

Patient Referral to a Smoking Cessation Program: Who Follows Through?

Edward Lichtenstein, PhD, and Jack Hollis, PhD
Eugene, Oregon

Background. While health care providers are often urged to refer smokers to a smoking cessation program, little information is available about patient adherence to such advice.

Methods. A group of primary care patients who smoked (N = 1380) received brief advice to quit from their provider, and were then asked to stay and talk to a counselor for more information. Counselors randomly delivered one of two interventions. For the intervention group, referral to a specific group cessation program was emphasized, and for the control group, quitting advice was merely repeated. The referral intervention included a video in which role models testified to the acceptability and usefulness of the HMO's group program. The usual program fees were waived, and patients received a supportive, follow-up telephone call 1 week after their visit.

Results. In the referral intervention group, 53.2% of patients agreed to go to the cessation program and 11.3% actually attended, compared with only .006% of the patients who received advice only. Logistic regression analyses revealed that patients who were contemplating quitting were more than five times as likely to respond to the referral compared to precontemplators (smokers who were not seriously considering quitting). Older, heavier smokers were also more likely to attend a group session.

Conclusions. An intensive, specific referral to a group smoking cessation program can increase participation by patients. Most patients, however, will not attend a group program; therefore, a brief office-based intervention for all smokers should precede referral.

Key words. Smoking; physician referral; patient compliance; health promotion. *J Fam Pract* 1992; 34:739-744.

Medical settings are an increasingly attractive avenue for promoting smoking cessation. It is estimated that physicians have contact with at least 70% of all smokers each year,¹ and that approximately 38 million of the 53 million adult smokers in the United States could be counseled each year during the course of routine health care visits.² Patients see physicians as a highly credible source of cessation advice,³ and during medical visits, patients are more aware of their health and vulnerability to disease. Together, these factors create what may be termed a "teachable moment," which health providers can use to help patients quit.⁴

These considerations have given rise to empirical literature on the effects of physician advice.^{1,5-7} Although the studies vary considerably in focus and methodological rigor, evidence from randomized trials suggests that

physicians who counsel smokers have a modest but important health impact on smokers, and that even higher cessation rates can be achieved with more intensive and repeated contacts.^{5,8,9}

Surveys indicate that most physicians accept responsibility for providing smoking cessation advice¹⁰ and report that they do counsel smokers.^{10,11} Other survey data, however, show that physicians are pessimistic about the efficacy of their interventions and that there are other barriers to consistent physician intervention.⁶ Numerous financial and organizational obstacles to health promotion still exist within the American health care delivery system.⁶

Besides providing cessation advice or assistance, health care providers have been urged to provide referral to existing cessation services.^{6,12,13} Referral of a patient to a specialist is a traditional medical practice, and can be a convenient alternative for providers who are too busy or inadequately trained to offer smoking cessation assistance, especially to highly addicted patients.

In contrast with the sizeable literature on the effectiveness of physician advice or counseling, we found only

Submitted, revised, April 1, 1992.

From the Oregon Research Institute (Dr Lichtenstein) and the Kaiser Permanente Center for Health Research (Dr Hollis), Eugene, Oregon. Requests for reprints should be addressed to Edward Lichtenstein, PhD, Oregon Health Research Institute, 1899 Willamette, Eugene, OR 97401.

one empirical study on referral. Thompson and colleagues¹⁴ tested a referral intervention among ambulatory patients who had no smoking-related disorders. Of 364 patients, 14% telephoned the program, 5% attended, and only 0.8% quit smoking. The nature and intensity of the referral were not described, and the \$30 program fee may have discouraged attendance. The authors concluded that referral is not a useful option for primary care settings. We feel that this conclusion is premature, given that there is so little information on whether patients are receptive to and compliant with referrals or on the characteristics of these patients.

This study compares attendance at a multisession stop-smoking class by patients who either received brief physician advice on smoking cessation but no referral message or brief advice plus a strong referral to a free smoking cessation class. Attending a group program offers a smoker a good chance of quitting,¹⁵ and the particular program referred to here has reported a verified quit rate of nearly 35%.¹⁶ An intensive and standardized referral protocol was evaluated, and there was no cost to the patient for the proffered services, thus optimizing the likelihood of patient participation. We also examined the characteristics of those who did and did not follow through in varying degrees. Of particular interest in this regard was the patient's readiness to change, as described by Prochaska and DiClemente.¹⁷

Unlike the smoking cessation clinic, where all who come are presumably ready to take action, smokers in a medical setting include those with no interest in quitting (precontemplators), those who are considering the possibility of quitting (contemplators), and those who are already making efforts to quit (action stage). One would expect different responses to a referral from patients who differed in their readiness to change. By incorporating a measure of patients' readiness to change at the baseline assessment, we were able to analyze the effects of the readiness variable alone and in combination with other predictors.

