

ORIGINAL RESEARCH PAPER

## **Impact of Educational Outreach Visits on Smoking Cessation Activities Performed by Specialist Physicians: A Randomized Trial**

JEAN-FRANÇOIS ETTER

*Institute of Social and Preventive Medicine, University of Geneva, Switzerland*

**ABSTRACT Objectives:** *To find out whether educational visits by a nurse to specialist physicians improved their self-reporting of smoking cessation activities; whether these visits increased the percentage of physicians who were aware of and recommended a computer-tailored smoking cessation program and who participated in a training workshop on tobacco dependency treatment.*

**Methods:** *Specialist private practice physicians (n = 523) working in Geneva, Switzerland were randomly assigned to either receiving (n = 261) or not receiving (n = 262) a single 40-minute visit by a trained nurse in 2003. The physicians answered a postal questionnaire 5 months after the visits indicating the percentage of their patients they counselled or treated for tobacco dependency and we recorded whether physicians took part in the workshop.*

**Findings:** *Only half (53%) of the physicians agreed to receive a visit. At follow-up more physicians in the intervention group than in the control group were aware of the computer-tailored program (73% vs. 39%,  $p < 0.001$ ) and more physicians in the intervention group said they recommended the use of this program to more patients (20% vs. 10%,  $p = 0.009$ ). Among non-smoking physicians only, the proportion of patients who were advised to quit smoking was higher in the intervention than in the control group (69% vs. 54%,  $p = 0.019$ , as reported by physicians). The intervention had no impact on physicians' participation in the workshop.*

**Conclusions:** *Visits by a nurse increased the proportion of physicians who recommended to their patients the use of a computer-tailored smoking cessation program. Among non-smoking physicians only, the intervention increased the proportion of patients who received the advice to quit smoking, as reported by physicians.*

**KEYWORDS** *Continuing education, smoking cessation, primary prevention.*

Author for correspondence: Jean-François Etter, PhD, MPH, Institute of Social and Preventive Medicine, University of Geneva, CMU, 1 rue Michel-Servet, CH-1211, Geneva 4, Switzerland. Tel: +41 22 379 59 19. Fax: +41 22 379 59 12. E-mail: jean-francois.etter@imsp.unige.ch

## **Introduction**

Physicians have a decisive role to play in the treatment of tobacco dependency but many patients do not receive appropriate support to stop smoking from their doctor (Dickinson *et al.*, 1989; Humair & Ward, 1998). In particular, specialist physicians who work in private practice are less likely than general practitioners to treat tobacco dependency (Prignot *et al.*, 2000). Several factors may explain this lack of interest in treating tobacco dependency: the perception that it is the role of general practitioners only, time constraints, lack of relevant training and lack of reimbursement or of support materials (Cornuz *et al.*, 2000). Continued medical education and the development of effective self-help materials can improve this situation (Lancaster *et al.*, 2000; Thomson O'Brien *et al.*, 2001). Two effective programs were recently developed in Switzerland to train physicians to treat tobacco dependency (Cornuz *et al.*, 2002) and to provide physicians with self-help materials for their patients (Etter & Perneger, 2001).

### *A Training Workshop for Physicians*

The training workshop *Vivre sans Tabac* uses active learning methods to train physicians in the treatment of tobacco dependency (Humair & Cornuz, 2003). This workshop consists of 2 half-days and includes video clips, interactive sessions, role plays, practice with standardized patients and written materials. A randomized trial showed that patients of physicians who were trained in this workshop were twice as likely to stop smoking compared with patients of untrained physicians (Cornuz *et al.*, 2002).

### *A Self-help Smoking Cessation Program*

The “Stop-tabac.ch” program uses computers to provide individualized counselling to smokers and ex-smokers (Etter, 2002). After answering a questionnaire, participants receive counselling letters tailored to their personal characteristics, a series of booklets and follow-up e-mails. “Stop-tabac.ch” was listed among the 5 best smoking cessation websites (Bock *et al.*, 2004). A randomized trial showed that this program doubled smoking cessation rates, compared with smokers who did not receive it (Etter & Perneger, 2001; Etter, 2005).

