

Current Primary Care Physician Interventions to Promote Smoking Cessation in Israel: An Observational Study

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Abstract

Background: Smoking continues to be the most significant preventable cause of morbidity and early mortality in the developed world. Primary care physicians are not fulfilling their potentially vital and effective role with regard to tobacco use and dependence.

Objectives: To evaluate current primary care physician practise in promoting smoking cessation.

Methods: This observational study evaluated physician recording of smoking status by analysis of patients' electronic medical records. The 126 primary care physicians were based in 23 Tel Aviv clinics treating 144,811 patients. We also assessed additional physician anti-smoking activities by a telephone questionnaire of 178 randomly selected patients.

Results: Analysis of the EMRs revealed that an average of 4.4% of patients per physician were recorded as smokers (as compared to a known smoking rate in this patient population of 24%). Male physicians recorded a significantly higher proportion of their patients as smokers in the EMR compared to female physicians ($P < 0.05$). A non-significantly higher rate of recording smokers was found in doctors who had completed postgraduate specialization in family medicine as compared to non-specialists. The questionnaire results show that 41% of patients interviewed recalled being asked if they smoked and 31% of smoking patients had been advised to quit. A non-significantly higher proportion of male as compared to female patients reported being questioned if they smoked, and if they were smokers, being advised to quit.

Conclusions: This study shows low rates of physician intervention to promote smoking cessation. It appears that a large proportion of the primary care physicians surveyed do not follow recommendations to promote smoking cessation among their patients. Intervention among adolescent smokers was particularly inadequate. Further action is needed to improve the performance of physicians in aiding smoking cessation.

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Smoking remains the most important cause of preventable morbidity and early demise in developed countries. Various methods have been shown to reduce smoking. Brief advice given by a doctor increases cessation rates by 2 to 3% [1], while the use of nicotine replacement therapy or bupropion can double this rate [2,3]. Although these figures are low, if applied on a nationwide level they are significant both in quality of life and cost to health care providers [4].

Many medical associations, including the Israel Medical Association [5], have issued guidelines instructing doctors on

their role in promoting smoking cessation. It is recommended that the primary care physician enquire about the smoking status of all his/her patients and this should be documented. Brief advice on smoking cessation should be provided to smokers including the possible use of pharmacological therapies, and the patient should be supported and followed-up.

Studies show that the very act of inquiring about a patient's current smoking status can influence them to stop smoking [6]. Despite this, research shows low rates of smoking intervention by the family physician [7]. Although smoking rates among Israelis have been evaluated in various studies [8], only a small number examine primary care-based screening [9] or interventions to increase cessation rates [10].

This study was designed to answer the following questions: How frequently do Israeli primary care physicians ask about and record their patients' smoking status? How frequently do they provide advice and assistance to patients to quit?

Subjects and Methods

The study was carried out in 23 urban primary care practices in Tel Aviv, involving 116 primary care physicians and a population of 144,811 registered patients. The practices vary in size and composition both in terms of the qualifications and training of physician staff and the demographic characteristics of their patients. Each clinic has between three and seven physicians and treats populations that can comprise predominantly adult or predominantly child patients. The medical staff varies between only family physicians, only pediatricians or a combination of the two. One-third of the physicians in this sample are specialist family physicians (with postgraduate training in family medicine), one-quarter are pediatricians of whom half have specialist certification in pediatrics, while the remainder have not completed postgraduate training. There were three physicians in the sample with postgraduate training in internal medicine.

This study was conducted in the clinics of Clalit Health Services, the largest health management organization in Israel. In this system family physicians are assigned a fixed list of patients. The average number of patients per physician was 1212. Three of the clinics involved are "child health" centers staffed by pediatricians where patients are listed as attending the clinic rather than being treated by individual doctors. Although all doctors participate in continuing medical education, there has not been any specific additional training on smoking cessation.

