

# Family physicians and smoking cessation

## *Survey of practices, opinions, and barriers*

DAVID L. MOWAT, MB, CHB, MPH, FRCPC

DARLENE MECREDY, BSCN, MSC

FRANK LEE, BSC

RAJU HAJELA, MD, MPH, CCFP

RUTH WILSON, MD, CCFP

**OBJECTIVE** To assess what family physicians need to promote smoking cessation by looking at current knowledge, attitudes, and behaviours and to examine the barriers facing physicians in implementing an effective antismoking strategy.

**DESIGN** Cross-sectional study involving face-to-face interviews and mailed questionnaires.

**SETTING** Family practices in Kingston, Ont, and surrounding areas.

**PARTICIPANTS** All family physicians (n = 155) in the City of Kingston and the counties of Frontenac, Lennox, and Addington.

**MAIN OUTCOME MEASURES** Knowledge, attitudes, beliefs, and practices concerning smoking cessation; barriers and practices recommended in the literature.

**RESULTS** Response rate was 77%. Many physicians know about smoking cessation, and many actively counsel their patients to quit. Brief advice, nicotine replacement therapy, self-help materials, and follow-up appointments are the most common methods. Although many report that they are already knowledgeable, many are willing to learn more. Many physicians have unrealistically high estimates of the probability of success, and many find poor compliance among patients to be the greatest barrier.

**CONCLUSIONS** Family physicians in this area recognize the need to help their patients to quit and are identifying and counseling smokers in their practices. The main educational need could be to appreciate smoking as an addictive behaviour.

**OBJECTIF** Évaluer les besoins des médecins de famille pour faciliter leur implication dans la cessation du tabagisme en analysant les connaissances actuelles, les attitudes et les comportements et examiner les obstacles auxquels sont confrontés les médecins désireux d'implanter une stratégie antitabac efficace.

**CONCEPTION** Étude transversale utilisant des entrevues interpersonnelles et des questionnaires postaux.

**CONTEXTE** Cliniques de médecine familiale de Kingston, Ont, et des régions avoisinantes.

**PARTICIPANTS** Tous les médecins de famille (n = 155) de la ville de Kingston et des comtés de Frontenac, Lennox et Addington.

**PRINCIPALES MESURES DES RÉSULTATS** Les connaissances, les attitudes, les croyances et les pratiques concernant la cessation du tabagisme ; les obstacles et les pratiques recommandées dans la littérature.

**RÉSULTATS** Le taux de réponse fut de 77 %. Beaucoup de médecins ont des connaissances sur la cessation du tabagisme et nombreux sont ceux qui conseillent activement à leurs patients de cesser de fumer. Les méthodes les plus couramment utilisées sont les conseils brefs, la thérapie par les substituts de la nicotine, le matériel éducatif et le suivi de renforcement. Même s'ils se disent bien informés, nombreux sont ceux qui veulent en apprendre davantage. Bon nombre de médecins surestiment la probabilité de succès. L'inobservance des patients constitue l'obstacle majeur.

**CONCLUSIONS** Les médecins de famille de cette région reconnaissent le besoin d'aider leurs patients à cesser de fumer et s'impliquent pour identifier et conseiller les fumeurs. Le principal besoin éducatif serait de reconnaître le tabagisme comme un comportement qui crée l'accoutumance.

*Can Fam Physician* 1996;42:1946-1952.

**Dr Mowat** is Medical Officer of Health and **Ms Mecredy** is Manager of the Health Promotion Division for the Kingston, Frontenac, Lennox, and Addington Health Unit in Ontario. **Mr Lee** is a medical student at Queen's University in Kingston. **Dr Hajela** practises family medicine and is an Addictionist in Kingston. **Dr Wilson**, a Fellow of the College, is Professor and Head of the Department of Family Medicine at Queen's University.

**T**OBACCO SMOKING IS RECOGNIZED AS THE leading cause of preventable disease and death in Canada. Thirty-one percent of Canadians 15 years of age and older smoke,<sup>1</sup> and tobacco is responsible for approximately 20% of the premature mortality in Canada.<sup>2</sup> Two main strategies are needed to reduce the prevalence of smoking: preventing the initiation of the smoking habit, especially among young people, and helping adults to quit. Physicians have an important role in prevention of smoking, especially in helping their patients attempt and accomplish cessation.

