



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

Journal:	<i>Australian Journal of Primary Health</i>
Manuscript ID:	Draft
Manuscript Type:	Research paper
Keyword:	Preventive health services, Delivery of health care: integrated, Disease management, Healthcare disparities, Rural health: services

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Abstract

Background

Rural primary care services have the potential to play a major role in reducing the gap in cardiovascular disease outcomes between rural and metropolitan Australians, particularly in men at high risk of cardiovascular disease.

Methods

The aim of this study was to explore the attitudes of rural primary care clinicians and men at high risk of cardiovascular disease regarding the role of primary care in cardiovascular disease prevention. This observational research was addressed through survey questionnaires with rural men at high risk of cardiovascular disease and semi-structured interviews with rural primary care clinicians.

Fourteen rural primary care practices from towns with populations less than 25,000 participated.

Results

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 not motivated to change and that illness-based funding models inhibited cardiovascular preventive activities.

Conclusions

The results demonstrate that there is substantial room for improvement in the preventive care of rural Australian men at high risk of cardiovascular disease.

Keywords:

Cardiovascular diseases; primary prevention; primary health care; health services research; rural health; health policy.

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What is known about this 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 blend funding incentives for preventive activities with multi-disciplinary practice can help address the disparity in cardiovascular disease outcomes between rural and metropolitan Australians, particularly for men at high risk.

Introduction

Rural and remote Australians have substantially higher death and hospitalisation rates for cardiovascular disease (CVD) than people from metropolitan areas.(ABS 2012) While access to health services for the seven million rural and remote Australians spread across approximately seven million square kilometres is a contributing factor, there is the compounding issue of substantially worse risk factor profiles as rural and remote Australians are far more likely also to smoke, drink harmful levels of alcohol and be obese.(AIHW 2011) At particular risk of the development of CVD are older males with one or more preventable risk factors. (Wilson, D'Agostino et al. 1998, Ludt, Petek 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 reduce the likelihood of progression to CVD.(Huang, Daddo et al. 2009, Kinsman, Rotter et al. 2012) Modelling shows that improvements in general practice CVD prevention and screening can reduce premature heart disease deaths in Australia by 41%.(National Heart Foundation of Australia 2010) However, studies have shown that large numbers of primary care patients do not have their risk factors identified or managed appropriately.(Elley, Kerse et al. 2003, Yusuf, Hawken et al. 2004, Mosca, Linfante et al. 2005, Wittchen, Glaesmer et al. 2005) Our research in rural Australia has shown that patients at high risk of CVD in rural settings are missing out on routine prevention activities in primary care, particularly in relation to diet and physical activity (Allenby, Kinsman et al. in-press). These results compared poorly with a large scale EPA-CVD study conducted in 9 European countries (3723 patient records; 268 practices).(Ludt, Petek et al. 2012) The assessment of risk of developing CVD is based largely on cardiovascular risk assessment tools such as Framingham (NIH 2014), QRISK (Ltd 2014) or

the Australian absolute risk calculator (NVDPA 2014) with risk assessed in global terms according to clusters of factors (e.g. blood pressure, age, smoking, cholesterol etc.) according to *a priori* thresholds (e.g. 15% risk of a CVD event in 5 years) (NVDPA 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, Ludt et al. 2009) In the case of the EPA-CVD study this combination of risk factors was men, aged >60, smokers and also a recorded diagnosis of hypertension or hypercholesterolemia. (Wensing, Ludt et al. 2009)

Little is known about the attitudes of clinicians in rural primary care regarding CVD prevention for high risk male patients, nor the lifestyles and potential for change amongst high risk male patients. Lewis et al. (2003) reported that CVD preventive care should begin with genuine dialogue between primary care clinicians and high risk patients (Lewis, Robinson et al. 2003), but the results from our previous research indicate that this dialogue is, in many cases, not even started. (Allenby, Kinsman et al. in-press)

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

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.

Aim

To explore the attitudes of rural primary care clinicians and men at high risk of cardiovascular disease regarding the role of primary care in cardiovascular disease prevention.

Objectives

1. to examine the lifestyle risk factors and potential for lifestyle modification amongst 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.

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, smokers, aged over 60 years, and a recorded diagnosis of hypertension or hypercholesterolemia (as used in the EPA-CVD study). (Campbell, Braspenning et al. 2003) We aimed to recruit at least ten 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 9 countries we anticipated that the majority of patients would be male (Ludt, Petek 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; with each scored on a five point scale. (Campbell, Ludt et al. 2008, Ludt, Petek et al. 2011)

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. Because the study was explorative rather than theoretical, we used open, not 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 (QSR 2014). We used a process of constant comparison (Dye, Schatz 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 sixteen responding. Two of these practices withdrew with the remaining fourteen participating (20%).

The practices varied from 452 to 33,198 patients and 1,200 to 70,000 consultations in the last year. Staffing levels ranged from 0.1 to 5.0 Full Time Equivalent (FTE) of GPs, and 0.2 to 5.5 FTE of 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 as predicted. Data analyses focused therefore on the data from the questionnaires of the 158 male patients (table 1).

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 Table 3 and Table 4 respectively. A small majority (52.2%) reported moderate activity of more than 30 mins/day at least 5 or more days/week). Moreover, only 19% reported being unwilling, or only a little willing, to improve their diet in order to be healthier.

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

INSERT TABLE 1 HERE

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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 as 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 (access, funding, motivation, 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 care service which may not be open at convenient times e.g. one service opened one day per 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.

Participant 13 (Practice Nurse)

"...probably being I suppose a little bit further out, a little bit more rural, I suppose it's the access to services is difficult for some patients, you know, to be able to get into..."

