

Evidence-based cardiovascular care

Family physicians' views of obstacles and opportunities

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ABSTRACT

OBJECTIVE To explore obstacles to and opportunities for applying specific lifestyle and pharmacologic recommendations on chronic ischemic heart disease.

DESIGN Qualitative study.

SETTING Rural, town, and city settings in Nova Scotia.

PARTICIPANTS Fifty family physicians caring for patients with cardiovascular (CV) disease.

METHOD Nine focus groups were conducted, audiotaped, and transcribed. Seven recommendations had been selected for discussion based on their relevance to primary care, strength, and class of supporting evidence. Analysis was guided by grounded-theory methodology.

MAIN FINDINGS "Ischemic events" can be powerful motivators for change, whereas the asymptomatic nature of CV risks and distant outcomes can form obstacles. Trust built through previous experiences and the opportunity to repeat important messages can facilitate application of evidence, but patient-physician relationships can also pose obstacles.

CONCLUSION Physicians can take steps to improve care, but success at reducing CV risks depends upon active involvement of many health professionals and community resources. Future guideline implementation should focus on patient-oriented issues, such as comorbidity and treatment preferences.

RÉSUMÉ

OBJECTIF Déterminer les facteurs favorables et défavorables à la mise en œuvre de recommandations d'ordre comportemental et pharmacologique concernant la maladie coronarienne (MC).

TYPE D'ÉTUDE Étude qualitative.

CONTEXTE Milieu rural et municipalités de petite et moyenne dimensions de Nouvelle Écosse.

PARTICIPANTS Cinquante médecins de famille traitant des patients atteints de maladie coronarienne.

MÉTHODE Neuf groupes de discussion ont été formés et les enregistrements des séances ont ensuite été transcrites. On avait choisi sept recommandations en fonction de leur relation avec les soins de première ligne, de leur force et de la catégorie des preuves à l'appui. L'analyse des données s'inspirait de la méthodologie dite «grounded-theory».

PRINCIPAUX RÉSULTATS Les manifestations ischémiques sont souvent très efficaces pour déclencher des changements comportementaux, alors que la nature asymptomatique et lointaine du risque de MC est plutôt un obstacle. La mise en œuvre des recommandations est favorisée par l'établissement antérieure d'un lien de confiance et la répétition des consignes importantes, mais la relation médecin-patient peut aussi constituer un obstacle.

CONCLUSION L'amélioration des soins est du ressort du médecin, mais la réduction du risque de MC ne peut être atteinte qu'avec la collaboration de plusieurs professionnels de la santé et le soutien des ressources communautaires. À l'avenir, la mise en œuvre des directives devrait être centrée sur des facteurs propres au patient, tels la comorbidité et les préférences thérapeutiques.

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Cet article a fait l'objet d'une évaluation externe.

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Cardiovascular (CV) disease is an important cause of morbidity and mortality,¹⁻³ and a large volume of evidence supports appropriate care. The Canadian Medical Association Infobase contains 97 guidelines in cardiology for 1999-2001.⁴ Yet questions remain regarding implementation of recommendations from guidelines generally,⁵⁻¹² and ample quantitative data point to “care gaps.”¹³⁻¹⁷

The publication of a Canadian consensus statement on chronic ischemic heart disease¹⁸ provided us with the opportunity to explore the contexts or situations in which FPs from rural, town, and urban settings could or could not readily apply specific recommendations. Although we have described a variety of issues regarding CV evidence in primary care *generally*,¹⁹ this paper aims to explore the application of seven *specific* lifestyle and pharmacologic recommendations.

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METHODS

Focus groups were selected for this study because they allow participants to share their clinical experiences with their peers, and can reveal differences and similarities within groups. They have been used to explore aspects of doctor-patient relationships,²⁰ perceptions of risk,²¹ and uptake of evidence.^{19,22} Focus groups have been used successfully with FPs and general practitioners.²³⁻²⁵ By building on our experience and by conducting focus groups in the same geographic setting,^{22,26} we believed that respondents sharing their experiences with their peers from a geographically circumscribed area would reveal a range of obstacles to and opportunities for implementation of evidence-based CV recommendations.