Physicians are perceived as a credible source of information, and many patients report a willingness to attempt quitting if advised to by their physicians.<sup>3</sup> Most physicians see assisting in smoking cessation as an important part of their function, and smoking cessation counseling is frequently identified as an important role.<sup>4,6</sup>

Even a brief, simple intervention advising patients who are smokers to quit has a beneficial effect,<sup>3,7,8</sup> although some studies show insignificant effects.<sup>9-12</sup> More intensive interventions show greater effects<sup>7,8</sup> but are not always suitable for widespread use. The term minimal intervention usually refers to brief advice from the physician, together with an offer of self-help literature, setting a quit date, using nicotine replacement therapy (NRT), and one or more return visits. These additions increase the effectiveness of the intervention.<sup>13,14</sup> Transdermal delivery of NRT using transdermal patches is now in widespread use and gives cessation rates at 6 months ranging from 22% to 42%.<sup>15-19</sup> There is a consensus that NRT is relatively ineffective without some form of accompanying instruction or support.<sup>15,18-20</sup> Multiple interventions used together increase the likelihood of successful long-term cessation.<sup>21-23</sup>

Most smokers prefer to quit on their own with help from self-help programs.<sup>24,25</sup> Evidence concerning the effectiveness of these programs and of follow-up visits is inconclusive. Minimal intervention by a physician, properly executed, can induce about 10% of smokers to quit.

In spite of their potential effectiveness, many physicians fail to intervene.<sup>26</sup> Fewer than half of

all smokers in the United States report that they have ever been advised by a physician to quit, although this proportion has increased slightly in recent years.<sup>27,28</sup> Estimates of the proportion of smokers whose status is noted on the chart vary from 11% to 72%.<sup>29,30</sup> This compares with the self-reported practices of physicians, in which about 90% report some form of intervention.<sup>4,6,30,31</sup> Assistance is usually limited to advice, with little use of quit dates, written materials, or follow-up visits.<sup>5,31</sup> Heavier smokers and those with smoking-related disease are more likely to be offered advice.<sup>9,25,28</sup>

Lack of time to counsel patients about smoking is reported frequently.<sup>32-35</sup> The time spent in most encounters is, however, very short, usually less than 2 minutes.<sup>5,36</sup>

Poor motivation among patients and doubts about the efficacy of the physician's intervention are important barriers.<sup>3</sup> Expectations of success can be unrealistic; physicians have been found to expect a success rate of 60%,<sup>5</sup> which is greater than the documented effect of any intervention in the long term.

Some physicians place a low priority on preventing smoking, possibly as a result of training or the greater satisfaction to be gained from the treatment of disease.<sup>32</sup> Characteristics of the physicians themselves, such as age and personal health habits,<sup>3,6</sup> also affect the probability of intervention.

Physicians would like to get help in knowing where to transfer patients for support, help from staff, training, appropriate videotapes, literature to hand to patients, and prepared questionnaires.<sup>4,35</sup> Training for office staff has been shown to improve effectiveness in counseling for smoking cessation, but staff are infrequently used.<sup>4</sup>

We present the results of a survey of the knowledge, attitudes, and practices of physicians regarding smoking cessation by patients. Its purpose was to identify barriers preventing family physicians from participating in smoking cessation. There has been little information on this topic in Canada. This information might be used to plan programs to assist physicians in our area.

## RESEARCH

Family physicians and smoking cessation

### METHODS

All family physicians in the City of Kingston and the counties of Frontenac, Lennox, and Addington were asked to participate. The area comprises Kingston and its suburbs together with rural areas to the north and west. A list of all family physicians with office addresses in the area is maintained by the local health unit; this list is more current than the *Canadian Medical Directory*. This area was chosen because it was a mixed urban-rural area that included a health sciences centre and because a complete, up-to-date list of family physicians existed.

We developed a 20-item questionnaire to examine knowledge, attitudes, beliefs, and practices regarding smoking cessation. The questionnaire was pilot-tested on five family medicine residents. We randomly selected 53 physicians for face-to-face interviews conducted by one of us (F.L.). The remainder received a mailed questionnaire. We originally thought that the interviews would be a richer source of information than questionnaires, but this was not the case because of the frequency of write-in comments on the questionnaires.

