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Barriers to Prevention: Physician Perceptions of Ideal Versus Actual Practices in Reducing Cardiovascular Risk

SUMMARY

We conducted a study to explore physician perceptions of factors that facilitate or inhibit the integration of preventive activities into primary care, particularly regarding the reduction of cardiovascular risk. Fifty randomly selected family physicians practising in the Maritimes were interviewed. Physicians described both ideal and actual practice in relation to reducing high blood pressure, reducing elevated serum cholesterol, and helping patients quit smoking. Perceived barriers related to 1) knowledge, attitudes, and perceptions (e.g., lack of counselling skills, lack of belief in the efficacy of the activities); 2) conditions in which the activities occur (e.g., lack of available and accessible referral, lack of time); and 3) reactions of others to the activities (e.g., lack of patient compliance). (*Can Fam Physician* 1990; 36:665-670.)

Key words: cardiovascular risk, counselling, family medicine, physician behaviour, preventive medicine

RÉSUMÉ

Nous avons effectué une étude dans le but d'explorer les perceptions des médecins concernant les facteurs qui facilitent ou inhibent l'intégration des activités préventives dans les soins de première ligne, particulièrement en ce qui concerne la réduction du risque cardiovasculaire. On a interviewé 50 médecins de famille des Maritimes choisis par randomisation. Les médecins ont décrit la pratique idéale et réelle en ce qui concerne la réduction de l'hypertension, de l'hypercholestérolémie et les moyens d'aider les patients à cesser de fumer. Les barrières notées avaient trait aux 1) connaissances, attitudes et perceptions (déficience dans les habiletés de counselling, manque de confiance dans l'efficacité des activités); 2) conditions dans lesquelles se déroulent les activités (e.g. consultants non suffisamment disponibles et accessibles, manque de temps); et 3) réactions des autres face à ces activités (e.g. manque d'observance de la part des patients).

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PREVENTION IS CLEARLY an important aspect of family medicine. Physicians strongly support health pro-

motion¹ and are becoming more involved in preventive activities.² They see preventive activities as a legitimate part of their role.³

These activities, however, are not always systematically implemented.⁴ Reasons for this include disagreement about the most important health-promoting behaviours,⁵ disagreement with the recommendations of expert groups,^{6,7} and the perception that certain practices are ineffective, costly, and fraught with problems of patient compliance. Physicians may also perceive themselves as personally ineffective in preventive measures.³

The reduction of cardiovascular (CV) disease is an important health goal. Preventive activities, including multicentre randomized clinical trials, directed at lowering the risk factors associated with CV disease, have resulted in decreased incidence of morbid events and improved patient outcomes.^{8,9} It therefore seems likely that improved physician practice in relation to these risk factors would lead to clinically meaningful improvement in outcomes.

Changing physician practice is a complex task, affected by many interacting environmental and personal fac-

tors.^{10,11} Although several strategies have shown moderate success,¹² it has usually been easier to demonstrate changes in physician knowledge than in the related behaviour. Are there factors as yet unidentified that create barriers or incentives to adopting new clinical practices?

The importance of individual perceptions to behaviour is generally acknowledged. Current learning theory acknowledges that human functioning has both cognitive and behavioural components.¹³ Some models of behaviour view individuals' subjective perceptions of their environment, and of their relationship to it, as the major determinants of behaviour.^{14,15} It is also suggested that people's perceptions, particularly of their own ability, are the major determinant of the goals they set and the effort they expend.¹⁶ The attitudes, beliefs, values, and perceptions of physicians, however, have not been systematically documented. We therefore decided to explore individual physicians'

views of preventive activities in the reduction of CV risk.

Specifically, the purpose of the study was to explore 1) physicians' knowledge of and beliefs about practices to reduce and control CV risk, 2) the extent to which they implement these practices, 3) perceptions of the benefits of and barriers to implementation, and 4) perception of the physician's role in reducing CV disease morbidity and mortality.

Methods

From 700 family physicians in the registry of Continuing Medical Education at Dalhousie University, randomly ordered lists were generated of those in full-time practice, according to their province, location, and years of practice. The lists were entered randomly, and physicians in each list were approached in the order that their names appeared.