To explore the possibility of community variation, we conducted groups in nine areas, including rural, town, and urban settings. Following Tudiver and Talbot, we believed that “any family physician could inform us on the matter.”²⁷ Because many of our settings were quite small, some participants were familiar with one another. While market researchers and others have expressed a preference for groups composed of strangers,²⁸⁻³⁰ the issue of acquaintanceship created a favourable group dynamic wherein participants felt comfortable sharing their experiences.

Nine focus groups were conducted with FPs throughout Nova Scotia, three each in rural (population <10 000), town (population 10 000 to 50 000), and urban settings (population >50 000). Eight groups involved four to nine participants; one in a rural setting involved only two. Criterion sampling³¹ ensured an appropriate mix of male and female participants who were at earlier and later stages of their careers. Family physicians were

Definitions used in qualitative research

Criterion sampling—As noted by Creswell,³¹ criteria for selecting participants for a study are based on such issues as “people representative of the culture-sharing group in terms of demographics and the contexts that lead to different forms of behaviour.”

Ecological model—The ecological model aims to get beyond the individual and psychological lifestyle focus of health education, to more distal determinants of health that are beyond the control of individuals (such as cultural influences, public policy).

Definitions from Creswell.³¹

eligible if they had practised in the community for more than 1 year and had enough CV patients in their practices to contribute to discussions. Two thirds of those approached participated (50 of 76). Recruitment details are included in **Table 1**.¹⁹

Table 1. Recruitment of Nova Scotia physicians for nine focus groups on use of evidence-based medicine in primary care

LOCATION	NO. INVITED	NO. ELIGIBLE*	NO. (AND % OF ELIGIBLE) WHO ATTENDED
RURAL			
1	7	4	4 (100)
2	4	4	2 (50)
3	8	4	4 (100)
TOTAL	19	12	10 (83)
SEMIURBAN (TOWNS)			
1	22	12	8 (66)
2	19	11	8 (73)
3	14	10	6 (60)
TOTAL	55	33	22 (66)
URBAN			
1 and 2 [†]	26	23	14 (61)
3	25	8	4 (50)
TOTAL	51	31	18 (58)
OVERALL TOTAL	125	76	50 (66)

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*Reasons for ineligibility included physician no longer living in the area; physician living and practising in the area for less than 1 year; unable to contact physician; scheduling conflict or physician ill or out of town at the time of the focus group; ischemic heart disease a small part of physician's practice; and physician on call.

[†]These groups were conducted in the same urban setting. Physicians were recruited for either group, and attendance was six in location 1 and eight in location 2.

Seven recommendations were selected for discussion (**Table 2**)¹⁸ based on their relevance to primary care, strength (Grade A or E), and class of supporting evidence (class I or II). After a "discussion starter"²⁸ on evidence in CV disease in general, several specific recommendations were then presented to participants, and discussion was guided by an interview template (available on request). Questions were based on the ecological model of social organization³² and explored very broad considerations (eg, cultural issues), a variety of local factors including available community resources, and clinical encounters with various patients. Individual focus groups typically discussed three or four of the recommendations.

Each session was facilitated by the lead investigator (W.P.) and comoderated by another team

member (P.T. for eight and F.B. for one), who kept field notes. All sessions were audiotaped, and the researchers present were debriefed immediately after each session to identify major areas of discussion. Transcripts were prepared within 48 hours and reviewed. The research team believed that no new themes were emerging beyond the eighth focus group.

After reading the transcripts independently, two team members (W.P. and P.T.) worked together to compare and contrast emerging ideas and to organize them into conceptual categories. The other researchers (F.B., L.J., and J.C.) reviewed transcripts independently and critiqued and confirmed preliminary categories. Disagreements were resolved through team discussion. The process was repeated until the categories were clear; this would enhance the trustworthiness of the interpretation. A single team member (P.T.) then coded the transcripts using QSR NUD.IST, version 4.³³ Other team members checked the coding carefully to ensure

Table 2. Recommendations for patients with chronic ischemic heart disease

RECOMMENDATION	GRADE*	CLASS [†]
Abstinence from smoking	A	I
Lowering low-density lipoprotein cholesterol to less than 2.6 mmol/L with hepatic hydroxymethylglutaryl coenzyme A (HMG-CoA) reductase inhibitor	A	II
Angiotensin-converting enzyme inhibitors for patients with moderate-to-severe left ventricular dysfunction	A	I
β-Blockers after myocardial infarction	A	I
Short-acting dihydropyridines are dangerous for patients with congestive heart failure and should not be used	E	I
Therapy to reduce blood pressure to less than 140/90 mm Hg	A	I
Regular exercise training to reduce angina and promote well-being	A	I