Those originally selected for interview who were not seen after several attempts were mailed a questionnaire. After 1 month, all physicians were sent a self-addressed, stamped postcard reminder and asked to return it to the Health Unit indicating whether they had completed the survey. A second questionnaire was sent to physicians who reported that they did not complete the initial survey or who did not return the postcard.

No significant differences were found between data obtained by interview and by questionnaire; the data were therefore combined for analysis. Descriptive statistics were prepared and bivariate analysis undertaken to determine associations. Student's *t* test and  $\chi^2$  test were used to assess significance of continuous and categorical data, respectively. Characteristics of responding versus nonresponding physicians were compared using the *Canadian Medical Directory*.

Table 1. Characteristics of responding and nonresponding physicians

RESPONDENT CHARACTERISTICS	PERCENTAGE OF RESPONDENTS (N = 120)	PERCENTAGE OF NONRESPONDENTS (N = 35)	P
Sex (% male)	67	69	NS
Type of practice			<0.0001
• Group	65	100	
• Solo	100	0	
Academic appointment			<0.0001
• Full time	7.5	0	
• Part time	25.0	66	
• None	67.0	33	
Graduated before 1960	19	0	<0.02

### RESULTS

One hundred twenty physicians of a possible 155 replied (77.4%). Table 1 shows the characteristics of respondents and nonrespondents. Only one physician was a current smoker; 56% had never smoked, and 42% were former smokers.

Table 2 shows the main results of the study. Brief advice and NRT were used by almost all physicians (95.8%). However 30% reported the use of other methods, including acupuncture, hypnotherapy, intensive counseling, and group counseling. The questionnaire did not contain a question on other pharmaceutical supports and none were reported in the "other" category.

Almost a third of respondents cited barriers other than those listed. Comments included many references to lack of patient motivation and unwillingness or refusal to quit, or doubts about the effectiveness of their efforts. Comments included, "Some like smoking too much," "I can counsel, but they have to do the work of quitting; that is the real barrier," and "I spend 10 minutes describing quit techniques; it fails as frequently as everything else." Other barriers cited included staff who smoke (1), promotion of cigarette sales by pharmacists (1), patients not returning for follow up (2), language barriers (1), difficulty remembering to address the issue (2), and dying patients (1). Selecting patients who are ready to quit for special attention and differences in

success rates when patients were ready to quit were reported by one respondent each.

Seventy-eight respondents estimated their patients' quit rate at 12 months, with a range from 2% to 90% and a mean of 28.2%. The distribution was bimodal with peaks at 10% and 50%. When asked to estimate the quit rate expected from a good program at 12 months, 98 respondents gave replies in the range of 10% to 100%, with a mean of 41.1%.

Only 48% of physicians were able to identify a billing code specifically for smoking cessation counseling. Fifty-seven percent thought the fee was adequate and 32% thought it inadequate or only marginally adequate.

Thirty-six percent of physicians stated that they were already familiar with brief counseling methods and 61% were willing to learn. The preferred methods of learning were articles (42.5%), videotapes (22.5%), and half-day continuing medical education (22.5%)

Bivariate analysis did not reveal many differences in response by sex of respondent, date of graduation, type of practice, or smoking history. Physicians in group practice were more likely to be familiar with *Guide Your Patient to a Smoke Free Future*<sup>37</sup> (29.6% vs 7.0%,  $P = 0.019$ ) and to use staff in a major role (7.7% vs 1.7%,  $P = 0.0019$ ). Physicians who had never smoked flagged charts more often than did former smokers (42.4% vs 22.0%,  $P = 0.035$ ).

Nine physicians added comments stressing the importance of educational, legal, and fiscal controls at the community level.

## DISCUSSION

Most physicians report that they take smoking histories and discuss smoking with their patients who smoke. It is difficult for a survey such as this to produce a complete picture of the extent and types of interventions. Brief counseling and NRT are widely used and many physicians schedule follow-up visits. There are opportunities to increase the use of support activities, such as flagging charts, using office staff, and referring patients to cessation and support programs.