Fifty family physicians from Nova Scotia, New Brunswick, and Prince Edward Island agreed to participate in a one-hour interview in their office. Selection from each province was proportional to the number of practising

family physicians in that province. Twenty-nine additional physicians declined to participate, citing lack of time and interest. Participants were stratified to create four groups of equal size, based on practice location (rural or urban) and length of time in practice (five to 15 years or 15 to 25 years). Women were represented in the sample proportionally to their representation in the physician population.

PRECEDE Framework

All 50 participating physicians were interviewed by a trained interviewer, who was a senior health education student, using an interview schedule based on the PRECEDE framework of health education.¹⁰ Developed initially as a model to understand and improve the effectiveness of health education interventions, this framework has recently been suggested by its authors as an appropriate tool for examining physician behaviour.¹¹

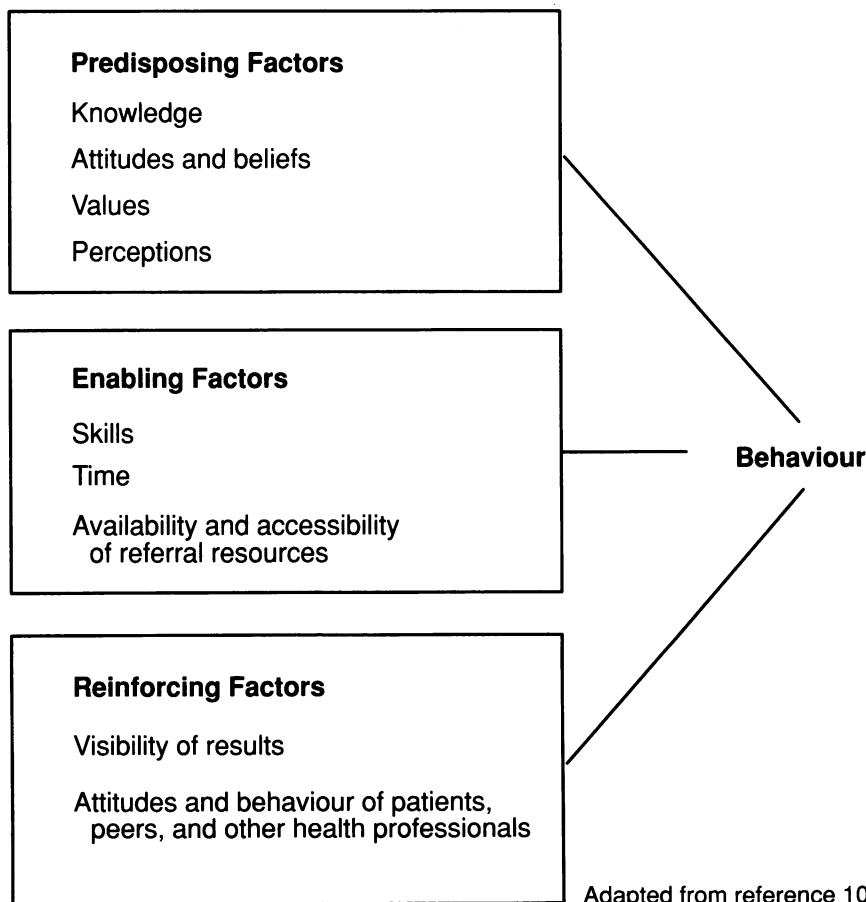
The framework groups factors affecting behaviour into three categories (Figure 1)¹⁰: 1) predisposing factors: characteristics, such as knowledge and attitudes, that predispose an individual to take a given action; 2) enabling factors, such as skills or personnel, that enable a certain behaviour to occur; and 3) reinforcing factors: consequences that occur or that are anticipated after an action, and that can serve to establish or maintain it (e.g., attitudes of peers and patients).

This framework was selected to enable systematic collection of data on each factor and also to provide a framework for synthesizing and understanding the complex interactions of factors that determine behaviour. The framework also allows incorporation of other factors suggested to be important in preventive practice: knowledge of benefit, confidence, perceived effectiveness, perceived legitimacy, commitment to prevention, preventive skills, and organization of practice.¹⁷ The interview schedule was tested on a group of practising physicians, and we revised it for this study.