### *Educational Outreach Visits*

Educational outreach visits are an effective strategy to ensure the continued education of private practitioners and to modify their behaviour regarding tobacco dependency treatment (Davis *et al.*, 1995; Oxman *et al.*, 1995; Lobo *et al.*, 2002; Thomson O'Brien *et al.*, 2000, 2001). However, almost all previous studies targeted general practitioners and volunteers, not specialists, thus there is little information about whether educational outreach visits for smoking cessation are also effective with specialist physicians who did not volunteer for

this intervention. Targeting specialists is important because many patients may visit only specialists and not general practitioners.

A nurse was hired whose role it was to conduct educational outreach visits to specialist physicians in private practice. The objective was to inform the physicians about these two programs and to motivate them to treat tobacco dependency in their patients. The aim of the study was to assess the impact of these visits on smoking prevention activities performed by physicians.

## Methods

### *Intervention*

In 2000, a trained nurse began to visit private practice physicians in Geneva, Switzerland to inform them about available treatments for tobacco dependency and about the two programs described above. The nurse used an interactive approach and spent much time answering questions from physicians. She was already a professional medical sales representative when hired, and then obtained a University diploma in tobacco dependency treatment. Advice and information given to physicians were based on a recent guideline (Anderson *et al.*, 2002). When necessary the nurse sent additional documents to physicians after her visit.

The list of private practice physicians in Geneva consisted of 1,980 addresses. The nurse started in September 2000 and visited all general practitioners, internists, pneumonologists, cardiologists and ENT surgeons. By December 2002 almost all physicians in these specialties had either received or refused her visit and 523 physicians from other specialities had not yet been contacted. The current trial was conducted by focusing on this convenience sample of 523 specialist physicians to test the intervention in specialist physicians because this category was excluded from most previous studies (Thomson O'Brien *et al.*, 2000) and because guidelines recommended that all physicians (not just general practitioners or internists) should treat tobacco dependency or should at least strongly advise their patients to quit smoking (Anderson *et al.*, 2002).

### *Randomized Trial*

In order to assess the effectiveness of the educational outreach visits 523 physicians were randomly assigned to either receiving the visit ( $n = 261$ ) or to a waiting list control group and they would receive the visit only after the end of the study ( $n = 262$ ). Based on a prior survey conducted in the same population (Etter, 2003) the study was powered to detect a difference between 60% in the control group and 72% in the intervention group (a relative change of +20%) in the proportion of patients who received the advice to quit smoking, as reported by physicians (power = 80%,  $p = 0.05$ ). Randomization was based on a

list of random numbers generated by a computer. Between January and September 2003 the nurse contacted physicians in the intervention group by telephone and visited those who agreed. Physicians in the control group were contacted only for the follow-up survey.

### *Objective Outcome Measures*

Three types of objective outcome measures were recorded. First, the nurse registered whether the physicians accepted to receive her visit after repeated telephone calls and the date and duration of each visit. Second, the list of physicians who took part in the *Vivre sans Tabac* training workshop was obtained and the date of participation for each participant. Third, a list of physicians who ordered the “Stop-tabac” documents was compiled.

### *Survey of Physicians*

This was a post-test only study. A follow-up survey in September 2003 was conducted when 94% of participants in the intervention group had been contacted and after visits had been conducted for all those who agreed to participate. A questionnaire was mailed to the 523 participants and up to four reminder mailings to non-respondents. The questionnaire (in French) covered the elements recommended in a recent guideline (Anderson *et al.*, 2002), which have been summarized in 5 As: Ask (all patients whether they smoke), Advise (all smokers to quit), Assess (motivation to quit), Assist (smokers who want to quit) and Arrange (follow-up visits). Physicians indicated by a figure between 0 and 100 the proportion of their patients to whom they provided each element of the “5 As” smoking cessation intervention. They also indicated whether they knew the “Stop-tabac” program, the proportion of patients to whom they recommended this program and the proportion of dependent smokers who wanted to quit or who recently quit smoking and to whom they prescribed NRT or bupropion (Zyban).

