

# Why are there gaps in our management of those with high cardiovascular risk?

**Fiona Doolan-Noble** MPH(CDist), PGDip PH, RGN; **Jocelyn Tracey** MBChB, FRNZCGP, PhD;  
**Stewart Mann** DM(Oxon), FRCP, FRACP, FCSANZ

Department of Medicine,  
 University of Otago,  
 Wellington, New Zealand

## ABSTRACT

**INTRODUCTION:** Multiple New Zealand and other international studies have identified gaps in the management of those identified at high risk of a future cardiovascular (CV) event. This study sought to explore the views of health professionals about the barriers and facilitators present within the current primary health care system to the optimal management of those at high CV risk.

**METHODS:** This qualitative study utilised a focus group methodology to examine the barriers and facilitators within primary health care (PHC), and employed a general inductive approach to analyse the text data.

**FINDINGS:** The analysis of text data resulted in the emergence of interrelated themes, underpinned by subthemes. The patient, their circumstances and their characteristics and perceptions provided the first key theme and subthemes. The next key theme was primary health care providers, with subthemes of communication and values and beliefs. The general practice was the third theme and included multiple subthemes: implementation planning and pathway development, time and workload and roles and responsibilities. The final main theme was the health system with the subthemes linking to funding and leadership.

**CONCLUSION:** This study determined the factors that act as barriers and facilitators to the effective management of those at high CV risk within the New Zealand PHC sector. General practice has a pivotal role in preventive health care, but to succeed there needs to be a refocusing of the PHC sector, requiring support from policy makers, District Health Boards and Primary Health Organisations, as well as those working in the sector.

**KEYWORDS:** Primary health care; high cardiovascular risk management; general practitioners; practice nurses; barriers; facilitators.

## Introduction

Despite significant reductions in the cardiovascular disease (CVD) death rate since the 1960s, it remains the leading cause of death in New Zealand.<sup>1,2</sup> The decline in age-adjusted CVD mortality has been attributed to favourable trends in risk factors such as hypertension and smoking, as well as the increased use of effective pharmacological and medical interventions.<sup>3–6</sup> The decline in CVD mortality has been accompanied by a growth in life expectancy and hence the aged sector of society,<sup>2</sup> and these factors, along with increasing obesity and diabetes rates, are predicted to increase the incidence and prevalence of CVD in society.<sup>7</sup>

The development of CVD is multifactorial,<sup>8</sup> with the presence of multiple risk factors increasing the probability of an individual experiencing a cardiovascular (CV) event.<sup>8,9</sup> Clustering of risk factors is now the norm,<sup>8,10,11</sup> with an American study, which reviewed data from the 2001 National Health Interview Survey, estimating that only 10% of the adult population had none of the four risk factors considered: smoking, being overweight, physical inactivity and risky drinking.<sup>10</sup> This picture is mirrored in New Zealand, with Maori and Pacific populations being more likely to be affected by the burden of multiple modifiable risk factors.<sup>12,13</sup>

J PRIM HEALTH CARE  
 2012;4(1):21–29.

**CORRESPONDENCE TO:**  
**Fiona Doolan-Noble**  
 Department of Medicine,  
 University of Otago,  
 Wellington, New Zealand  
 Fiona@extra.co.nz

Several studies both nationally and internationally have consistently demonstrated suboptimal management of those at high CV risk.<sup>14–18</sup> In an attempt to focus attention on the process of cardiovascular risk reduction, the New Zealand Guidelines Group launched the 2003 guideline *The Assessment and Management of Cardiovascular Risk*.<sup>19</sup> This guideline was updated and combined with others in 2009 to encompass a range of evidence-based cardiovascular guidelines.<sup>20</sup> The CV risk assessment and management guidelines focused on prevention strategies within primary care. Since their launch, significant effort has been invested in raising awareness of their content across the health care sector by key organisations, such as the National Heart Foundation, the New Zealand Guidelines Group, the Ministry of Health and the Cardiac Society of Australia and New Zealand. To date, ap-

proximately 13% of this group would have a five-year risk of greater than 15%, requiring lifestyle and possibly pharmaceutical management of their risk. This 13% does not include the 7% who have a risk greater than 20% due to a previous non-fatal myocardial infarction, stroke or diagnosis of angina. This high-risk group also requires annual risk factor assessment and continuous monitoring.<sup>20</sup>

While evidence exists highlighting the suboptimal management of those at high CV risk,<sup>14,16</sup> it also supports the significant role primary care has the potential to play in the prevention of CVD.<sup>24</sup> However, there is currently a gap in the research around the drivers of suboptimal management within the current New Zealand PHC setting.

