

Prevention of cardiovascular disease in rural Australian primary care: an exploratory study of the perspectives of clinicians and high-risk men

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Abstract. Rural primary care services have the potential to play a major role in reducing the gap in cardiovascular disease (CVD) outcomes between rural and metropolitan Australians, particularly in men at high risk of CVD. The aim of this study was to explore the self-reported behaviours and satisfaction with their general practice/practitioner of men at high risk of CVD, and attitudes of rural primary care clinicians regarding the role of primary care in CVD prevention. This observational research was addressed through survey questionnaires with rural men at high risk of CVD and semi-structured interviews with rural primary care clinicians. Fourteen rural primary care practices from towns with populations less than 25 000 participated. One hundred and fifty-eight high-risk men completed the questionnaire. Their responses demonstrated poorly controlled risk factors despite a willingness to change. Alternatively, rural primary care clinicians ($n = 20$) reported that patients were unlikely to change and that illness-based funding models inhibited cardiovascular preventive activities. Australians living in rural areas have worse CVD outcomes. In addition, there is a disparity in the assumptions of health providers and male patients at high risk of CVD in rural areas. This necessitates innovative rural primary care models that include a blended payment system that incentivises or funds preventive care alongside an emphasis on lifestyle advice, as well as an explicit strategy to influence clinician and patient behaviour to help address the disparity.

Additional keywords: health policy, health services research, primary health care, primary prevention, rural health.

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Introduction

Rural and remote Australians have substantially higher death and hospitalisation rates for cardiovascular disease (CVD) than people from metropolitan areas (Australian Bureau of Statistics 2012). Access to health services for the 7 million rural and remote Australians spread across approximately 7 million square kilometres is a contributing factor. There is also the compounding issue of substantially worse risk-factor profiles, as rural and remote Australians are far more likely than metropolitan residents to smoke, drink harmful levels of alcohol and be obese (Australian Institute of Health and Welfare 2011). At particular risk of developing CVD are older males with one or more preventable risk factors (Wilson *et al.* 1998; Ludt *et al.* 2012).

Evidence indicates that the integration of targeted CVD prevention and management activities into rural primary care

can substantially improve risk-factor profiles and CVD outcomes (Huang *et al.* 2009; Kinsman *et al.* 2012). Modelling shows that improvements in general practice CVD prevention and screening can substantially reduce premature heart disease deaths in Australia (National Heart Foundation of Australia 2010). However, large numbers of primary care patients do not have their risk factors identified or managed appropriately (Elley *et al.* 2003; Yusuf *et al.* 2004; Mosca *et al.* 2005; Wittchen *et al.* 2005). Our research has shown that patients at high risk of CVD in rural Australian settings are missing out on routine prevention activities in primary care, particularly in relation to diet and physical activity (Allenby *et al.* 2015). These results compared poorly with a large-scale European Practice Assessment (EPA)-CVD study conducted in nine European countries (3723 patient records; 268 practices; Ludt *et al.* 2012).

What is known about the topic?

- There is a substantial gap in cardiovascular disease prevalence and outcomes between rural and metropolitan Australians that can be reduced through responsive rural primary care services.

What does this paper add?

- Innovative rural primary care models that privilege preventive activities by a multidisciplinary team are needed to address the disparity in cardiovascular disease outcomes between rural and metropolitan Australians, particularly for men at high risk.

The assessment of risk of developing CVD is based largely on cardiovascular risk-assessment tools such as Framingham (National Institutes of Health 2014), QRISK (ClinRisk Ltd 2014) and the Australian absolute risk calculator (National Vascular Disease Prevention Alliance 2014), with risk assessed in global terms according to clusters of factors (e.g. blood pressure, age, smoking status, cholesterol level) according to *a priori* thresholds (e.g. 15% risk of a CVD event in 5 years; National Vascular Disease Prevention Alliance 2014). However, research suggests that in the absence of an existing diagnosis of CVD and a threshold global risk-assessment score, clusters of individual risk factors can be used to identify patients at high risk (Wensing *et al.* 2009). In the case of the EPA-CVD study, this combination of risk factors was male, aged >60 years, a current smoker and a recorded diagnosis of hypertension or hypercholesterolemia (Wensing *et al.* 2009).