### *Statistical Analyses*

T-tests were used to compare means, Mann-Whitney U-tests to compare medians, and chi-square tests to compare proportions.

## **Results**

### *Intervention*

Almost all (94%) physicians in the intervention group could be contacted by telephone, but only 138 (53% of 261) accepted and actually received the educational outreach visit. The average duration of the visit was 40 minutes. In the survey, 54% of physicians who received the visit answered “Yes” and 46% answered “No” to the question, “Did the visit motivate you to treat tobacco dependency more systematically in your patients?”.

*Participation in the Training Workshop*

Six sessions of the workshop took place in Geneva in 2003 with only one physician participating in the intervention group and no physicians participating in the control group (chi-square = 1.0,  $p = 0.3$ ).

*Orders for Booklets*

Orders for the “Stop-tabac.ch” self-help materials were received from 18 physicians in the intervention group (7% of 261) and 3 in the control group (1% of 262, chi-square = 11.2,  $p < 0.001$ ). When they ordered the documents, physicians in the intervention group ordered a larger number (median = 85 documents per order) than physicians in the control group (median = 30 documents per order, U-test = 6.0,  $p = 0.034$ ).

*Participation in the Survey*

There were 277 returned questionnaires (53% of 523), 148 from the intervention group and 129 from the control group and the difference in response rates between the two groups was not statistically significant (57% vs. 49%, chi-square = 2.9,  $p = 0.09$ ). The interval between the visit and the answer to the questionnaire was on average 5 months (mean = 152 days, quartiles 98, 149 and 211 days). Among respondents to the survey, there was no statistically significant difference between the intervention and control groups in terms of age, sex, smoking status and medical specialty. Participants were psychiatrists (48%), surgeons (25%), ophthalmologists (8%), anaesthesiologists (8%), general practitioners or internists (7%), and other specialists (4%) – see Table 1.

**Table 1.** Characteristics of physicians in the trial, based on survey responses

	Intervention group ( $n = 148$ )	Control group ( $n = 129$ )
Age (mean)	53	53
Men (%)	71	65
Medical specialty (%)		
Psychiatrists	45	51
Surgeons	26	24
Anaesthesiologists	6	10
Ophthalmologists	10	6
GPs, internists	9	6
Other	4	3
Smoking status (%)		
Daily smoker	6	8
Occasional (non-daily) smoker	18	13
Former smoker	27	32
Never smoked regularly	48	48

*Smoking Cessation Activities*

In both study groups, according to physicians' self-reports, a majority of patients were asked whether they smoked and were advised to quit smoking. However, the patients' level of motivation to quit and level of dependency were assessed in only a minority of smokers. Very few smokers were assisted in their effort to quit and physicians seldom arranged follow-up appointments and prescribed NRT or bupropion (see Table 2).

**Table 2.** Impact of educational outreach visits on self-reported smoking prevention activities performed by responding physicians

Prevention activities as self-reported by physicians	Intervention group ( <i>n</i> = 148)	Control group ( <i>n</i> = 129)	<i>p</i> -value
Proportion of patients for whom physicians knew whether they were smokers or non-smokers	62	61	0.79
Proportion of smokers who, according to physicians, were:			
advised to quit smoking	60	53	0.17
asked about their level of motivation to quit smoking	44	36	0.16
asked about their level of tobacco dependence	33	27	0.23
recommended to use the "Stop-tabac.ch" program	20	10	0.009
given the "Stop-tabac.ch" booklets	13	9	0.29
given the questionnaire of the "Stop-tabac.ch" program	7	4	0.23
Proportion of smokers or recent ex-smokers who received...			
help to quit smoking	17	18	0.91
suggestion for a new appointment for tobacco dep. treatment	10	13	0.48
Proportion of smokers or recent ex-smokers who were dependent on tobacco who received...			
a prescription for a nicotine replacement product	12	9	0.37
a prescription for bupropion (Zyban)	6	8	0.52
Do you know the "Stop-tabac.ch" program? (% Yes)	73	39	<0.001
Among those who knew it: Do you think that this program increases smokers' chances of quitting smoking? (% Yes)	72	57	0.09