This study, therefore, sought to determine factors that primary health care professionals considered facilitated or hindered the management of those at high CV risk in the current New Zealand PHC environment, as well as their opinions around ways to enhance the management.

## Methods

This study utilised a qualitative methodology and involved focus groups with general practitioners (GPs) and practice nurses (PNs). An extensive literature search resulted in the emergence of key themes, these then informed the development of prompts, which were used in conjunction with a focus group schedule of open-ended questions.<sup>25</sup> The questions were designed to start discussion around broad topic areas, and prompts were listed to ensure that issues identified in the literature and relevant to the research question were introduced into the discussion. The prompts within the interview schedule covered the following areas: patient characteristics and perceptions, professional attitudes, behaviours, skills and knowledge, as well as structural, organisational and funding issues.

A sampling frame was developed, ensuring that participants were drawn from Primary Health Organisations (PHOs) that represented a diversity of primary care practices. The variables considered within the sampling frame were:

**While evidence exists highlighting the suboptimal management of those at high CV risk, it also supports the significant role primary care has the potential to play in the prevention of CVD.**

proximately 36.3% of high-needs populations and 32.3% of the total eligible population have had a cardiovascular risk assessment.<sup>21</sup>

To reduce the incidence and prevalence of CVD it is essential that effective primary prevention of CVD becomes embedded within the primary health care (PHC) sector. For approximately half of all individuals, their first myocardial infarction will be fatal,<sup>3</sup> and for many, a diagnosis of angina is the first symptom they experience of coronary artery disease.<sup>22</sup>

The challenge, however, of ensuring those identified at high CV risk (a greater than 15% risk of having a significant CV event within the next five years) are managed effectively is a significant one for the PHC sector. In 2006, Wells et al.<sup>23</sup> estimated that approximately 2 087 200 New Zealanders met the criteria for a cardiovascular risk assessment (CVRA). They calculated that

- large versus small PHO;
- urban versus rural PHO;
- clinically dominant governance versus community dominant governance;
- Maori versus mainstream PHO;
- length of time undertaking cardiovascular risk assessments—six months, one year, three years, five years;
- type of electronic clinical decision support used.

In total, four PHOs were approached that met one or more of the variables in the sampling frame.

A key contact at each PHO facilitated the dissemination of an information sheet, a consent form, and a brief demographic form for completion by potential participants. This person also arranged the venues for the focus groups. Each participant received a \$50 petrol voucher in appreciation of their time.

The focus groups lasted for 1.5 hours, were digitally recorded and the recordings transcribed verbatim. A copy of the transcription was returned to participants for review, giving participants an opportunity to add further comments.

The text data was analysed as a whole and not by individual focus group. A general inductive approach was used to analyse the text data, resulting in the emergence of key themes.<sup>26</sup>

To ensure the analysis of the text data was trustworthy, one supervisor independently consid-

## WHAT THE GAP THIS FILLS

**What we already know:** Currently the management of those at high cardiovascular risk in the primary care setting is suboptimal, in New Zealand and elsewhere.

**What this study adds:** This study explains the drivers of suboptimal management from the perspective of primary health care professionals, providing an understanding for the existence of the gap in the management of those at high cardiovascular risk in the New Zealand setting. Solutions pertinent to the New Zealand situation are presented.

ered the text data and its interpretation by the researcher.

The study took place between July 2009 and June 2010. Ethical approval for this study was obtained from the University of Otago's ethics committee.

## Findings

Three focus groups took place with participants coming from three distinct PHOs. Table 1 illustrates which of the sampling frame variables the PHOs met.