The primary study hypothesis was that significantly more patients in the referral condition would attend the group program compared to patients receiving advice only. We also hypothesized that subjects who reported considering quitting in the next 6 months (contemplators) and those who reported stronger motivation to quit would be more likely to follow through on referral. Since reports on cessation clinics typically note that female participants outnumber male participants, we expected women to be more likely to accept referral. Based on analyses of attendees at cessation programs,^{18,19} we tentatively expected higher self-efficacy or confidence in quitting to be related to follow through.

Methods

This paper is part of a larger study evaluating several modes of nurse-assisted smoking cessation interventions delivered in primary care settings. Procedural details can be found elsewhere.^{20,21}

Subjects and Procedures

The 1387 participants, aged 18 to 70 years, were members of Kaiser Permanente, a 375,000 member managed care program in Portland, Oregon, who attended primary care clinics for routine medical problems and reported smoking cigarettes. Each received brief stop-smoking advice from 1 of 40 medical care providers. The providers were primarily physicians, but also included physician assistants and nurse practitioners.

When checking in at the reception desk, all eligible patients were asked to complete a short health habits survey while waiting for their medical appointments. The primary care provider delivered a brief (30-second) verbal message at the end of the visit advising all identified smokers to stop smoking and asked that they stay and see a health counselor "who will provide some materials and tips that will help you when you decide you are ready to quit smoking." Cessation materials were mailed to patients who could not or would not see the health counselor. All patients who received advice were randomized into one of the following four groups: (1) advice only, (2) encouragement and instruction in quitting on their own, (3) cessation group referral, and (4) a choice of self-quitting or referral. Randomization of the patients occurred after physician contact so that providers were blind to the patient's group assignment. All randomized patients were included in outcome analyses, regardless of whether they agreed to see a counselor. Data from the referral patients ($n = 672$), compared with that from advice-only controls ($n = 706$), are the focus of this paper.

Referral patients received an assessment and interpretation of their carbon monoxide (CO) level, and then watched a 10-minute video encouraging them to join the HMO's established group stop-smoking program known as Freedom From Cigarettes (FFC). The FFC program includes a total of nine group meetings over 2 months: an orientation meeting, four consecutive evening sessions, and then four weekly maintenance sessions. The program has achieved approximately a 35% biochemically verified, 1-year quit rate; a more detailed description of the program and its effects can be found in Stevens and Hollis.¹⁶

The recruitment video featured former group members (or actors) describing, in positive terms, their expe-

Table 1. Follow-through by Patient Self-Selected Level of Exposure to Referral for Smoking Cessation Program, %

Selected Intervention	Mailed Information Only (n = 105)	Counselor (n = 108)	Counselor and Video (n = 459)	All Randomized Patients (N = 672)
Scheduled group program	1.0	61.1	63.2	53.2
Attended first group meeting	0.0	13.9	13.3	11.3
Attended last meeting	0.0	10.2	10.7	8.9

rience in a cessation group, as well as excerpts from group sessions. Patients were informed that the normal \$90 FFC membership fee would be waived, though the standard \$50 refundable attendance deposit would still be required. After the video, patients were given an FFC brochure and offered a time-limited (3-month) coupon to waive the program fee. The counselor then tried to schedule the patient for an upcoming group. Reminder postcards were sent to those who enrolled just prior to the scheduled meeting, and the patient was called several days after the meeting to check on progress and to reschedule if necessary. For the advice-only (control) patients, the counselor merely repeated the importance of quitting and gave the patient a brief brochure.

Follow-through

Three indices of patient acceptance of referral were examined: (1) willingness to schedule a group program, (2) participation in the FFC program as reflected by attendance at the first group meeting, and (3) completion of the FFC program as reflected by attendance at the last session. FFC records were checked to determine which patients had participated during the follow-up year (all but 15 attended FFC meetings within the period during which the fee waiver coupon was valid).