### *Impact of the Visits*

More physicians in the intervention group than in the control group said they were aware of the “Stop-tabac” program (see Table 2). The proportion of patients who, as reported by physicians, received a recommendation to use this program was small but higher in the intervention than in the control group. There was no statistically significant difference between groups for the other variables under scrutiny. In a subgroup analysis including only non-smoking physicians ( $n = 209$ ), the proportion of patients who, as reported by physicians, received the advice to quit smoking was higher in the intervention group than in the control group (69% vs. 54%,  $p = 0.019$ ).

## **Discussion**

This study showed that a single 40-minute educational outreach visit by a nurse to specialist physicians in private practice had an impact only on non-smoking physicians, who after the intervention, more frequently advised their patients to quit smoking. However, in the whole study sample, the intervention had no impact on smoking cessation activities performed by specialist physicians, except that the visit increased physicians’ awareness of a self-help, computer-tailored smoking cessation program and the frequency of recommending this program to their patients. The visits had no impact on physicians’ participating in a training workshop on tobacco dependency treatment program. It is possible that after receiving personal instruction from the nurse, some physicians decided that they did not also need to attend the workshop. Most previous literature on this topic targeted general practitioners who volunteered for this type of intervention. This study adds to the literature by showing how difficult it is to enrol non-volunteer specialist physicians in this type of intervention and to motivate them to treat tobacco dependency.

Several factors may have attenuated the measured effect of the visits. First, only half the physicians in the intervention group agreed to receive a visit. It was anticipated that specialist physicians would not be very interested in treating tobacco dependency but, nevertheless it was important to target this group, because specialists have a unique opportunity to address tobacco dependency within the context of a particular disease that is a concern to the patient.

Second, because this was a convenience sample, included were only physicians from disciplines (mainly psychiatry, surgery, anaesthesiology, and ophthalmology) who have not been traditionally involved in the treatment of tobacco dependency (Prignot *et al.*, 2000). Surgeons and anaesthesiologists may not think that their role is to treat tobacco dependency, even though smoking cessation improves surgery outcomes (Möller *et al.*, 2002). Several psychiatrists added written comments on the questionnaire, indicating that

they avoided talking about smoking with their patients. In this case, the absence of treatment resulted from a deliberate choice rather than from objective barriers. This is particularly regrettable, because psychiatrists are the best trained to treat addictions and usually see their patients several times.

In a previous study conducted in 2002 targeting general practitioners, internists, cardiologists, and pneumonologists who had received a visit by the same nurse, 79% of physicians agreed to the visit, much more than the 53% rate in the present study (Etter, 2003). The previous study also showed that almost all private practitioners who took part in the training workshop in 2002 had previously received the nurse's visit. Thus, the specialists in the present study were particularly reluctant to receive the nurse's visit, to treat tobacco dependency, and to take part in the workshop.

Third, the survey took place five months after the visits. Any effect of the visits was probably attenuated by the passage of time, as suggested by some (Raisch *et al.*, 1990) but not all previous research (Stange *et al.*, 2003). On the other hand, evaluations that take place immediately after the end of an intervention may overestimate its long-term effects (Raisch *et al.*, 1990).