Data Analysis

Data from all 50 interviews were analyzed. Quantitative data were examined by frequencies, and the chi-square statistic was employed to determine whether any differences in response were apparent among groups. Qualita-

Figure 1
Factors Modifying Physician Behaviour



tive data were recorded, categorized, and examined for patterns.

Results

On analysis, the effects of practice location and year of graduation were found to be insignificant. All results are therefore, unless otherwise indicated, presented for the entire study group. Results will address 1) physician perceptions of their role in reduction and control of CV disease, 2) actual and ideal practices, and 3) barriers to implementation of practices to reduce CV risk.

Physician Priorities and Roles in CV Disease

The physicians in our study unanimously placed at least a medium priority on activities aimed at prevention and control of CV risk factors. Most believed the three major risk factors to be modifiable: high blood pressure (HBP), 70%; elevated serum cholesterol levels (S.CHOL), 56%; and smoking, 44%. Many also believed that reduction and control of risk would result in prolonged life (56%) and improved quality of life (40%). Physicians consistently stated that they had an important role in the control of CV risk factors. For the majority this was a central, integrating, co-ordinating role that included responsibility for screening, detecting risk, providing management, counselling, and follow up. Less than one-third of respondents viewed themselves as members of a team involved in reducing CV disease. Respondents also perceived that patients expected them to provide advice and assistance in controlling risk. This was particularly true in the case of HBP. Physician perceptions of patient views were not validated with patients.

Perceived Confidence and Effectiveness

Physicians' perceptions of personal effectiveness and confidence in reducing CV risk are important in understanding perceived barriers to action. Questions were specifically related to a single risk factor, rather than to elevated CV risk in general. Respondents were most confident of their abilities and believed themselves to be most effective in reducing HBP. Ratings of perceived confidence and effectiveness were lower in relation to elevated S.CHOL, and lowest in relation to smoking. For example, 68% believed themselves usual-

ly effective in reducing HBP, compared with 14% in S.CHOL lowering and 8% in smoking.

Actual Vs. Ideal Practice

Physicians were asked to outline specifically, for each category (HBP, elevated S.CHOL, and smoking), what they considered to be ideal practices in the areas of screening and case finding, management, counselling, referral, and follow up. They were then asked to indicate to what extent they currently implemented each activity in their practices. Where there was a discrepancy between ideal and actual practice, the physician was asked to identify the reasons for this discrepancy. Analysis of these perceived reasons identified and elucidated barriers to integration of preventive practices.

The responses to this complex group of questions are broken down in relation to the three major risk factors: HBP, S.CHOL, and smoking.

High Blood Pressure: Ideal Practice

Screening. High blood pressure is the risk factor for which the greatest consistency of opinion was found. In all groups, most respondents (60%) believed that all individuals should be screened. They differed on the frequency of screening and on the age at which it should begin. Twenty per cent of respondents thought all patients should be screened annually; others suggested screening at least once during everyone's lifetime. Suggestions for the appropriate age for initial BP measurements ranged from the teen years to age 40.

Management and Counselling. Physicians consistently identified the following as ideal practice: 1) follow-up measurements on elevated BP readings, 2) investigations to detect secondary causes or target organ damage, 3) medication, and 4) non-pharmacologic management including sodium restriction and weight reduction. Only one respondent mentioned home monitoring of blood pressure. Respondents believed that counselling should include discussion of the following aspects of HBP: 1) risk and complications, 2) methods of management, 3) the importance of controlling blood pressure, 4) the value of reducing sodium intake, 5) weight reduction if appropriate, 6) exercise, and 7) stress management. Counselling about the relation of smoking to HBP was mentioned infrequently. Only one

respondent mentioned involvement of a patient's spouse and discussion of compliance and noncompliance with patients.