Predictor Variables

It was necessary to keep the baseline health habits questionnaire short, so few potential predictors are available. Demographic, smoking history, and health status measures were obtained. Readiness to change was roughly assessed with the single item: "Do you intend to quit smoking in the next 6 months?" A yes response indicated contemplation; a no reflected precontemplation. Other items assessed motivation ("How much do you want to quit smoking?") and self-efficacy ("How confident are you that you could quit smoking if you wanted to?"), using 10-point Likert scales. Smoking rate (cigarettes per day) and a measure of nicotine dependence ("How soon after awakening do you smoke your first cigarette?")

were obtained. Self-report measures of health status and perceived degree of overweight were also included.

Data Analysis Strategy

Since patients were randomly assigned to group referral or advice only, an experimental comparison was possible. Within the referral group, patients selected one or more of the referral options that varied in degree of intensity of recruitment. One hundred five (16%) patients declined to see the counselor and received mailed referral materials only. Of the 566 patients seeing the counselor, 108 (19%) elected not to see the video, which presented the strongest referral message. This left 458 (68%) patients who received the complete referral message. In addition to examining outcomes for *all* patients randomized to the referral condition, data were analyzed separately for subgroups self-selectively exposed to varying levels of the referral message.

Results

Only 4 of 706 smokers (.006%) attended the HMO stop-smoking program during the year after receiving brief general advice from their physician to stop smoking. With the same brief advice, plus a systematic referral message and fee waiver, 76 of 672 (about 11%) of patients attended the first session of the program. A total of 8.9% of all referral patients attended the final meeting of the program.

Other data on follow-through for referred patients by self-selected exposure to different levels of the referral message is presented in Table 1. There was virtually no referral follow-through for those patients who did not see the counselor and who received only mailed information. Patients who only saw the counselor and those who saw the counselor and watched the video exhibited similar patterns of follow-through. While over 60% of these patients enrolled in a group program, less than 14% attended (21.2% of patients who scheduled a group program).

Table 2. Demographic, Smoking History, and Other Characteristics of Patients Who Did and Did Not Attend a Smoking Cessation Program: All Randomized Patients

Characteristic	Attended First Meeting	
	Yes (n = 76)	No (n = 596)
Age, mean	46.0	39.8†
Female (%)	55.8	55.3
White (%)	97.1	91.7
Desire to quit smoking, mean (10 = very much)	8.7	7.0†
Confidence in quitting, mean (10 = very much)	4.2	5.4*
Cigarettes smoked per day, mean	21.0	16.8*
Minutes to first smoke, mean	33.1	81.5†
Perceived level of overweight, mean (4 = very)	2.6	2.6
Excellent or very good perceived health status (%)	33.8	37.4

NOTE: Numbers vary slightly because of missing data.

*P < .01.

†P < .001.

Correlates of Referral Follow-through

As hypothesized, readiness to change (contemplation) was strongly related to referral follow-through. Contemplators were about five times as likely to attend the group program as were precontemplators. The bivariate results for other potential predictors of follow-through, using attendance at the first FFC session as the criterion, are shown in Table 2. Desire to quit was positively related to attendance, but confidence in ability to quit was negatively related to follow-through. The patients who most wanted to quit and those who were less confident that they could do so were most likely to follow through with referral. Consistent with this pattern, patients who attended the group program were higher on two indices of addiction: cigarettes per day and mean minutes to the first cigarette of the day. The nicotine dependence mea-

Table 3. Logistic Regression Analyses of Patient Attendance at First Group Session for Smoking Cessation Program, by Predictor Variables

Variable	Referral Only	
	Odds Ratio	95% CI
Male vs female	0.89	0.52–1.52
Younger vs older	0.44	0.25–0.76
Precontemplator vs contemplator	0.17	0.07–0.44
Low confidence vs high confidence	1.74	0.98–3.11
Light smoker vs heavy smoker	0.56	0.32–0.98

CI denotes confidence interval.

asures are, in fact, negatively correlated with confidence in ability to quit, ie, more cigarettes, less confidence (cigarettes per day, $r = -.27$; minutes to first cigarette, $r = -.265$).