Fourth, the intervention (a single visit) may not have been intensive enough or its content may not have been adequate. Previous research has shown that effective educational outreach interventions were more intensive and included additional features such as a second visit after some time (Van Eijk *et al.*, 2001), educational materials, audit and feedback, reminders, or patient-mediated interventions (Davis *et al.*, 1995; Thomson O'Brien *et al.*, 2000). However, the authors of a recent review found no published direct comparison of whether using two or more educational outreach visits was more effective than using only one visit and they found no trial comparing outreach visits plus additional interventions versus outreach visits alone (Thomson O'Brien *et al.*, 2000). Indirect strategies to modify physicians' behaviour should also be tested, in particular by targeting the patients themselves.

Fifth, any impact of the intervention would have been difficult to detect because of a self-reporting bias on some variables. Specifically, the proportion of patients who, according to physicians, were asked whether they smoked and were advised to quit was probably overestimated in this survey. Direct observation has shown that only 32–54% of smokers are identified by physicians (Dickinson *et al.*, 1989; Humair & Ward, 1998), which is much less than the self-reported figures in this study. Selection bias may also explain the high frequency of anti-smoking activities in this study, if respondents to the survey were more actively involved in treating tobacco dependency than non-respondents.

The present response rate was similar to the average response rate of 54% reported in a review of mail surveys of physicians (Ash *et al.*, 1997). Since only about half the intended participants answered the survey, and because only a

limited range of medical specialties were included, results may not be generalized to all specialists. However, one strength of this study compared with previous studies, is that it included all physicians in a given area and did not focus only on volunteers. Therefore, this study extends upon the existing literature which focused on general practitioners and volunteers in particular by showing how difficult it is to enrol non-volunteers in this intervention. It also showed that outreach visits are nevertheless a good way to promote computer-tailored smoking cessation programs.

### **Conflict of Interest**

The author developed the “stop-tabac.ch” computer-tailored program described in this paper. This program is available at no charge to smokers and the author has no financial interest in this program.

### **Acknowledgements**

This study was supported by grants from the Swiss National Science Foundation to J.-F. Etter (3233-054994.98 and 3200-055141.98). The nurse who visited physicians was paid by the Geneva Health Department (Direction Générale de la Santé, Département de l’Action Sociale et de la Santé). We thank Corinne Wahl for her work in visiting physicians and Dr Jean-Paul Humair for his advice.

### **References**

- ANDERSON, J.E., JORENBY, D.E., SCOTT, W.J. & FIORE, M.C. (2002). Treating tobacco use and dependence: an evidence-based clinical practice guideline for tobacco cessation. *Chest*, *121*, 932–941.
- ASH, D.A., JEDRZIEWSKI, M.K. & CHRISTAKIS, N.A. (1997). Response rates to mail surveys published in medical journals. *Journal of Clinical Epidemiology*, *50*, 1129–1136.
- BOCK, B.C., GRAHAM, A.L., SCIAMANNA, C.N., KRISHNAMOORTHY, J., WHITELEY, J., CARMONA-BARROS, R., NIAURA, R.S. & ABRAMS, D.B. (2004). Smoking cessation treatment on the Internet: content, quality and usability. *Nicotine & Tobacco Research*, *6*, 207–219.
- CORNUZ, J., GHALI, W.A., DI CARLANTONIO, D., PECOUD, A. & PACCAUD, F. (2000). Physicians’ attitudes towards prevention: importance of intervention-specific barriers and physicians’ health habits. *Family Practice*, *17*, 535–540.
- CORNUZ, J., HUMAIR, J.P., SEEMATTER, L., STOIANOV, R., VAN MELLE, G., STALDER, H. & PECOUD, A. (2002). Efficacy of resident training in smoking cessation: a randomized, controlled trial of a program based on application of behavioral theory and practice with standardized patients. *Annals of Internal Medicine*, *136*, 429–437.