EMR = electronic medical record

Data sources

In all clinics, patient files are computerized using the electronic medical record program called "Clicks." Each patient file contains required demographic details including name, age, gender and identity number and allows each patient visit to be recorded. Other information such as smoking status can be voluntarily entered by the physician. The standardized computer program allows the user to click on a window that records risk factors including smoking. Once a patient is entered as a smoker this information also appears in the window of current problems that is seen at each subsequent opening of the patient's file. Data were collated from the current problem list to evaluate the percentage of recorded smokers per physician.

Physician intervention actions were also assessed by telephone interview of a 0.5% random sample of all patients aged 13 years and above registered in the study population. Up to five attempts were made to contact each individual at different times during the day. Patients listed with incorrect or disconnected numbers were excluded from the study. A 13 item questionnaire assessing smoking status was developed and validated in a pilot study of 17 patients. The questions required a yes/no or numerical answer [see Appendix 1] .

Data coding and analysis

Data were coded on the questionnaires and entered for computer analysis using EPI-INFO version 6 software. Proportions were compared using the chi-square statistic. Significance was set at $P < 0.05$ and means of continuous variables were compared using the Student *t*-test.

Results

Questionnaire results

Of the 350 patients in the random sample, 138 (39.5%) had not been reached after five separate attempts. Therefore, 212 patients were contacted and 178 questionnaires were completed for a response rate of 51%. Twenty-six (7.5%) refused to answer the questionnaire. Eight patients (2%) were unable to respond because of poor Hebrew skills and absence of a suitable interpreter. Characteristics of the study population are given in Table 1.

All interviewees were asked whether their current doctor had enquired about their smoking status: 41% answered "yes"; 31.6% of current and past smokers said they had been advised by their doctor to quit, and 13.9% of smokers replied that they had been given specific advice to use aids to assist in smoking cessation.

Medical record analysis

The medical records of patients treated by 104 doctors were assessed both from their individual patient lists and clinic group records. The 12 physicians who work in child health centers were assessed by their clinic group records alone.

Of the doctors assessed through individual patient lists, 85 were working as family practitioners of whom 35 (40.7%) were specialist family physicians. Sixteen were pediatricians, 2 of whom were specialists. Three doctors were specialists in internal medicine. Sixty-nine (66%) of the doctors were female.

Table 1. Israeli primary care patients interviewed by telephone regarding smoking habits (n=178)

	Male N=68 (38%)	Female N=110 (62%)	Total N=178	P
Mean age (yrs)	53	58		NS
Current smoker	20 (29.2%)	23 (20.9%)	43	NS
Past smoker	23 (33.8%)	21 (19.1%)	44	< 0.05
Employed	33 (53.2%)	38 (38%)	71	NS
Years of education	12.2	11.3		NS

An average of 4.4% of patients per physician were recorded as current smokers with a range of 0–21%, significantly less than the smoking rate of 24% found in the telephone interviews. Twenty-five doctors (24%) did not record any of their patients as being smokers. Ten of these doctors were pediatricians and 15 were family practitioners of whom 10 were non-specialists.

Recording rates of smokers per clinic ranged from 0 to 13.5% of patients with a mean recording rate of 4.9%. When the child health clinics are excluded the mean recording rate increases to 5.7%. No statistical association was found between the percentage of patients recorded as smokers and the size of the clinic either according to patient numbers or number of physicians working in the clinic. In addition, no significant association was found between the number of smokers recorded and the proportion of either specialists or pediatricians in the clinic. However, clinics with an older average population recorded significantly higher rates of smokers ($P = 0.03$). It should be noted that the child health centers do treat patients over the age of 16, ranging from 17% to 25% of their patient lists, and that the other clinics may also have significant numbers of child patients.

Discussion

This study shows a low level of primary care physician intervention to promote smoking cessation. The majority of patients were not assessed as to their smoking habits. Even those patients who were questioned and found to be smokers were not universally advised to quit. Patients who were advised to cease smoking received little practical guidance on how to do so. Recording of smoking status by patients' primary care physicians was very low, even less than would have been expected from the rates of physician enquiry reported by patients in the questionnaire. The smoking rates as reported in the telephone interviews appear accurate, as they are very close to those collated and published by the Ministry of Health [11].