In total, across the three focus groups, there were 29 participants. The split between general practitioners (GPs) and practice nurses (PNs) was even across the whole sample, with a PHO information analyst participating in one focus group. Eight GPs and seven PNs were 45 years or

Table 1. Overview of components of sampling frame met

	PHO 1	PHO 2	PHO 3
Large		x	x
Small	x		
Urban		x	x
Provincial	x		
Rural			
Clinically dominant governance	x		
Community dominant governance		x	x
Maori PHO			x
Mainstream PHO	x	x	
Length of time undertaking risk assessment: <1yr, 1–2 yrs, 3–4 yrs, 5+ yrs	3 yrs	5 yrs	3 yrs
Type of decision support used	Predict	EDGE	EDGE

older. There was an even split between those who were qualified for less than 20 years and those qualified for greater than 20 years. Two GPs and PNs were Maori, five PNs were Pacific Islanders and the remaining participants were non-Maori, non-Pacific Islander.

The analysis of the text data from the focus groups resulted in the emergence of a model of interrelated themes, as illustrated in Figure 1.

The four themes each consisted of subthemes. The first main theme of the patient comprised the following subthemes: the circumstances in which the patient lived, and the patient's characteristics and perceptions.

### The patient

#### *Circumstances in which the patient lived*

Participants spoke of feeling overwhelmed by patients who are burdened by poverty and whose environments made the challenge of successfully making positive lifestyle changes problematic.

"The environment many of our patients live in is not conducive to making lifestyle behavioural changes... multiple fast food outlets, pavements may not be safe, lack of cycle ways etc." (F1)

#### *Patients' characteristics and perceptions*

The fatalistic acceptance by patients from certain cultural groups regarding their health was a challenge for some participants.

"Some of the Maori and Pacific Island... have this perception... that their parents died at such an age so, they're not gonna make it past that age anyway,

so let's not take medications or do whatever. That's really common." (F2)

Individuals at high CV risk can be asymptomatic, and this was seen to create difficulties potentially, as these patients could be difficult to motivate.

"...because they, don't feel unwell. They don't feel sick, so it's really difficult to get their attention, motivation to get things. Like say they, they come with gout or something, you know they know..." (F3)

In addition, the perception some patients had that the health system would take responsibility for their health was considered a difficult issue to address.

"And people across the board... like us to take responsibility for their health. And what we are trying to do is get them to take responsibility and traditionally that's not been the case." (F2)

### Primary health care providers

The second key theme related to the primary health care providers themselves, general practitioners and practice nurses, the issues that impacted on how they worked in relation to supporting patients to make lifestyle changes and effectively self-manage their risk. This theme fell into two subthemes: communication and motivating behaviour change, and values and beliefs.

#### *Communication and motivating behaviour change*

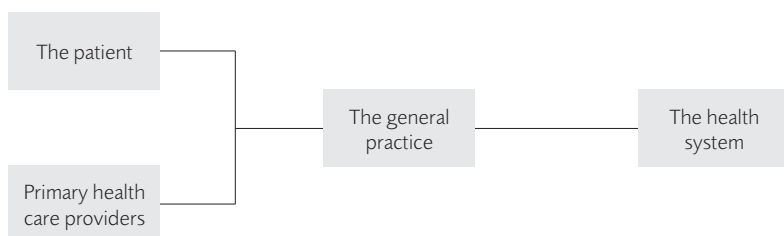
The challenge of conveying the concepts of self-management and absolute risk were two commonly raised communication challenges.

"The concept of preventive care and 'self-management' is often a difficult one to impart." (F3)

"I think one of the biggest challenges is that the average person isn't trained in statistics and understanding risk and absolute risk and relative risk and all those things that we, (health professionals), struggle to understand... I've not completely figured that out." (F2)

A recurrent topic associated with communication was the resources available to assist primary

Figure 1. Linked model of interrelated themes



health care with cardiovascular risk assessment and management. The National Heart Foundation's (NHF's) flip charts designed for primary health care were considered to contain useful information, but their design was believed to be cumbersome for use in a consultation. However, the latest electronic tool from the NHF, Your Heart Forecast,<sup>27</sup> developed in association with The University of Auckland was well liked and found to be useful both in the practice and outreach settings. One Maori/Pacific outreach nurse discussed how she got the whanau involved using the electronic tool, and how that facilitated useful discussion.