Adapted from the Canadian Cardiovascular Society 1997 Consensus Conference on the Evaluation and Management of Chronic Ischemic Heart Disease.¹⁸

*Grade A: evidence sufficient for universal use, Grade B: evidence acceptable for widespread use, Grade C: evidence insufficient to recommend for or against use, Grade D: evidence acceptable to recommend against use, and Grade E: evidence sufficient to recommend prohibition.

[†]Class I: evidence based on at least one prospective randomized controlled trial, Class II: evidence based on at least one non-randomized cohort comparison or on multicentre case studies, on chronological series, or on extraordinary results from non-randomized trials, Class III: expert opinion based upon extensive clinical experience, descriptive studies, or reports of an expert committee.

accuracy and to ensure that the spectrum of experience was represented.

Our analysis was guided by grounded theory methodology.³⁴⁻³⁷ This approach is excellent for understanding complex social realities, such as the application of CV recommendations in family practice. Specifically, we used an open coding strategy, facilitated by use of QSR NUD.IST, version 4,³³ to identify concepts in our data that were then discussed by the research team. We kept notes of our team meetings, generated data reports using the software, used analytical memos, and documented our process to create an audit trail. These analytical processes enabled the researchers to develop and understand physicians' perceptions of the challenge of applying evidence-based CV recommendations in specific communities.

The Research Ethics Committee of the Queen Elizabeth II Health Sciences Centre approved this study.

FINDINGS

Barriers to and facilitators of particular recommendations identified by participants are summarized in **Table 3**. Many responses transcended a single recommendation, however; we analyzed these broader responses using grounded theory. We describe two major themes among data drawn from all the settings: how physicians believed patients experienced and dealt with disease, and ongoing patient-physician relationships.

Patients' reactions to disease and treatment.

This first theme includes responses arising from a variety of patient characteristics and behaviours. Participants reported that an "event," such as an acute myocardial infarction or even the diagnosis of ischemic heart disease, is a powerful motivator for patients to change lifestyle or take new medications. "You can tell them to stop smoking day after day after day after day; as soon as they have an event, they stop smoking.... [T]he bigger the event, the more they'll respond." Participants described taking advantage of these opportunities

for influencing patients' behaviour. Recognizing that they cannot raise some issues too often, an event allows them to "strike while the iron's hot!... you don't do it at every visit because then it's overkill. You can sit there and certainly beat a dead horse, and it becomes counterproductive. Then they won't listen to you;... you have to pick the time." Referral for a consultation or invasive procedure, such as catheterization in a distant centre, has a similar effect on some patients.

In contrast, the absence of symptoms for some CV risks, such as hyperlipidemia or hypertension, often limits patients' motivation to take medications or make difficult lifestyle changes. "If it doesn't hurt, it doesn't bother them. They can't see it; it doesn't need treatment." The fact that the outcome being prevented is in the distant future and that the need for medication could be lifelong, does not help. "It's the person [who] can't understand why they have to take a medication and they don't feel anything from it, or something that might happen 20 years down the road." Other patients are more willing to begin medications or make other changes either because they simply follow their physicians' recommendations or they are inclined to take charge of their own health regardless of the absence of symptoms.

Many people with CV disease have other health problems, and these comorbid conditions have a variety of effects. Comorbidity can divert attention to issues that seem more pressing at the time. "I think one of the challenges of primary care is they usually come in with a multitude of other things they want you to deal with.... Sometimes it's easy to lose track of a particular problem because they're bringing multiple problems to you." Family physicians need to deal with and balance various clinical issues, and often are unable to focus exclusively on one problem (as consultants might).