Referral. More than 80% of respondents believed that patients unresponsive to treatment should be referred to a specialist. Other commonly cited reasons for referral include possible secondary hypertension, moderate to severe BP elevations, and the requirement for special counselling. Only one physician suggested referral of newly diagnosed hypertensives for evaluation.

Follow-up Examinations. Regular follow up was consistently viewed as ideal; many respondents specified that the frequency of follow-up appointments should decrease after BP had been controlled. Suggested frequency of follow-up examinations ranged from monthly to quarterly. Two respondents mentioned home monitoring as part of usual follow up.

High Blood Pressure: Actual Practice

In all groups, patients at high risk were regularly screened for elevated BP levels. Adults over 45 years were measured regularly, while measures between ages 18 and 45 years were sporadic. Physicians who had graduated five to 15 years ago reported screening individuals who had come to the office for other reasons; respondents frequently reported measuring BP levels "whenever possible." Ideal counselling, management practices, referral, and follow up were implemented as much as possible.

Elevated Serum Cholesterol: Ideal Practice

Screening. There was more variation in opinion concerning screening for elevated S.CHOL than for HBP. Very few respondents (<25%) thought it important to screen everyone for S.CHOL. Stated criteria for screening were 1) age, which ranged from screening all schoolchildren to screening only those older than 40 years; and 2) risk, including those with a family history of cardiac disease, thyroid disease, or diabetes mellitus, and those with other CV risk factors.

Management and Counselling. Most physicians agreed on desirable practices in individuals with identified elevated cholesterol. The activities outlined were discussing risk with the patient, explaining possible effects and methods of management; dietary counselling; counselling on weight control or reduction and exercise; and drug therapy if

necessary. (No clear specification of what would make drugs necessary was given.)

Referral. There was heavy reliance on referral to a dietitian for counselling on low-cholesterol diet and weight reduction. In contrast, most physicians believed they should handle counselling of patients with HBP themselves, referring only patients who do not respond to initial treatment to a specialist physician rather than to a dietitian.

Follow-up Examinations. The ideal frequency of follow-up appointments varied widely among respondents; most did not emphasize follow-up examinations.

Elevated Serum Cholesterol: Actual Practice

Screening practices for elevated S.CHOL varied widely among physicians. In actual practice, respondents screened only those individuals perceived to be at high risk.

Elevated risk was variously defined, but it frequently included a family history of hyperlipidemia or CHD. In some cases, physicians screened those who requested it, or they made screening part of physical examinations or general check-ups. Counselling by the physician was limited to patients who had elevated S.CHOL or who were overweight and was often supported or replaced by printed information for patients. Many physicians followed their ideal practice and referred patients to a dietitian for counselling. Some physicians gave general dietary advice; others gave small "bits" of advice. Only urban physicians who had graduated less than 15 years ago did any follow up.

Smoking: Ideal Practice

Screening. About 80% of respondents considered a smoking history appropriate for all patients. The appropriate age at which to begin case finding for smoking varied, beginning as early as the mid-teens. Some respondents recommended asking patients about smoking periodically, and one suggested keeping a record of smokers.

Management and Counselling. Most respondents thought that physicians should discuss with their patients the ill effects of smoking, the benefits of quitting, and ways to quit. Most would recommend nicotine gum (Nicorette), hypnosis, or acupuncture only for patients whom the physician perceived to be motivated. Only one physician mentioned

urging the patient to decide on a quit date; only half of respondents indicated they would suggest that their smoking patients quit.

Referral. When referral for smoking cessation was mentioned, the referral was almost always for treatment with hypnosis or acupuncture. In each group, 20% to 25% of respondents considered referral unnecessary and unproductive. Few suggested using community programs.

Follow-up Examinations. About 60% of respondents believed that smokers should be followed regularly. A few respondents considered follow-up examinations to be fruitless.

Smoking: Actual Practice

Although all respondents supported screening all patients for smoking, in practice many asked patients whether they smoked only if smoking seemed to be related to their current illness. Many expressed a reluctance to pursue the issue of quitting with their patients, stating that patients would not like to be harassed.

All physicians reported counselling patients on the risk of smoking; this counselling was not usually personalized. Further counselling and referral were usually reserved for apparently motivated patients. Although most physicians thought there should be follow-up examinations, they actually implemented this follow up, if at all, only for motivated patients.