- DAVIS, D.A., THOMSON, M.A., OXMAN, A.D. & HAYNES, R.B. (1995). Changing physician performance. A systematic review of the effect of continuing medical education strategies. *Journal of the American Medical Association*, 274, 700–705.
- DICKINSON, J.A., WIGGERS, J., LEEDER, S.R. & SANSON-FISHER, R.W. (1989). General practitioners' detection of patients' smoking status. *Medical Journal of Australia*, 150, 420–422.
- ETTER, J.F. & PERNEGER, T.V. (2001). Effectiveness of a computer-tailored smoking cessation program: a randomized trial. *Archives of Internal Medicine*, 161, 2596–2601.
- ETTER, J.F. (2003). *Evaluation de l'activité d'infirmière déléguée médicale pour la prévention du tabagisme*. Genève: Institut de médecine sociale et préventive. Available at: <http://www.stop-tabac.ch/fr/WORD/deleg-32.doc>
- ETTER, J.F. (2002). Using new information technology to treat tobacco dependence. *Respiration*, 69, 111–114.
- ETTER, J.F. (2005). Comparing the efficacy of two Internet-based, computer-tailored smoking cessation programs: a randomized trial. *Journal of Medical Internet Research*, 7, e2.
- HUMAIR, J.P. & CORNUZ, J. (2003). A new curriculum using active learning methods and standardized patients to train residents in smoking cessation. *Journal of General Internal Medicine*, 18, 1023–1027.
- HUMAIR, J.P. & WARD, J. (1998). Smoking-cessation strategies observed in videotaped general practice consultations. *American Journal of Preventive Medicine*, 14, 1–8.
- LANCASTER, T., SILAGY, C. & FOWLER, G. (2000). Training health professionals in smoking cessation. *Cochrane Database of Systematic Reviews*, 3, CD000214.
- LOBO, C.M., FRIJLING, B.D., HULSCHER, M.E., BERNSEN, R.M., BRASPENNING, J.C., GROU, R.P., PRINS, A. & VAN DER WOUDE, J.C. (2002). Improving quality of organizing cardiovascular preventive care in general practice by outreach visitors: a randomized controlled trial. *Preventive Medicine*, 35, 422–429.
- MÖLLER, A.M., VILLEBRO, N., PEDERSEN, T. & TONNESEN, H. (2002). Effect of preoperative smoking intervention on postoperative complications: a randomised clinical trial. *Lancet*, 359, 114–117.
- OXMAN, A.D., THOMSON, M.A., DAVIS, D.A. & HAYNES, R.B. (1995). No magic bullets: a systematic review of 102 trials of interventions to improve professional practice. *Canadian Medical Association Journal*, 153, 1423–1431.
- PRIGNOT, J., BARTSCH, P., VERMEIRE, P., JAMARTM, J., WANLIN, M., UYDERBROUCK, M. & THIJS, J. (2000). Physicians' involvement in the smoking cessation process of their patients. *Acta Clinica Belgica*, 55, 266–275.
- RAISCH, D.W., BOOTMAN, J.L., LARSON, L.N. & MCGHAN, W.F. (1990). Improving antiulcer agent prescribing in a health maintenance organization. *American Journal Hospital Pharmacy*, 47, 1766–1773.
- STANGE, K.C., GOODWIN, M.A., ZYZANSKI, S.J. & DIETRICH, A.J. (2003). Sustainability of a practice-individualized preventive service delivery intervention. *American Journal of Preventive Medicine*, 25, 296–300.
- THOMSON O'BRIEN, M.A., FREEMANTLE, N., OXMAN, A.D., WOLF, F., DAVIS, D.A. & HERRIN, J. (2001). Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2, CD003030.

- THOMSON O'BRIEN, M.A., OXMAN, A.D., DAVIS, D.A., HAYNES, R.B., FREEMANTLE, N. & HARVEY, E.L. (2000). Educational outreach visits: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, CD000409.
- VAN EIJK, M.E., AVORN, J., PORSIUS, A.J. & DE BOER, A. (2001). Reducing prescribing of highly anticholinergic antidepressants for elderly people: randomised trial of group versus individual academic detailing. *British Medical Journal*, 322, 654–657.