

SMOKING CESSATION MESSAGES

TITLE: The effects of computer-tailored smoking cessation messages in family practice settings

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JOURNAL: *The Journal of Family Practice*

DATE: September 1994; 39:262-270

Background. Most family physicians use generic printed health educational materials to help patients stop smoking. Because many of these materials are designed to be applicable to all smokers, they often contain irrelevant material. Computer technologies are now available that allow tailoring of health education information. The time and expense required to install these systems, however, is substantial, and it is unclear whether patient outcomes justify the effort.

Clinical question. Should family physicians provide health education information that is personally tailored to address their smoking patients' individual health beliefs and interest in quitting?

Population studied. This report describes two randomized trials. In the first study, 72 active smokers aged 40 to 65 years were enrolled from a family practice in North Carolina. Approximately two thirds (67.7%) of the participants were women. The average age was 49.5 years and the average number of cigarettes smoked daily was 17.4. In the second study, 296 smokers who were interested in quitting were enrolled from 12 family practices in North Carolina. Two thirds (66.9%) were women. The average age was 36.7 years, and the average number of cigarettes smoked per day was 17.7. Although more information about literacy and communities would have been useful, the subjects seem similar to our usual patients.

Study design and validity. In the first study, a telephone interview was used to assess subjects' perceived health benefits and barriers to smoking cessation, stage of change, previous attempts to quit smoking, and their associated attributions (ie, perceptions about the causes of previous success or failure on similar tasks that affect individuals' beliefs in their ability to stop smoking). In the second study, only the subjects interested in quitting were chosen to participate in the study, and the self-

administered questionnaire did not include assessment of attributions of previous quit attempts. In both studies, commercially available desktop publishing software was used to tailor letters to individual patients. In each letter, health education messages that were specific to the patient's questionnaire responses were inserted. The messages had been pretested on trial subjects.

The tailored letters were then evaluated in randomized trials. In the first study, patients were randomly allocated into either a group receiving tailored letters or a group receiving a modified version of the National Cancer Institute's "Quit For Good" pamphlet. In the other study, patients were randomly allocated into either a group receiving tailored letters or a group receiving no letter.

Outcomes measured. The primary outcome measure was patient self-report of smoking at follow-up telephone interviews. Although cotinine measurement would have been more objective, self-report is probably adequate. People may overstate their progress in quitting, but this effect should be present for both groups, which minimizes the difference between groups.

Results. In the first study, the two groups were similar: 71% were followed up at 4 months. As hypothesized, mild to moderate smokers (<20 cigarettes/day) were more likely to quit if they received tailored messages (30.7% vs 7.1%, $P<.05$). In the second, the two groups were also similar. Among mild to moderate smokers, 19.1% quit vs 7.3% ($P<.05$) at 6 months. In both studies, worst-case analysis and controlling for age, sex, and education did not change the results. No treatment effect was seen for smokers of more than 20 cigarettes per day.

Recommendations for clinical practice. These results provide good evidence that tailored health information improves important patient outcomes. The intervention in this study is complex: a combination of a sophisticated model of smoking cessation, the use of a personal interview, the texts used, the computer system, and the support and cover letter written by the physician. Determining which of these elements are the most crucial as well as the relative importance of literacy and nicotine patches will be the subject of further research. In the meantime, practicing physicians should incorporate into their counseling an individualized approach based on benefits and barriers, stage of quitting, and attributions. Office computer systems should be designed in such a way that they can easily provide this capability, and this approach should

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be studied to determine its applicability in the modification of other risky health behaviors.

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VITAMIN E/BETA CAROTENE AND LUNG CANCER

TITLE: The Effect of Vitamin E and Beta Carotene on the Incidence of Lung Cancer and Other Cancers in Male Smokers

AUTHORS: The Alpha-Tocopherol, Beta Carotene Cancer Prevention Study Group

JOURNAL: *The New England Journal of Medicine*

DATE: 1994; **VOLUME** 330:1029-35

Background. Observational studies suggest that diets high in beta carotene are associated with lower rates of lung cancer, but the efficacy of chemoprevention has not been proven in a randomized controlled clinical trial.

Clinical question. Should we recommend supplementation with beta carotene to prevent lung cancer?

Population studied. 29,133 male smokers between the ages of 50 and 69 were recruited by postal survey from the total male population of 14 geographical areas in southwestern Finland. The study subjects averaged smoking 20 cigarettes a day for 36 years. Although the subjects are different from our patients (they are Finnish men who volunteered for a long invasive study), these differences are unlikely to bias the incidence of lung cancer significantly. Therefore, the results should generalize well to patients in this country who are at high risk for lung cancer.

Study design and validity. A randomized placebo-controlled design was used, with patients assigned to four regimens: alpha-tocopherol (50 mg per day) alone; beta carotene (20 mg per day [over 30,000 units]) alone; both alpha-tocopherol and beta carotene; or placebo. Participants and all study staff involved in the ascertainment of endpoints were blinded to treatment assignments. The "intention to treat" principle was appropriately applied: each case was included in the final analysis, regardless of whether the patient dropped out of the study.

Outcomes measured. Cases of lung cancer were identified by means of the Finnish Cancer Registry. To enhance ascertainment, a chest film was performed every 28 months and at the end of the study. All diagnostic information was reviewed by a committee for confirmation. Compliance was measured by tablet counts, by measurement of alpha-tocopherol and beta carotene levels after 3 years of supplementation, and by random serum samples during the trial. Information on side effects was obtained by questionnaire at each visit and an interview. Information on morbidity and mortality other than cancer was obtained from national databases.

Results. Approximately 7280 men were enrolled into each group, and randomization ensured similarity in all measured characteristics. The median follow-up was 6.1 years. Approximately 31% left the study for any reason, which included death. This is a relatively low follow-up rate, but not unusual for a study of this duration in asymptomatic patients. There was no difference in the dropout rates between the treatment groups. Compliance was excellent, with four of five active participants taking at least 95% of their prescribed tablets. Subjects taking beta carotene had a significantly higher incidence of lung cancer (18%; 95% confidence interval [CI], 3% to 36%) as well as a higher overall mortality (8%; 95% CI, 1% to 16%). There was no interaction between alpha-tocopherol and beta carotene.

Recommendations for clinical practice. These results provide good evidence that we should not recommend dietary supplementation with beta carotene. In light of other positive evidence about beta carotene, as well as the relatively low follow-up rate, it is difficult to say that beta carotene causes increased lung cancer rates, but the possibility is worthy of concern. This seems to be another example of a randomized trial that does not confirm observational results. More broadly, the question of the appropriateness of beta carotene supplementation should not distract us from our fundamental responsibility with respect to smoking and lung cancer—getting patients to quit.

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