**Table 2. Reported practices of physicians regarding smoking cessation**

PHYSICIAN PRACTICES	NUMBER	%
Smoking history usually taken		
Yes	119	99.2
No	1	0.8
Flag patients' charts		
Yes	40	33.3
No	80	66.7
Use assistance of staff		
Substantial	11	9.2
Little	28	23.3
No	78	65.0
Not stated	3	2.5
Willingness to spend 5 minutes with each smoker		
Yes	89	74.2
Some time or some patients	22	18.3
No	7	5.8
Unsure or not stated	2	1.6
Willingness to schedule 15-minute return visit		
Yes	80	66.7
For some patients	24	20.0
No	9	7.5
Unsure or not stated	7	5.8
Potential use of support programs		
Likely	78	65.0
Possible	27	22.5
No	4	3.3
Unsure or not stated	11	9.2
Familiarity with <i>Guide Your Patient to a Smoke Free Future</i> <sup>37</sup>		
Yes and intend to use	22	18.3
Yes but do not intend to use	20	16.7
No	75	62.5
Other or not stated	3	2.5
Willingness to use a simple protocol for smoking cessation		
Possible or very likely	114	95.0
No	2	1.7
Unsure or not stated	4	3.3
Intervention methods used in past 3 months		
Brief advice	115	95.8
Self-help material	91	75.8
Nicotine replacement	115	95.8
Follow-up appointment	95	79.2
Other	35	29.2
Not stated	1	0.8
Barriers to implementing antismoking strategy		
Not enough time	29	24.2
"It's the patient's decision to smoke."	14	11.7
Do not feel you have the skills to intervene	4	3.3
Do not believe it would contribute to prevention or cessation of tobacco use	1	0.8
Do not have the resources to offer to patients	6	5.0
Other	36	30.0
No barriers	45	37.5

## RESEARCH

### Family physicians and smoking cessation

Time was not a critical barrier; three quarters of physicians were willing to spend 5 minutes with each smoking patient and two thirds were willing to schedule a return appointment. The fee payable by the provincial plan was cited infrequently; how this compares with opinions about other aspects of the fee schedule is unknown. Many physicians do not know the applicable billing code. These observations may not apply in other jurisdictions, as schedules vary.

The estimate of the prevalence of smoking in the respondents' practices, at 28.3%, was the same as the estimate of 28% (95% confidence interval 26% to 32%) for the same area derived from the 1990 Ontario Health Survey.<sup>59</sup>

An important finding of this survey was that many physicians described noncompliance of patients as an important barrier, and that many provided optimistic estimates of success.

The reported proportion of respondents' patients smoke-free after 12 months ranged from 2% to 90%, with a mean of 28.2%. The bimodal distribution, with peaks at 10% and 50%, suggests that some physicians have an accurate estimate of their success, while others appear optimistic. The estimate of the quit rate expected from a good program was also, at more than 40%, very high. The literature suggests rates of about 10%; although this can probably be improved upon using the approach suggested here, no estimate of the sustained quit rate using the combination of approaches suggested in *Guide Your Patient to a Smoke Free Future*<sup>37</sup> is available at present. Physicians should have realistic expectations; smoking is an addiction, and the success rate in smoking cessation is considerably lower than that to which physicians are accustomed. It is apparent that some people view smoking as a straightforward lifestyle choice rather than a complex behavioural pattern and an addiction. The best way to support family physicians in smoking cessation might therefore be to help identify smokers who are most motivated to quit.

Some physicians may not be aware of the transtheoretical model or the stages of change theory, as described by Prochaska and DiClemente and colleagues,<sup>60-62</sup> and its relevance

to smoking cessation. This theory describes five stages: precontemplation, contemplation, preparation, action, and maintenance. Smokers are expected to cycle through the stages as they break their habit. The theory helps practitioners to focus interventions on the appropriate stage. The literature shows that, when this theory is applied in physicians' practices, it can increase the success of smoking cessation interventions,<sup>63,64</sup> as efforts are directed toward moving from one stage to the next, rather than toward attempting action with patients who are not ready.

This survey relied on self-reported practices: these were not confirmed by examining charts or interviewing patients. As we were most interested in the perceptions of barriers and successes, this was an appropriate method. Nonrespondents differed from respondents in some respects and could have differed in other, unmeasured, characteristics, such as smoking history.