Little is known about the attitudes of clinicians in rural primary care regarding CVD prevention for high-risk male patients or the lifestyles and potential for change among these patients. Lewis *et al.* (2003) reported that CVD preventive care should begin with genuine dialogue between primary care clinicians and high-risk patients (Lewis *et al.* 2003), but the results from our previous research indicate that this dialogue has, in many cases, not even begun (Allenby *et al.* 2015).

Clinicians and patients are likely to have different perceptions and values surrounding quality of care (Campbell *et al.* 2003) and this exploration has also proven valuable for other conditions, such as insomnia and depression (Davy *et al.* 2013; Keeley *et al.* 2014).

Aim

The aim of this study was to explore the self-reported behaviours and satisfaction with their general practice/practitioner of men at high risk of CVD, and the attitudes of rural primary care clinicians regarding the role of primary care in CVD prevention. The objectives were:

1. to examine the lifestyle risk factors and potential for lifestyle modification among male patients at high risk of CVD
2. to explore the attitudes of rural primary care clinicians to CVD prevention, including barriers and facilitators.

Methods

We used a two-stage sampling strategy to recruit Australian rural primary care practices serving communities with populations of 25 000 or less. We explored the views of clinicians through interviews and used questionnaires to obtain lifestyle and risk-factor information from male patients at high risk of CVD.

High-risk patient questionnaires

High-risk patients were identified by participating practices through medical records as meeting three of the following five cardiovascular risk factors: male, a current smoker, aged over 60 years and a recorded diagnosis of hypertension or hypercholesterolemia (as used in the EPA-CVD study; Campbell *et al.* 2008). We aimed to recruit at least 10 patients meeting these criteria from each of the rural primary care practices participating in the study. Using the samples from the EPA-CVD study in nine countries, we anticipated that the majority of patients would be male (Ludt *et al.* 2012) and therefore focused our research aims on male participants.

We used the modified EUROPEP questionnaire to derive information relating to demographics, healthcare usage, lifestyle risk factors and perceptions of quality of GP care. Each item was scored on a five-point scale (Campbell *et al.* 2008; Ludt *et al.* 2012).

Interviews with clinicians

We invited GPs and practice nurses from participating practices to take part in semi-structured interviews. The interviews commenced with the results of medical records audits for their practice regarding the provision of CVD preventive activities, and we invited participants to provide their views on the provision of health promotion and CVD prevention activities. One of the research team asked questions while another took field notes and audio-recorded the interviews. As the study was explorative rather than theoretical, we used open, rather than axial or selective, coding (Strauss and Corbin 1990). Each transcript was read and coded inductively by AA and a preliminary coding frame constructed. Interviews were stored and analysed using NVivo ver. 10 (QSR International, Melbourne, Vic., Australia). We used a process of constant comparison (Dye *et al.* 2000), with the list of codes expanded as new codes and sub-codes emerged. After coding was completed, the codes that had common elements were merged to form categories. This was to confirm that transcript analysis reflected the recurring and representative themes (Neuman 1997). Extracts and emergent themes were discussed at regular meetings. We looked for disconfirming evidence throughout and our results are based on a synthesis of all the interviews, with statements based on the views of multiple interviewees.

Ethics approval for the project was obtained through the Monash University Human Research and Ethics committee (approval number: CF12/0001-2011001965).

Results

Seventy rural general practices were invited to participate in the study, with 16 responding. Two of these practices withdrew

(because of problems with data collection), with the remaining 14 participating (20%). The practices varied from 452 to 33 198 patients and 1200 to 70 000 consultations in the last year. Staffing levels ranged from 0.1 to 5.0 full-time equivalent (FTE) GPs and 0.2 to 5.5 FTE nurses.

High-risk patient questionnaires

A total of 169 patients meeting the criteria for high risk completed and returned questionnaires, of which only 11 were female. Therefore, data analyses focused on the data from the questionnaires of the 158 male patients (Table 1). The sample was predominantly aged over 60 years (94.9%), married (78.5%), retired (61.4%), visited their GP 3 or more times per

year (58.0%) and had been attending the same practice for at least 3 years (89.6%).