Cardiovascular disease, alone or with comorbid conditions, frequently requires multiple medications. "You've got evidence for this drug, you've got evidence for another drug. Four or five classes of drugs: you've got evidence for all of them." When faced with resistance to starting many pills at once, often too expensive for patients, FPs might resort

Table 3. Recommendation-specific responses (full list)

RECOMMENDATION	FACILITATORS AND OPPORTUNITIES	BARRIERS AND OBSTACLES
Abstinence from smoking	<ul style="list-style-type: none"> • “Readiness” (stage of change) • Self-reliant personality type • “Guilt” in pregnant women • Concern for health of family members • Family support • Physician’s office a non-smoking environment • Patient education materials • Physician’s empathy after relapse • Marginalization of smokers in society • Workplace ban on smoking or support for cessation 	<ul style="list-style-type: none"> • Low socioeconomic status • Degree of addiction • Epicurean personality type • Complicated lives some patients lead • Women’s concern over weight • Difficulty making several lifestyle changes at once, under stress • Cost of bupropion • Unhelpful evidence • Smoking part of culture for some lower socioeconomic groups
Low-density lipoproteins	<ul style="list-style-type: none"> • Fear of another event • Increased awareness that visits to doctor for prevention are worthwhile • Nurse in office to do counseling • Risk factor tables • Local specialists setting the standard (ie, goal) • Nutritionist employed by grocery store 	<ul style="list-style-type: none"> • Lack of motivation in asymptomatic patients • Outcome distant • Costs of statins • Fear of side effects • Real side effects in elderly people • “Last one on” phenomenon • Inadequate number of nutritionists • Erratic or nonstandardized blood tests for lipids
Angiotensin-converting enzyme inhibitors	<ul style="list-style-type: none"> • Diabetes as comorbidity • Symptom relief in congestive heart failure, ie, patients “feel better” • Minimal side effects • Strong evidence supporting this class of drug 	<ul style="list-style-type: none"> • Cost of some ACE inhibitors • Impaired renal function • Need for follow-up blood tests deterrent for some elderly and rural patients
β-Blockers	<ul style="list-style-type: none"> • Seen as “protecting” a vital organ • Protocols on discharge from intensive care unit or hospital • General knowledge of, and confidence in, β-blockers in community 	<ul style="list-style-type: none"> • Comorbidity, such as asthma, chronic obstructive pulmonary disease, diabetes • Side effects: fatigue, erectile dysfunction • Frequent dosing of some less expensive β-blockers
Calcium channel blockers (short-acting agents contraindicated)	<ul style="list-style-type: none"> • Awareness from media or Internet of dangers of short-acting calcium channel blockers • Referral to physician who started drug initially 	<ul style="list-style-type: none"> • Inability in office setting to identify patients on a particular drug for recall • Started on drug by consultant (usually tertiary care, at a distance)
Blood pressure control	<ul style="list-style-type: none"> • Fear of strokes • Comorbidity (eg, ischemic heart disease and other CV risks) • Risk calculation tables in physicians’ offices • Easy access to 24-hour monitoring • Higher level of public awareness about importance of blood pressure control 	<ul style="list-style-type: none"> • Asymptomatic nature of elevated blood pressure • Side effects of treatment • Cost of medications
Exercise	<ul style="list-style-type: none"> • Desire to lose weight (more important to patients than decreasing CV risk) • Realistic goals • Patients’ initiative • Charting for height and weight in office • In-hospital education at time of event • Community facilities (eg, boardwalks) • Community programs (eg, walking in schools during winter) 	<ul style="list-style-type: none"> • Harder than taking a pill • Manual labour occupations • Physical limitations (arthritis in elderly people) • Physicians too busy to counsel on exercise • Evidence less strong than for other risk factors • Geographic isolation from facilities for rural patients • Absence of safe place to walk • Not part of rural culture • Our climate!

to a staggered start in contrast to an all-at-once strategy in the hospital:

They come [into hospital on] zero pills and come home with aspirin, β -blocker, and nitroglycerin; [in a week's time] we add cholesterol [-lowering medication], and then we talk about an ACE inhibitor. So it is not swamping; we get [to] the same point but maybe over 3 weeks instead of over 72 hours.

In addition to this barrier of polypharmacy, our participants also described an antipill sentiment among some patients. “[P]eople in general are averse to taking medications;... the less medication they can take, the better... they feel about themselves.” Patients often view complementary or alternative medicine differently. “A lot of people say, ‘I’m going to try this first. It’s a natural medicine; it’s not harmful, there’s no side effects.’” Side effects were cited as another barrier to medication compliance, particularly for β -blockers (fatigue in women, sexual dysfunction in men) and statins (gastrointestinal intolerance, especially in elderly people).