Contrary to expectation, women were not more likely to attend the group program than men. Race was unrelated to referral acceptance, possibly because of the low numbers of nonwhite participants. Education was unrelated to follow-through, but younger patients tended to be less likely to attend the group program. Perceived degree of excess weight and subjective health status were unrelated to follow-through.

Multivariate Analyses

Logistic regression analyses were used to assess the independent effects of significant bivariate predictors. The independent variables were contemplation status, confidence in quitting (dichotomized), cigarettes per day (dichotomized; ≤ 19 vs ≥ 20 cigarettes), age (dichotomized; < 40 vs ≥ 40), and sex. Desire to quit and minutes to first cigarette were omitted because they correlated highly with other variables (contemplation and desire to quit, $r = .66$; cigarettes per day and minutes to first cigarette, $r = .40$). The odds ratios, using attendance at the first group meeting as the dependent measure, are shown in Table 3. Older patients, those contemplating quitting prior to intervention, and heavier smokers were significantly more likely to attend the group program.

Discussion

A strong, standardized referral intervention produced a large increase in referral follow-through. Considering all randomized patients, over 11% attended the smoking cessation program compared with .006% in the advice-only group. We suggest that this is the upper boundary of what can be expected of a practical referral program in nonselected patients in primary care settings. The physician and nurse-counselor program was intensive compared to usual care, and was specifically designed to reduce barriers. The cessation program was offered at no cost, and patients saw role models testifying to its acceptability and usefulness. The particular cessation program in this study, Freedom From Cigarettes, has been in operation for several years and was well known to patients because of prior publicity (eg, in the HMO member newsletter). Under these highly favorable conditions, over 60% of smokers who were counseled for referral (excluding the 16% who did not see the counselor) agreed to schedule a group program, but only 13% ever attended. These figures, however, compare favorably

with the 5% who attended a clinic in the Thompson et al¹⁴ study, and represent a striking improvement in attendance levels compared to advice only (.006%). The Thompson et al¹⁴ study intentionally excluded patients with smoking-related illness. We attempted to recruit all smokers attending the primary care clinics, regardless of health condition.

The data from this study also provide information about patient characteristics associated with patient compliance with referral to a smoking cessation program. Bivariate relationships indicated that heavier smokers, those considering quitting in the next 6 months (contemplators), and those who were less confident of their ability to quit were the most likely to actually attend a class. Older patients were more likely to accept referral than younger patients but, contrary to expectation, women, while more likely to *schedule* a group program, were not more likely to attend. Multivariate (logistic) analyses confirmed that contemplation status was the strongest predictor of attendance. Contemplators were more than five times as likely to attend the group program compared to precontemplators. Older (≥ 40 years) vs younger age was also independently associated with referral acceptance, as was heavier smoking (≥ 20 cigarettes a day).

Providers should not be discouraged when patients do not follow through with the physician's referral to a smoking cessation program. With repeated advice over time, a greater proportion will likely respond. Since most patients prefer to (and do) quit without going to a group program, providers and nurses may want to first encourage patients to quit on their own.²¹ An office-based intervention, though necessarily much less intensive than a group cessation program, will reach many more smoking patients. For patients who fail to respond, referral could be the logical next step; in effect, referral would become step 2 in a stepped-care approach. While recognizing the limitations of smoking cessation clinics,²² we believe that clinics can play a useful role in a stepped-care system.

The data from this study suggest that older, heavier smokers who want to quit are most receptive to referral to a group program. Providers can easily determine patient interest with one or two simple questions; eg, "Are you seriously interested in quitting smoking in the next 6 months?" For those responding no, a very brief expression of concern about the patient's smoking and an informational packet is probably appropriate. It is noteworthy that 70% of patients were contemplators, a higher figure than is found in nonmedical settings.²³ A strong and specific referral to patients who answer yes to this question may be productive. Providers will need to be prepared to refer to specific programs in the same way

they refer to other medical specialists. Local cancer society, lung, or heart association offices can often provide lists of cessation programs. The current study evaluated a "one-shot," albeit intensive, referral intervention. Repeating the referral advice at subsequent patient visits may well have had an even more positive effect.

Acknowledgments

This research was supported by a grant from the National Cancer Institute (#CA44648).

The cooperation of Northwest Kaiser Permanente medical staff was crucial and is greatly appreciated. Russell Glasgow and Thomas Vogt provided helpful advice, and we thank Margaret Ryan-Vogt for help with data analysis, and Barbara Britz for assistance in manuscript preparation.