Table 2 shows the modifiable risk factors of the sample, with 62% and 53% reporting hypertension and high cholesterol respectively and 20.9% reporting being smokers. In addition, 31% of the sample had a body mass index greater than 30. The physical activity levels and the willingness to change diet reports of the sample are shown in Tables 3 and 4 respectively. A small majority (52.2%) reported moderate activity of more than 30 min/day at least 5 or more days/week. Only 19% reported being unwilling, or only a little willing, to improve their diet in order to be healthier.

Patients reported high levels of satisfaction with their GP, as shown in Table 5.

Table 1. Characteristics of participants (n = 158)

Variable	n (%)
Age (years)	
30–44	0 (0.0)
45–59	6 (3.8)
60–74	125 (79.1)
75+	25 (15.8)
Marital status	
Married	124 (78.5)
Single	11 (7.0)
Divorced/separated	16 (10.1)
Widowed	7 (4.4)
Employment	
Employed	49 (31.0)
Unemployed	3 (1.9)
Home duties	3 (1.9)
Retired	97 (61.4)
Unable to work	6 (3.8)
Years at school	
≤9	34 (21.5)
10–13	77 (48.7)
>13	46 (29.1)
Years attending the general practice	
≤2	17 (10.8)
3–7	54 (34.2)
≥8	86 (55.4)
GP visits per year	
≤3	66 (41.8)
4–7	70 (44.3)
≥8	21 (13.3)

Interviews with clinicians

We interviewed 20 clinicians from the 14 participating rural primary care services, comprising one GP from each practice (n = 14), plus five practice nurses and one allied health professional. The five nurses and one allied health professional were included because they coordinated patient management programs and were relevant to the aims of this study.

There were three key themes in the data related to the attitudes of rural primary care clinicians to CVD prevention:

- barriers to CVD prevention (access, funding, failure to take advice, time, workforce)
- strategies to improve CVD care (integration)
- rewarding prevention and health promotion activities (access, clinical strategies).

Barriers

Access

Distance, time and cost to rural Australians were considered barriers by most participants, who spoke of, in particular, how difficult it was to get farmers to take the time to travel to a primary

Table 2. Self-identified modifiable risk factors (n = 158)

Risk factor	Yes (%)	No (%)	Missing (%)
Hypertension	98 (62.0)	59 (37.3)	1 (0.6)
High cholesterol	84 (53.2)	66 (41.8)	8 (5.1)
Current smoker	33 (20.9)	124 (78.5)	1 (0.6)
BMI >30 ^A	49 (31.0)	103 (65.2)	6 (3.8)

^ABMI (body mass index) calculated by research team based on weight and height provided by participants.

Table 3. Self-reported physical activity levels (n = 158)

Statement	Yes (%)	No (%)	Missing (%)
I rarely or never do any physical activity	22 (13.1)	123 (77.8)	13 (8.2)
Light or moderate activity but not every week	52 (32.9)	84 (53.2)	22 (13.9)
Light physical activity every week	109 (69.0)	36 (22.8)	13 (8.2)
Moderate activity, less than 30 min/day or 5 days/week	74 (46.8)	69 (43.7)	15 (9.5)
Vigorous activity, less than 20 min/day or 3 days/week	33 (20.9)	108 (68.4)	17 (10.8)
Moderate activity, more than 30 min/day or 5 or more days/week	83 (52.5)	69 (43.7)	6 (3.8)
Vigorous activities, more than 20 min/day or more than 3 days/week	39 (24.7)	104 (65.8)	15 (9.5)
Activities to increase muscle strength once or more/week	36 (22.8%)	109 (69.0%)	13 (8.2%)
Activities to improve flexibility once or more/week	48 (30.4%)	100 (63.3%)	10 (6.3%)

Table 4. Willingness to change eating habits in order to be healthier (n = 158)

Willingness	n (%)
Very willing	36 (22.8)
Quite willing	46 (29.1)
Somewhat willing	41 (25.9)
A little willing	18 (11.4)
Not willing at all	12 (7.6)
Missing	15 (3.2)

Table 5. Satisfaction with GP (n = 158)

Satisfaction with GP	Mean (s.d.)
Feel have sufficient time during consultation	4.18 (0.833)
Easy to disclose problems to GP	4.21 (0.830)
GP involves patient in decisions about medical care	4.10 (0.826)
GP offers services to prevent disease	3.97 (0.960)
Helping understand why it is important to follow GP advice	4.02 (0.878)

care service that may not be open at convenient times (e.g. one service opened 1 day/week). Cost was associated with travel, lack of productivity for patients and the cost of a consultation where the majority of clinics do not bulk-bill.