### Conclusion

Family physicians can reduce the burden of smoking-related illness by helping patients to quit and to stay smoke-free. Lasting success on a first attempt is uncommon; relapse is the norm, and successful change often involves repeated cycling through the stages of change. This study provides evidence that these topics might profitably be incorporated into programs of continuing education. ■

**Correspondence to:** Dr David L. Mowat, Kingston, Frontenac and Lennox, and Addington Health Unit, 221 Portsmouth Ave, Kingston, ON K7M 1V5

### References

1. Health Canada. *Survey on smoking in Canada, cycle 1, summary highlights*. Ottawa, Ont: Health Canada, 1994.
2. Mao Y, Morrison H, Nichol RD, Pipe A, Wigle D. The health consequences of smoking among smokers in Canada. *Can J Public Health* 1988;79:390-1.
3. Folsom AR, Grimm RH. Stop smoking advice by physicians: a feasible approach? *Am J Public Health* 1987; 77:849-50.
4. Wechsler H, Levine S, Idelson RK, Rohman M, Taylor JO. The physician's role in health promotion - a survey of primary care practitioners. *N Engl J Med* 1983;308:97-100.

5. Cummings SR, Stein MJ, Hansen B, Richard RJ, Gerbert B, Coates TJ. Smoking counselling and preventive medicine. A survey of internists in private practices and a health maintenance organization. *Arch Intern Med* 1989;149:345-9.
6. Lewis CE, Wells KB, Ware J. A model for predicting the counselling practices of physicians. *J Gen Intern Med* 1986; 1:14-9.
7. Richmond RI, Austin A, Webster IW. Three year evaluation of a programme by general practitioners to help patients to stop smoking. *BMJ* 1986;292:803-6.
8. Richmond R, Webster I. Evaluation of general practitioners' use of a smoking intervention programme. *Int J Epidemiol* 1985;14(3):396-401.
9. Conger B, Nelson EC, Dietrich AJ, Blanchard C, McHugo GJ, Simmons JJ. Effectiveness of physician antismoking advice. *Am J Prev Med* 1987;3(4):223-6.
10. Rosser WW. The role of the family physician in smoking cessation. *Can Fam Physician* 1984;30:160-5.
11. Stewart PJ, Rosser WW. The impact of routine advice on smoking cessation from family physicians. *Can Med Assoc J* 1982;126:1051-4.
12. Kozlowski LT, Page A. A second look at the effects of supportive follow-up on smoking cessation. *Can Med Assoc J* 1987;137:605-7.
13. Wilson DM, Taylor W, Gilbert R, Best JA, Lindsay EA, Williams DG, et al. A randomized trial of a family physician interaction for smoking cessation. *JAMA* 1988; 260:1570-4.
14. Chapman S. The role of doctors in promoting smoking cessation. *BMJ* 1993;307:518-9.
15. Firoe MC, Jorenby DE, Baker TB, Kenford SL. Tobacco dependence and the nicotine patch. Clinical guidelines for effective use. *JAMA* 1992;268:2687-94.
16. Transdermal Nicotine Study Group. Transdermal nicotine for smoking cessation; six-month results from two multicentre controlled clinical trials. *JAMA* 1991;266:3133-8.
17. Fagerstrom KO. Effects of nicotine chewing gum and follow-up appointments in physician-based smoking cessation. *Prev Med* 1984;13:517-27.
18. Tonnesen P, Fryd V, Hansen M, Helsted J, Gunnarsen AB, Forchhammer H, et al. Effect of nicotine chewing gum in combination with group counselling on the cessation of smoking. *N Engl J Med* 1988;318:15-8.
19. Lam W, Sacks HS, Sze PC, Chalmers TC. Meta-analysis of randomised controlled trials of nicotine chewing-gum. *Lancet* 1987;2(Jul 4):27-9.
20. Jarvis M. Nicotine replacement as sole therapy or as adjunct. In: Pomerleau OF, Pomerleau CS, editors. *Nicotine replacement: a critical evaluation*. Vol 261. Progress in clinical and biological research. New York, NY: Alan R Liss, 1988: 145-62.
21. 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.
22. Hurt RD, Dale LC, Fredrickson PA, Caldwell CC, Lee GA, Offord KP, et al. Nicotine patch therapy for smoking cessation combined with physician advice and nurse follow-up. *JAMA* 1994;271:595-600.
23. Cummings KM, Biernbaum RM, Zevon MA, Deloughry T, Jaen CR. Use and effectiveness of transdermal nicotine in primary care settings. *Arch Fam Med* 1994; 3(8):682-9.
24. Schwartz JL. Methods of smoking cessation. *Med Clin North Am* 1992;76(2):451-76.
25. Cummings SR, Rubin SM, Oster G. The cost-effectiveness of counselling smokers to quit. *JAMA* 1989;261:75-9.
26. Brownson RC, Davis JR, Simms SG, Kern TG, Harmon RG. Cancer control knowledge and priorities among primary care physicians. *J Cancer Educ* 1993;8(1):35-41.
27. Frank E, Winkleby MA, Altman DG, Rockhill B, Fortmann SP. Predictors of physician's smoking cessation advice. *JAMA* 1991;266:3139-44.
28. Epidemiology Bureau, Office on Smoking and Health, National Centre for Chronic Disease Prevention and Health Promotion, Division of Interview Statistics, National Centre for Health Statistics, Centers for Disease Control. Physician and other health-care professional counselling of smokers to quit - United States, 1991. *MMWR Morb Mortal Wkly Rep* 1993;42:854-7.
29. Bass MJ, Elford RW. Preventive practice patterns of Canadian primary care physicians. In: Battista RN, Lawrence RS, editors. Implementing preventive services. *Am J Prev Med* 1988;4(4 Suppl):17-23.
30. Fullard E, Fowler G, Gray M. Promoting prevention in primary care: controlled trial of low technology, low cost approach. *BMJ* 1987;294:1080-2.
31. Secker-Walker RH, Solomon LJ, Flynn BS, Dana GS. Comparisons of the smoking cessation counselling activities of six types of health professionals. *Prev Med* 1994;23(6):800-8.
32. Frankowski BL, Weaver SO, Secker-Walker RH. Advising parents to stop smoking: pediatricians' and parents' attitudes. *Pediatrics* 1993;91(2):296-300. ➤