Studies that assess physician anti-smoking activities by patient recall have shown variable results, with some of these studies indicating considerably higher rates of physician intervention than our findings. The study by McBride et al. [12] of non-academic family practices showed that 81% of patients recalled their physicians enquiring about their smoking habits as compared to only 41% of patients in this study. The low rates of preventive practices recorded in computerized records reported

elsewhere mirror our findings [13]. Our research also confirms the uniform finding of other studies that patients report a higher rate of physician intervention than is documented in their case notes [14]. Our study also supports other research that shows specialist physicians performing better in primary care than those who have not completed specialization in family medicine [15]. Our study showed a non-significantly higher rate of recording of smoking status by specialist family physicians.

Our study also showed a non-significant difference in rates of smoking assessment between male and female patients, males being more likely to recall their doctor having questioned them on their smoking habits. Other studies have similarly shown that male patients are more likely to report being asked and advised to quit smoking [16].

One difference in comparison with other studies concerns whether male or female doctors are more active in preventive health medicine. Other studies have reported that female physicians more frequently practice preventive health care [17]. However, this study found a significantly higher rate of recording smoking status in the electronic medical records by male doctors. This may represent a gender gap in computer literacy rather than in patient care [18]. It may also be as a result of the relatively small number of physicians involved in this research.

Although it is not possible to draw statistical conclusions from the small number of adolescents involved in this study, it is noteworthy that teenagers do not appear to have been questioned about their smoking status and that recording of smokers by pediatricians was particularly poor. This is at a time when the Israel Ministry of Health reports that significant numbers of teenagers are smoking. Studies from other developed countries also show an increase in smoking among teenage girls despite falling overall smoking rates [19]. All three children's clinics studied show virtually no documentation of smoking. The pediatricians working in combined clinics with teenage patients also had very low recording rates of smokers

Potential limitations of this study

Our use of telephone interviews may have biased the results both as a result of access to a limited sector and number of the population [20] and its reliance on interviewee recall. However, this has been shown to be a valid method of risk factor assessment and data collection [21].

This study used an analysis of data from the electronic medical record and not doctors' handwritten notes. Although all doctors in the study work in computerized practices, anecdotal evidence suggests that there are doctors who prefer handwritten notes, possibly recording smoking status here. In addition, some doctors may not use all the available components of a computer program, possibly failing to record smoking status [22].

Assessing recording in the EMR evaluates one aspect of physician preventive health care practice, and there is debate as to whether this relates to patient outcomes [23]. Nonetheless, patient recall of doctors' behavior was an additional measure of smoking intervention activities used in this study.

Conclusions

Our study shows low rates of physician intervention on smoking. The data collected provide a starting point from which the effectiveness of future interventions can be assessed and also suggests particular areas for attention [24]. It has been shown that continuing medical education in this area is effective in successfully changing physician behavior [25]. Any education should involve all primary care physicians, including specialists, generalists and pediatricians. There is a clear and urgent need for such intervention in Israel.

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Appendix 1

QUESTIONNAIRE (English translation of original Hebrew version)

- 1 Do you smoke? (Y/N)
 - 2 How many cigarettes a day do you smoke? (0-)
 - 3 How many years have you been a smoker? (0-)
 - 4 Did you smoke in the past? (Y/N)
 - 5 How many cigarettes a day did you smoke? (0-)
 - 6 For how many years did you smoke? (0-)
 - 7 Has your current family doctor ever asked if you smoke? (Y/N)
 - 8 Has he/she advised you to stop? (Y/N)
 - 9 Has he/she suggested using nicotine replacement therapy? (Y/N)
 - 10 Has he/she suggested using tablet treatments? (Y/N)
 - 11 Has he/she suggested counseling? (Y/N)
 - 12 How many years of schooling have you completed? (0-)
 - 13 Are you currently employed? (Y/N)
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