"...you talk to the whole family about that, the patient. 'Cause that's what the patient wants. Plus the family want that as well. And that helps make some influence over how, how changes occur." (F2)

Primary health care's longitudinal relationship with patients was seen as a facilitator for behaviour change.

"I've just felt that I was getting nowhere with, then there's been something else that happened. For one it was another family member had a heart attack, and then it suddenly dawns on them, and all the work that you've done in the past is actually quite helpful." (F2)

### *Values and beliefs*

The second subtheme in this category was around values and beliefs of health professionals. For general practitioners in particular, the benefits of behaviour change and the domination of the acute presentation impacted on their behaviour toward, and commitment to, preventive health care.

"So as a doctor my first priority is actually to treat the illness... and when I'm treating illness, my first priority is to treat the most urgent illness first." (F3)

"I personally feel I could spend a lot of time on these patients (those at high risk), but the actual outcome would be possibly minimal." (F3)

Participants saw real benefit in trying to match the ethnicity of the health provider to the patient.

"Because I'm half Samoan, half Tokelauan, I, I understand their mannerisms..." (F3)

### *The general practice*

The third main theme was associated with the general practice and produced a wide range of subthemes, including implementation planning, time, workload, roles and responsibilities.

#### *Implementation planning and pathway development*

All three focus groups spoke of the need to provide training, consider how the programme would be implemented and ensure infrastructure was in place prior to launching a CVRA and management programme within general practice.

"There's a really good pathway that was set up when, before we started this, which was, you know, the free GP visit... the dietician visit, the Green Prescription. And it's really good." (F2)

#### *Time and workload*

The additional time needed and workload generated by identifying those at high cardiovascular risk was frequently discussed.

"...you can give an immunisation and, well you know, apart from running around a few they don't wanna have it done, it's given, but for behaviour change, that takes time and it doesn't just happen in one session." (F3)

#### *Roles and responsibilities*

Clarity around the roles and responsibilities of general practitioners and practice nurses, was identified as assisting with the process of CVRA and management in the general practices visited.

"The doctors are more involved in risk assessment; the practice nurses are more concerned with the lifestyle management." (F1)

Participants spoke of strategies they already use within general practice to improve the management of those at high CV risk, including the use of audit, quality improvement cycles,

computer-generated reminders and the provision of free follow-up appointments for those at high risk as strategies.

### The health system

The final theme that emerged was that of the wider health system, namely the Ministry of Health (MoH) and District Health Boards (DHBs).

#### Funding

At both DHB and MoH levels concern was expressed regarding funding of preventive health care.

“Our perception is the, DHB, for example, are more interested in hospital medicine, that’s what they’re about, and primary health care, particularly prevention is an option...” (F2)

“Ministry talks a lot about prevention of illness and disease, but they just don’t fund it. It’s expected to happen.” (F2)

A participant also alluded to the fact that certain initiatives in primary health care such as Care Plus and Diabetes Get Checked can drive priorities.

“...if I am blunt about it, guided by where we get our funding from. Care Plus gives us funding. Diabetic Project gives us funding. Immunisation gives us funding.” (F3)

Unease was expressed regarding the running of ‘pilots’ within DHBs, with short-term funding tagged to them.

“Short-term contracts to run pilots, which just as you are gaining some traction the contract runs out, funding ceases and the programme falls over.” (F1)

#### Leadership

The lack of strong leadership and consistent messages from the MoH in relation to chronic conditions and heart health was mentioned as a concern.

“I’ve seen three changes in long-term condition strategies, at a government level. And there is no

consistency going down the line about how we should work within those strategies...” (F2)

In addition to the solutions already used within practices and identified by participants, they spoke of other ways they thought would enhance the management of those at high CV risk. These potential solutions were mainly focused at the general practice level and included the co-location of allied health staff in an integrated centre making access easier.