Fortunately, physicians have other opportunities. Taking a medication often is seen as easier than making a lifestyle change, such as beginning regular exercise or stopping smoking. “And [patients say] ‘just give me something that I can take to make this better and make this not happen again.’” Patients who have symptoms with congestive heart failure (CHF) usually feel better while taking angiotensin-converting enzyme (ACE) inhibitors and so readily comply with that recommendation.

Patient-physician ongoing relationships. In contrast to the above patient-centred data, the following responses dealt with one of the defining characteristics of family medicine, doctor-patient relationships. Participants were asked about the ways their relationships with patients affected the application of evidence. Previous treatment “successes” build trust that facilitates acceptance of new recommendations. Family physicians can repeat a message during subsequent visits or with family members if necessary, which also enhances patients’ acceptance of evidence. “[E]ven if they only get a third of

what we tell them, we’re going to see them again, so you hope that by repeatedly giving them the same message, they’ll get the really important stuff.” “Or we would know;... we can talk to their wife or their son or their daughter and explain things to them, and maybe get them to reinforce it to the patient.”

An important part of the relationship is information sharing and decision making. Some patients on one end of the spectrum prefer to defer to physicians’ opinions, and might not even want to hear the options for treatment. “My experience here is that a significant number of my patients want paternalistic medicine, and they want me to tell them what to do;... they are quite distressed by me presenting them options.” Another participant drew a distinction between older and younger patients. “I find that there’s an age group where... they’d really be quite happy if I took a paternalistic approach, and I recognize who they are and I’m always trying to gauge it when they come in,... whereas the younger ones say, ‘what will happen?’”

Some patients will want to hear the options, engage the issues, and make their own decisions about the evidence. “They’re either coming in and telling you what they read or saw on the Internet and [asking] why [you aren’t] doing that and getting your hackles all in an uproar. Or they’re coming in... looking for a dialogue of equals.” Regardless of the type of relationship, physicians in smaller communities felt they knew their patients better. “One advantage of a small community is you really know the patients. [W]e know the whole family and the patients, and they don’t just come and see you just for 15 minutes;... you meet them in drug store; you meet them [in other settings].

Such familiar relationships can also pose obstacles. For example, physicians find it difficult in some circumstances to be blunt enough to make the point, and patients might not take the advice seriously. “[H]e hasn’t been listening to me, because I’m a buddy.” A long-term relationship seemed most troublesome to our participants when they needed to deal with smoking cessation; they hated to nag but knew patients needed reminding. “I think a family physician is often seen as very supportive of

patients, and I sometimes find it very difficult to be [unsupportive] of a behaviour but supportive of the individual.”

DISCUSSION

Participants from rural, town, and urban settings raised substantively the same issues about applying these seven specific recommendations relevant to primary care of patients with chronic ischemic heart disease. Although the details differ, participants identified an array of opportunities for and obstacles to implementation of CV recommendations.

As we have previously argued, applying evidence in primary care is extremely complex.¹⁹ Our findings reveal two substantial issues that emerge from attempts to implement specific CV recommendations. First, FPs must understand and weigh patients’ understanding of personal risks and the potential for disease. Second, existing relationships between FPs and their patients are key to such efforts. Moreover, each of these issues can either facilitate or limit implementation of or adherence to specific CV recommendations. Our findings also help characterize “care gaps” by revealing factors that influence whether or not a goal or target is realistic for specific patients.

Our findings also indicate that any substantial success at reducing CV risks will require involvement of many health professionals and support from a variety of community resources. Nurses in family practices enhance lipid lowering through counseling. Hospital and community education programs play a vital role immediately after an event and in the follow-up period. Nutritionists were also identified as making a substantial contribution, but they are in short supply in the communities in our study. Specialists play an important role in establishing a standard for the medical community, incorporating evidence (such as the low-density lipoprotein cholesterol levels for high-risk patients) into their consultations and teaching. The need for consistent messages across disciplinary boundaries has recently been identified by the Achieving Cardiovascular Health in Canada partnership.³⁸