Barriers to the Ideal

Although physicians responded separately to questions about each condition, an analysis of the discrepancies between ideal and actual practice indicated certain barriers in all three areas.

Time

Physician time was identified by all groups as a barrier to ideal management of all three risk factors. Factors perceived to contribute to lack of time were over-booking and the fast pace of primary care, which prevents physicians from carrying out complete risk factor assessment, adequate counselling, and consistent follow up. Only in relation to HBP did respondents suggest using a nurse to alleviate time problems.

Economic Factors

Economic barriers concerned method of payment, human resources, and cost-effectiveness of prevention. Some respondents noted that preventive

screening, counselling, and follow up are not insured services, and suggested that when time is short, insured services will be emphasized. Furthermore, most physicians do not have an assistant in their practice to help with these functions. Cost-effectiveness was mentioned specifically in relation to screening for elevated S.CHOL.

Difficulties in Referral

This factor was most frequently identified in relation to S.CHOL and HBP. Long waiting times, distances to specialists and specialty clinics, and difficult access to dietitians were mentioned as problems for patients with HBP. In S.CHOL, where physicians relied most heavily on the skills and services of dietitians, there was frequent discussion of long waiting times and inadequate numbers of dietitians for counselling. Most respondents indicated that the kind of resources that might be most helpful to smoking patients were not available to the patients within a reasonable distance or a reasonable time. Others cited their lack of knowledge about appropriate referral resources as a barrier.

Patient Visiting

Physicians in all groups perceived that asymptomatic patients do not visit the doctor regularly, making it difficult to implement preventive activities for those who could benefit most. Some physicians stated that they had no way of identifying patients who should come in if the patients did not initiate the visit.

Difficulties in Counselling

Many respondents saw lack of skill in dietary counselling as a major impediment. They also noted a lack of appropriate, effective patient education materials.

Physician Attitudes

The attitude of physicians emerged as a barrier to preventive activities in relation to S.CHOL and to smoking. In the former case, physicians were not fully committed to prevention because they were not convinced of the efficacy of screening or of the effectiveness of lowering S.CHOL. The problem with smoking was a bit different; respondents believed that patients needed to stop smoking, but lacked the conviction that they could induce them to do so.

Patient Noncompliance

Patient noncompliance was the single most commonly mentioned barrier.

Such factors as patient motivation and commitment to change were considered important in compliance. Difficulties with changing lifestyle, high costs, side-effects of medication, inconvenience, and time constraints were all acknowledged as contributors to patient noncompliance.

Table 1 classifies the identified barriers in the three categories of predisposing, enabling, and reinforcing factors, and indicates which risk factor the barrier was perceived to affect.

Discussion

Physician Response

As noted, 29 physicians declined to participate in the study. While it is possible that the physicians who agreed to participate were not representative of the population from which they were drawn, no variables of age, sex, or geographic location appeared to distinguish

respondents from non-respondents. The reasons given for discrepancies between perceptions of ideal and actual practice were interpreted as barriers to preventive activity.

The use of self-report measures may have resulted in bias because of over-reporting of behaviours perceived to be desirable. If the bias in fact operated as expected in this study (i.e., if physicians tended to over-report the extent to which they can implement their ideal practices), this would underestimate the barriers detected.

Predisposing Factors

Physicians expressed doubt that the efficacy of their activities in regard to lowering S.CHOL was consistent with their perception of the lack of clear, consistent guidelines for selecting patients to be screened and on levels of S.CHOL as parameters of risk. In contrast, respondents considered themselves to be most

effective in dealing with HBP, an area in which physicians have, over the past decade, received consistent, scientifically based information both about desirable activities and about efficacy of treatment.

Although most respondents (74%) agreed that physician counselling was an effective treatment in helping patients quit smoking, very few felt themselves to be personally effective. This apparent discrepancy related closely to the physicians' identification of deficiencies in their own skills in counselling, enhancing patient compliance, and otherwise changing behaviour. Their perception of the need for these skills suggests that they viewed achieving difficult change in lifestyle as a problem shared by patients and their physicians.

