2.43	0.00–10.00	4.17	5.20	0.00–16.00
Both	3.69	2.33	0.67–10.57	4.23	2.43	0.93–10.00

counseling they received from their dentists. As in the medicine study, the experimental group to which the dentists (and all their patients) were assigned had an impact on the nature of the smoking counseling patients received. The availability of nicotine gum had an impact on dentists in asking patients about their cigarette smoking. Both the gum conditions and the reminder conditions affected dentists in advising their patients to quit smoking, but only the reminder condition influenced their asking patients to set a quit smoking date.

Patients who indicated that their physician or dentist had talked to them today about cigarette smoking were asked to estimate the number of minutes of counseling they received. For each physician or dentist, the average number of minutes spent counseling patients about cigarette smoking was determined by dividing the total number of minutes of counseling reported by the number of their patients interviewed. Results are shown in Table 3 for both the first visit and the first follow-up visit (i.e., visit 2). Before performing analysis of variance, the data were weighted to take into account the wide range of patients enrolled for each professional (one to 30 patients per doctor in medicine, with an average of 11 patients; one to 53 in dentistry, with an average of 16 patients): we weighted the average number of minutes counseled for each doctor by the number of patients involved. Both the gum and the reminder conditions produced substantial effects, with an interaction between them. These results were sustained at the second visit.

Rarely in the medical settings did someone other than the physician talk to the patient about smoking. However, in the dental offices often the dentist and another staff member jointly counseled patients about smoking. Therefore, the total number of minutes for a given dental practice was calculated to reflect the combined effect of dentist and staff counseling. These results are also shown in Table 3. Analysis of variance on the weighted dental office time spent talking

about smoking yielded effects for reminders and for gum at the first visit. These results were less marked at the second visit.

To determine the extent to which the amount of counseling time was a function of the health professionals' initial attitudes and habits (as reported on the smoking questionnaire), stepwise multiple regression analyses were performed using the weighted number of minutes as the criterion. Among the predictors were the physicians' or dentists' smoking status, willingness to intervene with smokers, prior approach to the management of smokers, the current procedures used to help smokers desiring to quit, and interest shown in learning about new smoking cessation programs. Also included in the regression analyses as dummy variables were the intervention conditions (i.e., gum vs no gum; reminders vs no reminders).

The analysis of the predictors of time spent counseling patients about smoking is shown in Table 4. For both physicians and dentists, only the experimental conditions had an impact on the amount of time spent counseling smokers. The availability of nicotine gum accounted for the most of the time in counseling patients, although the presence of chart reminders also had an impact. None of the other variables, including the health professionals' own smoking history, accounted in any important way for the amount of time they spent counseling their patients who smoke.

Discussion

Physicians and dentists can have a major impact on the smoking status of millions of Americans. Doing so will require a personal commitment of time and resources: to identify the smokers within their practices, to counsel them about the dangers of smoking and the benefits of quitting, to suggest quitting strategies, and to check progress at regularly scheduled office visits. However, many physicians spend little time in counseling smokers. The amount of time spent in smoking counseling reported by patients of the advice group physicians was similar to the amount reportedly spent by a random sample of physicians from a county medical society.¹⁵ Less than half of those physicians reported spending more than two minutes in counseling patients about smoking.

In contrast, as documented in other studies, the use of chart reminders increases a clinician's likelihood of engaging in recommended preventive actions.^{16,17}

Providing nicotine gum at no cost profoundly affected the behavior of physicians and dentists in their counseling of smokers. Prescribing pharmaceuticals for the management of problems is a common practice in medicine and in dentistry.

TABLE 4—Analysis of Predictors of the Amount of Time Spent Counseling Patients about Smoking*

Order of Variable Entry	Physicians		Dentists	
	Regression Coefficient	Standard Error	Regression Coefficient	Standard Error
1. Gum Access	2.38	0.30	1.55	0.54
2. Chart Reminders	1.94	0.30	1.65	0.58

*Weighted Stepwise Regression

Thus, prescribing nicotine gum is a natural component of these practices. Since the dose and administration of nicotine gum is different from other drugs, practitioners may have also spent time explaining how to use the gum appropriately.

Although the participating physicians and dentists varied widely in age, types of practices, previous use of tobacco products, and reasons for study participation, the effects of the experimental interventions seemed to override these differences. The interventions appear to have an impact regardless of the physicians' and dentists' previous attitudes about smoking and approaches to its management. Changing the nature of the practice environment either by flagging charts or by providing a new medication (i.e., nicotine chewing gum) seems to change how clinicians practice. Whether these changes in primary care practice will help patients quit smoking and maintain abstinence remains to be seen.

ACKNOWLEDGMENTS

This research was supported in part by a grant from the National Cancer Institute, PHS R01 CA 38337. We thank the following research assistants for their invaluable effort in screening and interviewing patients: Nancy Nienaber, Lyle Geddes, Judy O'Hair, Laura Wilson, Cathy Armantrout, Sue Kelly, and Jill Helmen. We also thank Joseph J. Mamlin, MD and Charles Kelley, MD for their cooperation and support of the General Medicine Clinic of the Regenstrief Health Center, Indiana University Medical Center. The physician data in this report were presented by Drs. Cohen, Katz, and Smith at the annual meeting of the Society for Research and Education in Primary Care Internal Medicine, May 1, 1986, Washington, DC.

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