Being a little bit further out, a little bit more rural, I suppose the access to services is difficult for some patients, you know. (Participant 13, practice nurse)

Funding for preventive care

Clinicians expressed that the current national Medicare system rewarded illness-based care, not prevention. Many stated they wanted to practice prevention but could not afford to.

If you're doing something where there's no payment attached to it, there's a limit for much of what you can do. I think that's a limitation... (Participant 5, GP)

Failure to take advice

Many articulated that patients were not likely to follow lifestyle advice and that this, in turn, demotivated clinicians from initiating CVD preventive activities.

I suppose clinicians [have a] cynicism about the whole process. How can you make non-compliant patients compliant? Do they need to have an event to scare the bejesus out of them? (Participant 7, GP)

Time

Participants consistently expressed that they did not have enough time to deal with disease prevention in busy private practices where 'time is money'. Participants reinforced that a routine primary care consultation of 10–15 min was taken up by dealing with the presenting problem, leaving little or no time to deal with disease prevention issues. Many participants also expressed that the lack of time was compounded by the existence

of complex, poorly integrated information technology systems that were an added burden on their time.

[It's] quite a challenge for us to be able to balance up the available time with the level of urgency – so that they [patient] can leave having had their major issues dealt with as well. And their agenda is not always the same as our agenda... [In] patient-centred medicine you should always be trying to help deal with their agenda but paying attention to cardiovascular risk is often something which occurs sort of down the list on the consultations, so you may not always have all the time that you'd like to be able to do that. (Participant 1, GP)

Workforce

This was consistently articulated as a barrier in terms of lack of numbers, inappropriate workforce mix and inadequate workforce preparation. In particular, participants spoke of bureaucratic processes that increased the need for administrative support at the expense of the clinical workforce. Some participants also felt that undergraduate education did not adequately prepare health professionals to deal with patients' lifestyle problems.

We're having difficulties trying to get a nurse who has been trained to do that kind of work. (Participant 6, GP)

Strategies

Integration

Participants articulated a strong vision for comprehensive, multidisciplinary services situated under one roof with a single point of entry. This vision included integration that supported seamless patient coordination and movement between professions and services. Participants also expressed that simplified information technology should be an essential component of integration to enhance communication, facilitate clinical information sharing, provide access to the latest evidence, support data extraction and facilitate performance monitoring.

I'll use the buzzword: integration. I think that just more GPs isn't enough... I think you need a coordinated, integrated approach. (Participant 15, GP)

Reward prevention and health promotion

Overwhelmingly, participants stated a strong belief that incentives for disease prevention and health promotion in primary care would increase their capacity to introduce effective prevention programs. In particular, they expressed that investment in targeted health screening and effective lifestyle programs through primary care was more cost-effective than disease management.

[CVD] often occurs with other comorbidities and yet the management of those risk factors tends to be fairly common... There's a small number of common things you need to do. And I think it's about ways that incentivise that... And I think one of the challenges in the current health system is that there's little return to the downstream

players for creating upstream benefits. [Although] every dollar spent in primary care services saves 9 dollars in secondary care, none of the people in secondary care give me even 1 cent of those 9 dollars back. (Participant 18, GP)

Access

Participants repeatedly spoke of the need to take preventive services out to the rural population, particularly to men.

They [men] don't want to come into the doctor's – 'I'm not sick. . . 'Do we get a van out there and say, 'Right, let's all meet at the pub'? You know, the boys might go up there for lunch. . . (Participant 9, practice nurse)

Clinical strategies

Some participants conveyed a desire to move away from prescribing medications to, instead, prescribing exercise and strength training. They expressed that this could be underpinned by information technology systems that facilitated easy-to-access registers of high-risk patients and recall systems.