“...if I sent them to a dietician, or to Pacific Health for Quitline or Smokefree they don’t go, but if it’s here somehow I think it’d be easier.” (F3)

Other proposed ideas encompassed the need to ensure everyone was providing consistent messages; having Your Heart Forecast<sup>27</sup> available in waiting rooms so patients could complete it prior to a consult and so provide a starting point for discussions, and more time for risk management appointments.

The other level where participants thought change could assist them in supporting individuals make behaviour changes was at the population policy level. The need for ongoing tobacco legislation and positive food legislation, such as the removal of GST on fresh fruit and vegetables, were two points frequently mentioned.

The use of incentives for patients was seen as having the potential to motivate individuals, making the job of promoting and supporting lifestyle behaviour change possibly easier.

“For the majority of our enrolled patients with their cultural/socioeconomic and educational background I feel that perhaps some form of incentives... e.g. for seeing the doctor and being on medications regularly might be a push/carrot factor.” (F1)

### Discussion

Focus group participants in this study discussed multiple reasons why risk factor management is not always optimal within the current New Zealand PHC setting. Many of the themes and subthemes that emerged have previously been mentioned in the international literature.



A dominant subtheme was the challenge associated with changing risky lifestyle behaviours of those living with social and economic disadvantage. The need to “change the non-medical stuff” (F2)—e.g. improving neighbourhood environments and legislative regulation—were seen as key factors to reduce the challenge with this group of patients. The option of incentivising patients was seen as another strategy for supporting the adoption of healthy habits. This novel option is mentioned in the literature.<sup>28</sup> A blended model of incentives for the GP/practice and the patient to achieve health targets was recently discussed at a conference, and the Australian Medical Association has asked for the concept to go on to the reform agenda.<sup>29</sup>

Communication and motivating behaviour change were identified as significant challenges both by group participants and in the literature.

and frequently the engagement between the two is inadequate.<sup>38</sup>

Participants, especially general practitioners, expressed a level of uncertainty regarding their ability to positively impact on a patient's success in making sustained lifestyle changes. Adherence to lifestyle changes and medications varies widely between 20% and 90%,<sup>39</sup> with estimates generally averaging around 50%.<sup>40</sup> Many doctors receive communication skills training during medical school, but very few are exposed to effective counselling techniques,<sup>41</sup> resulting in low levels of self-efficacy in this area, as observed in this study and elsewhere.<sup>41</sup>

Participants acknowledged that matching a patient with a health professional of similar ethnicity could positively impact on the consultation and the individual's attempts at making lifestyle

**Participants, especially general practitioners, expressed a level of uncertainty regarding their ability to positively impact on a patient's success in making sustained lifestyle changes. Adherence to lifestyle changes and medications varies widely between 20% and 90%,<sup>39</sup> with estimates generally averaging around 50%.**

Conveying CV risk levels was viewed as difficult by group participants and identified in the literature as a challenge.<sup>30</sup> The literature points to an individual's perception of their CV risk as a significant barrier,<sup>31–34</sup> and participants alluded to this. Risk factors do not always give rise to symptoms, so patients may not understand the need to make lifestyle changes.<sup>35</sup> In another study a patient expressed the following: “How do I convince myself about the fact that I should act preventively, when I feel well?”<sup>36</sup> Participants felt their communication skills also impacted on their ability to instil the need for self-care/responsibility. There are low numbers of PHC staff trained in self-management.<sup>37</sup> Staff in PHC have the potential to access support from community self-management programmes; however, these are generally established alongside PHC

changes. If the health care provider and patient are from different cultures, there may be less listening and discussion, a lower standard of care and less attention to establishing, building and maintaining a relationship,<sup>42</sup> all of which may impact negatively on the individual's ability to manage their CV risk.