If physicians could become more skilled in counselling, particularly about dietary change and smoking, their improved perceptions of personal effectiveness would make them more likely to try to implement preventive activities.

Doubts about the efficacy of preventive activities will probably be assuaged as intensified application leads to improved outcomes. This will require clear guidelines. Several bodies in both Canada and the United States are currently discussing the most appropriate recommendations for S.CHOL and the most effective way to disseminate them. Any such recommendations must be systematically delivered to all physicians, emphasizing their effectiveness. It is important to assure doctors of the effectiveness of physician counselling, particularly in smoking cessation.

Enabling Factors

Referral resources were perceived to be unevenly available or accessible. Waiting time for appointments, the cost of particular uninsured services, distance, and physicians' ignorance of the nature and quality of resources all detracted from the optimal use of resources. Appropriate current information could greatly facilitate the physicians' use of referral resources.

Dietitians played an important role. Respondents frequently relinquished responsibility for dietary change and follow up to them, but dietary counselling was viewed as the most difficult type to arrange, with long waiting periods for appointments. Respondents complained that, by the time patients fi-

Table 1
Relationship of Barriers Identified by Physicians to Specific Risk Factors

Barrier	Risk Factor		
	HBP	Elevated S.CHOL	Smoking Cessation
Predisposing Factors			
Lack of belief in efficacy of activities	-	+	+
Lack of belief in personal effectiveness	-	+	+
Lack of counselling, behaviour change skills	+	+	+
Lack of guidelines, information	-	+	-
Enabling Factors			
Lack of available, accessible referral	-	+	+
Practice organization	+	+	+
Lack of time	+	+	+
Lack of good patient education materials	-	+	-
Inadequate return ^a	-	+	+
Lack of human resources in office	-	+	+
Lack of knowledge of resources	-	+	+
Reinforcing Factors			
Patient non-compliance	+	+	+
Lack of patient commitment and motivation	+	+	+

a. Inadequate return might also function as a reinforcing factor.

nally saw a dietitian, their initial motivation had weakened.

Physicians' perceptions of their own ineffectiveness in initiating dietary change prevented them from taking early measures that would complement those undertaken by the dietitian. Physicians' efforts could be complemented and reinforced if appropriate patient education materials were available. Some respondents revealed that their attempts to fill this gap for the patient are time-consuming, but are neither systematically planned nor carried out.

Time and economic factors were common barriers to ideal practice. Many physicians are unaware that effective educational intervention can occur during the course of a regular 10- to 15-minute office visit. (Few respondents, however, saw time shortage as a major limiting factor to their personal effectiveness.) There is a common perception that, in order to bill for time spent in counselling, physicians must work around the system. If counselling were formally insured, physicians would feel more comfortable devoting time to it; it would further represent both to them and to their patients the approval of the policymakers, and, thus, of society.

Reinforcing Factors

The major overall barrier to ideal practice identified by physicians was the lack of patient compliance. Patient compliance is reinforcing to both the physician and the patient. For the patient, if compliance with efficacious therapy results in improvement, the success can motivate increased efforts to comply. For the physician, reinforcement comes from two sources. First, physicians' beliefs in their abilities to bring about change are reinforced; secondly, improved patient outcomes (even improved intermediate outcomes, such as reduction of risk) reinforce the physicians' view of the benefit of the activities. Physicians clearly recognize that compliance with advice is not merely

the patient's problem; physicians realize that they have a role to play and require certain skills to help the patient adhere. Physicians should be given the opportunity to acquire these skills in both their undergraduate and their continuing medical education.

Implications for Intervention

Physicians' responses showed clearly that many factors, both independently and interactively, affect the extent to which a behaviour is implemented; these factors can have different relative importance in different situations and in different specific activities. Such frameworks as PRECEDE allow these interventions to be grouped into their logical categories and highlight their relationships. Clearly, any intervention designed to change physician behaviour must be designed with all relevant factors in mind. Addressing the predisposing factors alone, as programs have frequently done in the past, would be unlikely to result in significant change. ■

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