Funding

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.

Participant 5 (GP)

"...and 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..."

Motivation

Many articulated that patients were not motivated to change and that this, in turn, demotivated clinicians from initiating CVD preventive activities.

Participant 7 (GP)

"...I suppose clinicians' 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?"

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 minutes 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.

Participant 1 (GP)

"...then that's quite a challenge for us to then be able to balance up the available time with the level of urgency. So that they can leave having had their major issues dealt with as well, and their agenda is not always the same as our agenda for... you know, the 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 we'd like to be able to do that."

Workforce

This was consistently articulated as a barrier in terms of lack of numbers, inappropriate work-force 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.

Participant 6 (GP)

"...we're having difficulties trying to get a nurse...to do that kind of work..."

Strategies

Integration

There was a strong vision articulated by participants for comprehensive, multi-disciplinary services situated under the one roof with a single point-of-entry. This vision included that patients be integrated in a way 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.

Participant 15 (GP)

"I'll use the buzz-word, integration. I think that just others of GPs isn't enough...I think you need a coordinated integrated approach."

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.

Participant 18 (GP)

"... (CVD) often occurs with other co-morbidities 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. So for the fact that for every dollar spent in primary care services saves

nine dollars in secondary care, none of the people in secondary care give me even one cent of those nine dollars back."

Access

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

Participant 9 (Practice Nurse)

"...that's the other thing with them too is they don't want to come into the doctors... I'm not sick... right, 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..."

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.

Participant 18 (GP)

"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."

Discussion

The aim of this study was to explore the attitudes of rural primary care clinicians and men at high risk of cardiovascular disease regarding the role of primary care in cardiovascular

disease 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 illness-based funding models combined with time pressures and a health workforce not well prepared for CVD preventive activities are consistent with other exploratory studies in Australian primary care (Harris, Hobbs et al. 2005, Ampt, Amoroso et al. 2009, Passey, Fanaian et al. 2010). Unsurprisingly, the “incentivisation” of CVD preventive activities using the same principles currently employed for chronic disease management (Health 2014) was seen as a strategy likely to influence provider behaviour.

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 and underpins the potential 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, Hobbs 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. This sample self-reported relatively high rates of hypertension (62%), high cholesterol (53%) and smoking (21%) – all amenable to improvement through lifestyle modification. Only 52% of high risk patients reported that they met the National Heart Foundation’s recommendation for physical activity of greater than 30 minutes of moderate activity per day (Zealand 2012) and only 23% reported

participating in strength training at least once a week. In addition, high risk patients reported a willingness to change as indicated by just 19% of the sample reporting that they were either a little willing or not willing to change their diet. This is not consistent with the clinicians' perceptions that patient motivation was a barrier to CVD prevention in rural primary care.

This sample also reported long-term relationships with their GP practice, with 55% attending the same practice for more than eight years, and visiting their GP relatively frequently (57% seeing their GP more than three times a year). This existing relationship provides potential leverage for the integration of CVD preventive activities into rural primary care. However, the lack of a consistent role for nurses, who manage many long-term conditions in, for example, the United Kingdom (McDonald, Lester et al. 2009) inhibits the workforce available to deliver CVD prevention activities in Australian primary care rural settings.

Limitations

In seeking to replicate the EPA-CVD recruitment strategy (11) it was thought likely that the sample would not be representative of the broader high risk population. In particular, we anticipated that males would be over-represented. As such we limited our analyses to data from males to address our study objectives. A stratified sampling strategy would be required to increase the proportion of females in future studies.

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, Petek

et al. 2012) and, 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 men at high risk of CVD showed that there is substantial room for improvement in CVD prevention through strategic rural primary care models. Innovative rural primary care models that blend funding incentives for preventive activities with multi-disciplinary practice can help address the disparity in CVD outcomes between rural and metropolitan Australians.

List of abbreviations

BMI	Body Mass Index
CVD	Cardiovascular disease
EPA-CVD	European practice assessment of cardiovascular risk management study
EUROPEP	Patient evaluation of general practice questionnaire
FTE	Full-time equivalent
GP	General Practitioner
QRISK	Online calculator for the ten year risk of the development of cardiovascular disease

Availability of supporting data

Supporting data is not available in an open access repository.

Competing interests

The Authors declare that there are no competing interests.

Authors' contributions

LK, SC and AA contributed to the development of the proposal, analyses and preparation of the manuscript. RT and JS contributed to analyses and manuscript preparation. MJ contributed to the development of the proposal and the preparation of the manuscript.

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Table 1: Characteristics of Participants (n = 158)

Variable	n (%)
Age	
30-44 years	0 (0.0)
45-59 years	6 (3.8)
60-74 years	125 (79.1)
75 years and over	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 ^b	
≤ 9	34 (21.5)
10-13	77 (48.7)
> 13	46 (29.1)
Years attending the General Practice ^a	
≤ 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)

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*	49 (31.0%)	103 (65.2%)	6 (3.8%)

* BMI calculated by research team based on weight and height provided by participants

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

	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 mins/day or 5 days/week	74 (46.8%)	69 (43.7%)	15 (9.5%)
Vigorous activity, less than 20 mins/day or 3 days/week	33 (20.9%)	108 (68.4%)	17 (10.8%)
Moderate activity, more than 30 mins/day or 5 or more days/week	83 (52.5%)	69 (43.7%)	6 (3.8%)
Vigorous activities, more than 20 mins/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 a week	48 (30.4%)	100 (63.3%)	10 (6.3%)

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

	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%)

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Table 5: Satisfaction with General Practitioner (n = 158)

	Mean (SD)
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)

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