Time constraints were a frequently mentioned issue in both focus groups and the literature,<sup>35,41,43</sup> with Wells et al. concluding that, “...management of CVD risk in New Zealanders with raised CVD risk will be a major undertaking for health care services.”<sup>23</sup> A key strategy reported in the literature for addressing the time issue (“the tyranny of the ‘15-minute consult’”)<sup>44</sup> was the use of a team approach as opposed to a medically centric model.<sup>44,45</sup> Participants appeared to have a sound

understanding of the need for clarity around roles and responsibilities of team members, with participating GPs freely discussing the significant contribution PNs played in CV risk management. The importance of the role of PNs to CV risk management has previously been reported in two New Zealand papers.<sup>46,47</sup>

Participants spoke of the significant barriers that exist within the wider health system, including competing health priorities, funding issues and legislative regulation issues. Preventive health care was perceived by participants to be of a low priority for both the MoH and DHBs and inadequately funded. The evidence around appropriate funding of preventive health care within the PHC sector is inconclusive.<sup>48</sup>

The MoH has now included CV risk assessment as one of the clinical indicators measured in the PHO Performance Management Programme, although it has not incentivised optimal management of those at high cardiovascular risk. The potential for other funding streams, such as Care Plus, Diabetes Get Checked and Immunisations to drive care, therefore remains.

Limitations within this study included the lack of participation by health professionals from a PHO where a systematic programme of CVRA has not been established. As a result, the perspective of these PHC staff is not included. In addition, focus groups participants had pre-existing relationships which may have impacted on discussion within the groups.<sup>49</sup> All participants, however, were provided with other opportunities to offer their views if they chose.

## Conclusion

This study determined the factors that act as barriers and facilitators to the effective management of those at high CV risk within the New Zealand PHC sector. If general practice is to fulfil its pivotal role in the prevention of chronic non-communicable diseases, including heart disease, it is essential that there is a refocusing of the PHC sector. This will require support from policy makers, DHBs and PHOs, as well as those working in the sector.

## References

1. Hay D. Cardiovascular disease in New Zealand. A summary of recent statistical information. Technical Report, No 82, Heart Foundation 2004. 2004.
2. Beaglehole R, Bonita R. Heart health in New Zealand. *NZ Med J*. 2009;122;(1288).
3. Kabir Z, Bennett K, Shelley E, Unal B, Critchley J, Capewell S. Comparing primary prevention with secondary prevention to explain decreasing coronary heart disease death rates in Ireland, 1985–2000. *BMC Public Health*. 2007;7:117.
4. Ford E, Ajani U, Croft J, Critchley J, Labarthe D, Kottke T, et al. Explaining the decrease in U.S. deaths from coronary disease, 1980–2000. *New Eng Med J*. 2007;356(23):2388–98.
5. Björck L, Rosengren A, Bennett K, Lappas G, Capewell S. Modelling the decreasing coronary heart disease mortality in Sweden between 1986 and 2002. *Eur Heart J*. 2009;January 13.
6. Bennett K, Kabir Z, Unal B, Shelley E, Critchley J, Perry I, et al. Explaining the recent decrease in coronary heart disease mortality rates in Ireland, 1985–2000. *J Epidemiol Comm Health*. 2006;60:322–27.
7. Capewell S, Lloyd-Jones D. Optimal cardiovascular prevention strategies for the 21st century. *JAMA*. 2010;304(18):2057–58.
8. Yusuf S, Giles W, Croft J, Anda R, Casper M. Impact of multiple risk factor profiles on determining cardiovascular disease risk. *Prev Med*. 1998;27(1):1–9.
9. Berenson G, Drinivasan S, Bao W, Newman W, Tracy R, Wattigney W. Association between multiple cardiovascular risk factors and atherosclerosis in children and young adults. *New Eng Med J*. 1998;338(23):1650–56.
10. Fine L, Philogene G, S, Gramling R, Coups E, J, Sinha S. Prevalence of multiple chronic disease risk factors 2001 National Health Interview Survey. *Am J Prev Med*. 2004;27(25):18–24.
11. Sturkenboom M, Dieleman J, Picelli G, Mazzaglia G, Mozaffari E, Filippi A, et al. Prevalence and treatment of patients with multiple concomitant cardiovascular risk factors in the Netherlands and Italy. *J Hum Hypertens*. 2008;22:704–13.
12. Kerr A, McLachlan A, Furness S, Broad J, Riddell T, Jackson R, et al. The burden of modifiable cardiovascular risk factors in the coronary care unit by age, ethnicity, and socioeconomic status—PREDICT CVD 9. *NZ Med J*. 2008;121(1285):20–32.
13. Peiris D, Murray J, Scully D, Tilakawardene V, Heteraka-Stevens L, Stewart T, et al. Cardiovascular risk management at a Maori-led primary health organisation—findings from a cross-sectional audit. *NZ Med J*. 2008;121(1285):35–45.
14. Riddell T, Jackson R, Wells S, Broad J, Bannink L. Assessing Maori/non-Maori differences in cardiovascular disease risk and risk management in routine primary care practice using web-based clinical decision support: PREDICT CVD2. *NZ Med J*. 2007;120(1250).
15. Wensing M, van Lieshout J, Campbell S, Ludt S, Volbracht E, Grol R. EPA Cardio—improving cardiovascular prevention and risk factor management in European primary care. Berlin: Bertelsmann Stiftung and Scientific Institute for Quality Health-care, Radboud University Nijmegen, Netherlands; 2009.
16. Rafter N, Wells S, Stewart A, Selak V, Whittaker R, Bramley D, et al. Gaps in primary care documentation of cardiovascular risk factors. *NZ Med J*. 2008;121(1269):24–33.
17. Heeley E, Peiris D, Patel A, Cass A, Weekes A, Morgan C, et al. Cardiovascular risk perception and evidence—practice gaps in Australian general practice (the AusHEART study). *Med J Aust*. 2010;192(5):254–59.
18. Webster R, Heeley E, Peiris D, Bayram C, Cass A, Patel A. Gaps in cardiovascular disease risk management in Australian general practice. *Med J Aust*. 2009;191(6):324–29.
19. The New Zealand Guidelines Group. Best practice evidence-based guideline: the assessment and management of cardiovascular risk. Wellington; 2003.