**A sinus passage this packed  
needs the penetrating power of Ceftin®**

Ceftin® has no trouble squeezing into tight places to target  
key sinusitis pathogens.<sup>1,2</sup> Controlled trials report  
fast relief of pain<sup>3</sup> and clinical cures proven up to 95%.<sup>3-5</sup>

PAAB  
CCPP

**Ceftin** B.I.D.  
CEFUROXIME AXETIL

GlaxoWellcome

Gets in and gets the job done.

33. Kottke TE, Brekke ML, Solberg LI. Making "time" for preventive services. *Mayo Clin Proc* 1993;68:785-91.
34. Coultas DB. The physician's role in smoking cessation. *Clin Chest Med* 1991; 12(4):755-68.
35. McPhee SJ, Detmer WM. Office-based interventions to improve delivery of cancer prevention services by primary care physicians. *Cancer* 1993;72(3 Suppl):1100-12.
36. Cohen SJ, Christen AG, Katz BP, Drook CA, Davis BJ, Smith DM, et al. Counselling medical and dental patients about cigarette smoking: the impact of nicotine gum and chart reminders. *Am J Public Health* 1987;77:313-6.
37. Canadian Council on Smoking and Health. *Guide your patient to a smoke free future*. Ottawa, Ont: The Canadian Council on Smoking and Health, 1992.
38. Premiers' Council on Health, Well-Being, and Social Justice. *Ontario Health Survey 1990. Regional report*. Toronto, Ont: Ontario Ministry of Health, 1992.
39. DiClemente CC, Prochaska JO, Fairhurst SK, Velicer WF, Velosquery HH, Rossi JS. The process of smoking cessation: an analysis of precontemplation, contemplation and preparation stages of change. *J Consult Clin Psychol* 1991; 59:295-304.
40. Prochaska JO, DiClemente CC. Stages of change in the modification of problem behaviours. *Prog Behav Modif* 1992; 28:183-218.
41. Prochaska JO, DiClemente CC, Norcross JC. In search of how people change. Applications to addictive behaviours. *Am Psychol* 1992;47:1102-14.
42. Goldberg D, Hoffman AM, Farinha M, Marder D, Tinson-Mitchem L, Burton D, et al. Physicians delivery of smoking-cessation advice based on the stages-of-change model. *Am J Prev Med* 1994;10:267-74.
43. Rohren C, Croghan I, Hurt RD, Offord KP, Marusic Z, McLain FL. Predicting smoking cessation outcome in a medical centre from stages of readiness: contemplation versus action. *Prev Med* 1994; 23:335-44.