References

- Ockene JK. Physician-delivered interventions for smoking cessation: strategies for increasing effectiveness. *Prev Med* 1987; 16: 723-37.
- Ockene JK. Smoking intervention: the expanding role of the physician [Editorial]. *Am J Public Health* 1987; 77:782-3.
- American Cancer Society. A survey concerning cigarette smoking, health check-ups, and cancer detection tests: a summary of the findings. Survey conducted by the Gallup Organization. New York: American Cancer Society, January 1977.
- Vogt TM, Lichtenstein E, Ary D, et al. Integrating tobacco intervention into a health maintenance organization: the TRACC Program. *Health Educ Res* 1989; 4:125-35.
- Kottke TE, Battista RN, DeFries GH, Brekke ML. Attributes of successful smoking cessation interventions in medical practice: a meta-analysis of 39 controlled trials. *JAMA* 1988; 259:2883-9.
- Orleans CS, George LK, Houtp JL, Brodie HKH. Health promotion in primary care: A survey of US family practitioners. *Prev Med* 1985; 14:636-47.
- Pederson LL. Compliance with physician advice to quit smoking: a review of the literature. *Prev Med* 1982; 11:71-84.
- Fagerstrom KO. Effects of nicotine chewing gum and follow-up appointments in physician-based smoking cessation. *Prev Med* 1984; 13:517-27.
- Wilson DMC, Lindsay EA, Best JA, et al. A smoking cessation intervention for family physicians. *Can Med Assoc J* 1987; 137: 613-9.
- Wechsler H, Levine S, Idelson RK, Rohman M, Taylor JO. The physician's role in health promotion—a survey of primary care practitioners. *New Engl J Med* 1983; 308:97-100.
- Wells KB, Lewis CE, Leake B, Schleiter MK, Brook PH. The practices of general and subspecialty internists in counseling about smoking and exercise. *Am J Public Health* 1986; 76:1009-13.
- Lichtenstein E, Danaher BG. What can the physician do to assist the patient to stop smoking. In: Brashear et al. *Chronic obstructive lung disease*. St Louis: CV Mosby, 1978:227-41.
- Russell MAH, Stapleton JA, Jackson PH, Hajek P, Belcher M. District programme to reduce smoking: effect of clinic supported brief intervention by general practitioners. *Br Med J* 1987; 295: 1240-4.
- Thompson RS, Michnich ME, Friedlander L, Gilson B, Grothaus LC, Storer B. Effectiveness of smoking cessation interventions integrated into primary care practice. *Med Care* 1988; 26:62-76.
- Schwarz JL. Review and evaluation of smoking cessation methods: the United States and Canada, 1978-1985. US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. NIH publication no. 87-2940, 1987.

16. Stevens VJ, Hollis JF. Preventing smoking relapse, using an individually tailored skills-training technique. *J Consult Clin Psychol* 1989; 57:420-4.
17. Prochaska JO, DiClemente CC. Stages and processes of self-change in smoking: Toward an integrative model of change. *J Consult Clin Psychol* 1983; 51:390-5.
18. Sussman S, Whitney-Saltiel DA, Budd RJ, et al. Joiners and non-joiners in worksite smoking treatment: pretreatment smoking, smoking by significant others, and expectation to quit as predictors. *Addict Behav* 1989; 14:113-9.
19. Brod MI, Hall SM. Joiners and non-joiners in smoking treatment: a comparison of psychosocial variables. *Addict Behav* 1984; 9:217-21.
20. Hollis JF, Lichtenstein E, Mount K, Vogt TM, Stevens VJ. Nurse assisted smoking counseling in medical settings: minimizing demands on physicians. *Prev Med* 1991; 20(4):497-507.
21. Hollis JF, Vogt TM, Stevens VJ, Biglan A, Severson H, Lichtenstein E. The Tobacco Reduction and Cancer Control (TRACC) Program: team approaches to counseling in medical and dental settings. In: Burns et al. Physician and dentist based smoking interventions. National Cancer Institute Monograph, in press.
22. Chapman S. Stop smoking clinics: A case for their abandonment. *Lancet*, 1985; 1:918-20.
23. Biener L, Abrams DB. The contemplation ladder: validation of a measure of readiness to consider smoking cessation. *Health Psychol* 1991; 10:360-5.