20. New Zealand Guidelines Group. New Zealand cardiovascular guidelines handbook: a summary resource for primary care practitioners. 2nd ed. Wellington: New Zealand Guidelines Group; 2009.
21. PHO Performance Programme. National summary of PHO performance 1st January 2010–30th June 2010. Wellington: PHO Performance Programme; 2010.
22. Jain A, Wadehra V, Timmis A. Management of stable angina. *Postgrad Med J*. 2003;79:332–36.
23. Wells S, Broad J, Jackson R. Estimated prevalence of cardiovascular disease and distribution of risk in New Zealanders: data for healthcare planners, funders, and providers. *NZ Med J*. 2006;119(1232).
24. Harris M. The role of primary health care in preventing the onset of chronic disease, with a particular focus on the lifestyle risk factors of obesity, tobacco and alcohol: National Preventative Health Taskforce; 2008.
25. Barbour R. The role of qualitative research in broadening the 'evidence base' for clinical practice. *J Eval Clin Pract*. 2000;6(2):155–63.
26. Thomas D. A general inductive approach for qualitative data analysis. Auckland: School of Population Health, The University of Auckland; 2003:11.
27. Wells S, Kerr A, Eadie S, Wiltshire C, Jackson R. 'Your Heart Forecast': a new approach for describing and communicating cardiovascular risk? *Heart* 2010;96:708–13.
28. Marteau T, Ashcroft R, Oliver A. Using financial incentives to achieve healthy behaviour. *Br Med J*. 2009;338:983–85.
29. Brettingham-Moore C. Pay for performance for patients: incentivising lifestyle change. *Med Observer*. 4th June, ed, 2010.
30. Wan Q, Harris M, Zwar N, Vagholkar S. Sharing risk management: an implementation model for cardiovascular absolute risk assessment and management in Australian general practice. *Int J Clin Pract*. 2008;62(6):905–11.
31. van der Weijden T, van Steenkiste B, Stoffers H, Timmermans D, Grol R. Primary prevention of cardiovascular diseases in general practice: mismatch between cardiovascular risk and patients' risk perceptions. *Med Decis Making*. 2007;27(6):754–61.
32. Marteau T, Kinmonth A-L, Pyke S, Thompson S. Readiness for lifestyle advice: self assessments of coronary risk prior to screening in the British family heart study. *Br J Gen Pract*. 1995;45:5–8.
33. Sanderson S, Waller J, Jarvis M, Humphries S, Wardle J. Awareness of lifestyle risk factors for cancer and heart disease among adults in the UK. *Patient Educ Couns*. 2009;74:221–27.
34. Chauhan U. Cardiovascular disease prevention in primary care. *Br Med Bull*. 2007;81–82(1):65–79.
35. Terre L. Cardiovascular risk reduction: we have the will but do we have the way? *Am J Lifestyle Med*. 2007;1(1):34–37.
36. Kehler D, Christensen B, Lauritzen T, Christensen M, Edwards A, Bech Risor M. Ambivalence related to potential lifestyle changes following preventive cardiovascular consultations in general practice: a qualitative study. *BMC Fam Practice*. 2008;9:50.