I would welcome the day in which, instead of people taking medications for their diabetes, blood pressure and cholesterol, they took regular sessions doing resistance exercise. (Participant 18, GP)

Discussion

The aim of this study was to explore the self-reported behaviours and satisfaction with their general practice/practitioner of men at high risk of CVD, and attitudes of rural primary care clinicians regarding the role of primary care in CVD prevention. The results provide valuable insights into the potential for rural primary care to address CVD prevention.

Current primary health care system and workforce in rural Australia

The views expressed by clinicians that CVD prevention is compromised by illness-based funding models, time pressures and a health workforce not well prepared for CVD preventive activities, are consistent with other exploratory studies in Australian primary care (Harris *et al.* 2005; Ampt *et al.* 2009; Passey *et al.* 2010). Chronic disease management is incentivised in Australian primary care but this principle does not extend to CVD preventive activities, even though incentives have been shown to influence provider behaviour (Campbell *et al.* 2009). Innovative rural primary care models are required that move beyond fee-for-service and incorporate a blended payment system that incentivises or funds time for preventive care. Blended payment systems have been recommended worldwide in primary care to ensure an appropriate mix of service provision (Roland and Campbell 2014). Systems such as those in, Canada and New Zealand, for example, include a combination of incentives, universal capitated funding, patient co-payments and targeted fee-for-service for specific items (Wranik and Drurier-Copp 2010; Goodyear-Smith *et al.* 2012; Kantarevic and

Kralj 2013). Blended payment systems have been shown to have had positive effects on preventive care activity (Wranik and Drurier-Copp 2010).

For the rural population, there is the added complication of service access, as expressed by interviewees who indicated that distance, time and cost were barriers to the provision of CVD preventive care. This needs to be taken into consideration in primary health care reform in Australia. It calls for multidisciplinary, flexible rural primary care models, such as free screening and advice services that travel to the patient. Participation rates in group-based primary care patient programs have been problematic (Harris *et al.* 2005) and are unlikely to be highly accessed by rural patients.

Potential for CVD prevention

Our results indicate that there is room for improvement in the risk-factor profiles and lifestyles of male high-risk patients in rural areas. The study demonstrated poorly controlled risk factors, despite patients' well-established relationships with their general practices and their stated motivation to change. Clinicians did not share this view and expressed disappointment that patients did not take lifestyle advice. There appears to be a missed opportunity to influence the lifestyles and reduce the CVD risk of a population of rural men. This is consistent with the belief expressed by clinicians that their workforce is poorly prepared for disease prevention and health promotion in rural primary care. It also indicates that an incentivised model of disease prevention needs to be combined with education and workforce preparation programs that prepare clinicians to recognise and respond to patient motivation to improve their lifestyle.

Limitations

Our study sought to replicate the EPA-CVD recruitment strategy. Subsequently, it was highly likely that the sample would not be representative of the broader high-risk population. In particular, we found an over-representation of retired men over the age of 60 years. This may explain the higher than average number of GP visits reported by this sample and any extension of the results to younger age groups should be made with caution, particularly in rural and remote areas, where premature deaths are higher. A stratified sampling strategy would be required to include females and a more proportionate representation of age groups in future studies.

Despite the small number of practices participating our sample provided a broad range of practice sizes and workforce profiles that makes us confident that these practices and clinicians are typical of the rural primary care setting.

The inclusion criteria required the identification of high-risk patients from medical records and relied on the documentation of CVD risk factors in patient records. Previous research has shown significant gaps in the documentation of risk factors in primary care (Ludt *et al.* 2012); therefore, strategies aimed at high-risk patients should use a broader recruitment strategy to encapsulate those with risk factors not captured in medical records.

This exploratory study of clinicians and of men at high risk of CVD showed that there is a need for a rethink of preventive care strategies in rural Australia underpinned by a blended payment model that balances the advantages and disadvantages of various ways of paying physicians. This would allow for a greater focus on lifestyle counselling, prescribing for preventive care and innovative methods of access, including free screening and advice services that travel to the patient. The model also requires a greater focus on a multidisciplinary primary health care team approach to address the disparity in CVD outcomes between rural and metropolitan Australians. In addition, educational and training approaches are needed to address the differences in attitudes of clinicians and patients regarding preventive care.

Conflicts of interest

None declared.

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