Our study of evidence-based CV recommendations also reveals potential incongruities between medical evidence and public perceptions of risk. While strong and plentiful evidence underpins current recommendations, patients might not intuitively see their importance. The examples of asymptomatic patients or of preventing future events each reveal particular challenges that could require new or different approaches. Individual experiences and interpretations of those experiences could overrule other factors. Thus, patients who have an event might believe that they are more susceptible to future events or complications; other factors, such as existing social responsibilities (important relationships, for example), could also shape patients’ perceptions of their vulnerability. Our findings, therefore, underscore the importance of belief in perceived susceptibility and belief in perceived benefits, two specific aspects of the health belief model.³⁹

Patients also put specific recommendations in the context of their total health and social situation. If they have comorbidity, they must weigh various choices, and such complexities fit poorly with guidelines developed for a single disease, also a concern of the Achieving Cardiovascular Health in Canada partnership.³⁸ Family physicians are sensitive to these issues and tailor their practice accordingly. Rather than overwhelm their patients, some choose to move more slowly when adding medications or recommending lifestyle changes. Physicians also abandon strict adherence to recommendations in order to accommodate their patients’ varied interests. In this way, FPs attempt to bridge two of the dominant paradigms of contemporary medicine, evidence-based medicine and patient-centred medicine.⁴⁰ What works well for one patient might not work for another. A variety of strategies, pursued over time, are necessary, and FPs are ideally positioned to match strategies with patients.

The positive aspects of physician-patient relationships in terms of continuity, prior knowledge of patients, prior experience with trust, and confidence in clinical decision making shape how evidence is applied by these FPs. There is evidence that continuity for patients over time with the same

provider is more likely to increase adherence to medication regimens⁴¹ and satisfaction with care.⁴² Our findings are consistent with an hypothesis that such continuity allows evidence to be applied better when the context of individual patients is known.

This study was limited to discussion of selected CV recommendations that were well supported by evidence. The place of recommendations in day-to-day family practice might be more ambiguous in other clinical areas. Another limitation is that our study included only FPs. Neither patients nor specialists were interviewed. Further inquiry is needed in other geographic settings, for other clinical conditions, and from patients and other health care providers to better explore these ideas.

CONCLUSION

This inquiry refocuses attention from the simple dissemination of evidence to physicians toward the issue of translating evidence in a meaningful way for patients. Family physicians must account for patients' health beliefs, preferences, and comorbidity, and for both positive and negative effects of patient-physician relationships on patients' behaviour. Guidelines or consensus statements might be more useful for FPs if written with a staged approach to implementation, particularly for use among patients with comorbidity. When the relationship is an impediment, as occasionally occurs with lifestyle issues, other health professionals have a complementary role in counseling and educating patients. ❁

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Contributors

Drs Putnam, Twohig, and Burge participated in the concept and design of the project, in acquisition of data, in analysis and interpretation of data, in drafting and

EDITOR'S KEY POINTS

- This study of family practice in Nova Scotia explored obstacles to and opportunities for implementing seven lifestyle and pharmacologic recommendations for improving primary care of patients with cardiovascular disease.
- Among factors that have a positive influence are critical events (illnesses) that cause patients to modify their behaviour, patients' confidence in their physicians, and the continuity of patient-physician relationships.
- Among the obstacles are the asymptomatic nature of many risk factors, the presence of other health problems that take priority, and patients' reluctance to take a lot of medication.

POINTS DE REPÈRE DU RÉDACTEUR

- Cette étude chez des médecins de famille de Nouvelle-Écosse identifie les facteurs qui favorisent l'implantation de sept recommandations pour optimiser les soins cardiovasculaires en première ligne (modifications des habitudes de vie ou interventions pharmacologiques) ou qui y nuisent.
- Parmi les facteurs ayant une influence positive, on mentionne un événement critique (ex. maladie) incitant les patients à modifier leurs comportements. La confiance du patient à l'endroit de son médecin et la continuité de cette relation sont deux facteurs perçus comme ayant une influence favorable.
- Parmi les facteurs faisant obstacle, on retrouve le caractère asymptomatique de plusieurs facteurs de risque, la coexistence d'autres problèmes de santé jugés plus prioritaires et la réticence des patients à prendre plusieurs médicaments.

revising the manuscript, and in approval of the final submission. Drs Jackson and Cox participated in the concept and design of the project, in analysis and interpretation of data, in critical revision of drafts for intellectual content, and in approval of the final submission.

Competing interests

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