37. Lake A, Staiger P. Seeking the views of health professionals on translating chronic disease self management models into practice. *Pat Educ Couns*. 2010;79:62–68.
38. Harris M, Williams A, Dennis S, Zwar N, Powell Davies G. Chronic disease self-management: implementation with and within Australian general practice. *Med J Aust*. 2008;189(10):S17–S20.
39. Koelewijn-van Loon M, van der Weijden T, van Steenkiste B, Ronda G, Winkens B, Severens J, et al. Involving patients in cardiovascular risk management with nurse led clinics: a cluster randomised controlled trial. *Can Med Assoc J*. 2009;181(12):267–74.
40. Koelewijn-van Loon M, van Steenkiste B, Ronda G, Wensing M, Stoffers H, Elwyn G, et al. Improving patient adherence to lifestyle advice (IMPALA): a cluster-randomised controlled trial on the implementation of a nurse-led intervention for cardiovascular risk management in primary care (protocol). *BMC Health Serv Res*. 2008;8(9).
41. Benjamin E, Smith S, Copper R, Hill M, Luepker R. Task Force #1—magnitude of the prevention problem: opportunities and challenges. *J Am Coll Cardiol*. 2002;40(4):579–651.
42. Jansen P, Smith K. Maori experiences of primary health care: Breaking down the barriers. *NZ Fam Phys*. 2006;33(5):298–300.
43. Aspy C, Mold J, Thompson D, Blondell R, Landers P, Reilly K, et al. Integrating screening and interventions for unhealthy behaviors into primary care practices. *Am J Prev Med*. 2008;35(5S):S373–S80.
44. Bodenheimer T, Laing B. The teamlet model of primary care. *Ann. Fam. Med*. 2007;5(5):457–61.
45. Glasgow R, Goldstein M, Ockene J, Pronk N. Translating what we have learned into practice. Principles and hypotheses for interventions addressing multiple behaviors in primary care. *Am J Prev Med*. 2004;27(2S):88–101.
46. Waldron S, Horsburgh M. Cardiovascular risk assessment: Audit findings from a nurse led clinic—a quality improvement initiative. *J Prim Health Care* 2009;1(3):226–31.
47. Horsburgh M, Goodyear-Smith F, Yallop J, O'Connor S. Implementation of a nursing initiative in primary care: a case report, cardiovascular disease risk reduction. *NZ Fam Phys*. 2008;35(3):183–86.
48. Young D, Gunn J, Naccarella L. Funding policy options for preventive health care within Australian primary health care. Melbourne: Department of General Practice, University of Melbourne; 2008.
49. Gibbs A. Focus Groups. Social research update. Guildford: University of Surrey; 1997.

## ACKNOWLEDGEMENTS

The authors wish to acknowledge the PHOs that agreed to member general practitioners and practice nurses being interviewed, as well as the individuals themselves for taking part.

## FUNDING

Funding for this research was provided by the Capital Cardiovascular Research Trust, Wellington.

## COMPETING INTERESTS

Fiona Doolan-Noble:  
None declared

Jocelyn Tracey:  
None declared

Stewart Mann:  
Member of the New Zealand Guidelines Group task force responsible for the 2003 Guidelines on cardiovascular risk and the 2009 handbook revision.