

# New South Wales Health Promotion Demonstration Research Grants Scheme

## THE PAVE PROJECT



DETERMINING THE EFFECTIVENESS OF TWO  
SECONDARY PREVENTION INTERVENTIONS IN  
REDUCING CARDIOVASCULAR DISEASE

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# Abbreviations

The following abbreviations and acronyms are used in this report:

AMI	Acute Myocardial Infarction
CVD	Cardiovascular Disease
CHD	Coronary Heart Disease
GP	General Practitioner
IHD	Ischaemic Heart Disease
PAVE	Prevent Another Vascular Event
RCT	Randomised Controlled Trial
UAP	Angina Pectoris

# Executive summary

## Introduction

Cardiovascular disease (CVD) remains a leading cause of mortality and chronic illness in Australia. Coronary Heart Disease (CHD) and Cerebrovascular Disease (Stroke) are the two main components of CVD. Once an individual has survived a cardiovascular event such as a heart attack or stroke, they are at increased risk of a further event.

There is strong evidence in support of secondary prevention care for CVD, which can be broadly divided into two categories: pharmacological and behavioural treatments. Behavioural treatments include care designed to facilitate smoking cessation, increase physical activity, and improve diet. Reported risk factor levels among individuals who have had a CHD or stroke event are far from optimal, with high proportions of such people having uncontrolled high blood pressure, elevated cholesterol, little or no exercise, and continuing to smoke. The high reported risk factor levels among those who have had a CHD or stroke event may be partly explained by less than optimal provision of secondary prevention care.

Secondary prevention care should commence in the hospital setting and general practitioners (GPs) have an important role in the long term management of patients following hospitalisation for a CHD or stroke event. GPs are suggested to be able to motivate patients to modify their lifestyle risks and to comply with drug therapy.

A potential means of improving the provision of secondary prevention care is the dissemination of information and prompts/reminders to either the patient or the practitioner using centralised disease registers. Such registers have been successfully used in this way for the prevention of cancer, facilitating immunisation, and for improving the management of chronic diseases such as diabetes.

## Aim

To determine the effectiveness of two register-based interventions in increasing the use of CVD medications by individuals who have had a CHD or stroke event, and in increasing GP provision of behavioural risk advice to such individuals.

## The intervention

### Patient intervention

Participants received a mailed information package. The package included a tailored letter and patient risk and care report card, and details of local behavioural risk reduction providers.

### GP intervention

The participants usual GP received a mailed information package. The package included a letter, a tailored patient risk and care report card, details of local behavioural risk reduction providers, and relevant care guidelines.

## Methods

### Design, setting and sample

A 2X2 factorial cluster randomised controlled trial was undertaken to assess the individual and combined effect of the two interventions. Participants were allocated to one of four experimental groups based on their usual GP: Patient Intervention; GP Intervention; Both Patient and GP Interventions; or No Intervention. Outcome data for all participants were collected following discharge from hospital (baseline), and again six months later (follow-up).

Discharged patients were recruited through the existing Hunter Area Heart and Stroke Register. Individuals were eligible if they were discharged alive from one of 15 public hospitals over a twelve month period, had an eligible CVD diagnosis, were older than 20 years of age, and not living in a nursing home.

### Measures

A baseline and follow-up questionnaire collected the following information: participant use of CVD medications; receipt of GP advice regarding physical activity, diet and smoking; and participant risk factor characteristics. Information regarding participant socio-demographic and clinical characteristics was obtained from hospital data held by the Register.

## Data Management and Statistical Methods

The following comparisons were made at follow-up between participants who did and did not receive an intervention: the proportions of participants reporting the use of anti-hypertensive, cholesterol lowering, aspirin or anti-coagulant medications; the proportions reporting the receipt of behavioural risk reduction advice regarding diet, physical activity and smoking cessation from their GP. Separate analyses were conducted to assess the individual effects of the Patient and GP interventions, and the combined effect of both interventions for each outcome measure.

## Results

Of the eligible participants, 1,239 people consented to participate in the study (68% of Register participants and 49% of all eligible individuals). Of these, 1,059 (85%) provided both baseline and follow-up data. No significant difference in participant-reported use of antihypertensive, cholesterol lowering, aspirin, and anticoagulant medication was found between participants at follow-up for any intervention. Reported GP provision of advice regarding physical activity was significantly higher ( $p=0.04$ ) for participants who received the Patient Intervention compared to those who did not. No significant difference in reported GP provision of advice regarding diet modification or smoking cessation was evident between participants at follow-up for any intervention. High levels of provision for some elements of secondary prevention care were identified for antihypertensive, cholesterol lowering, or aspirin medications (69% to 86%). Similarly, a large proportion of relevant participants reported receiving advice regarding physical activity and smoking, with slightly fewer reporting receiving dietary advice.

## Conclusion

The study findings suggest that the mailing of CVD register-based information, as described in this study, was not effective in increasing participant use of recommended CVD medications, or their receipt of GP behavioural risk advice. Despite the lack of significant positive findings the study has demonstrated the feasibility of the Register, and CVD registers more generally in adopting a more proactive approach to their operations.

The identified high levels of provision of some secondary prevention care elements, indicates more research is needed, both to assess the validity of these findings and to determine the need for further intervention, register-based or otherwise. This research could be conducted using data from the routinely conducted secondary prevention questionnaire for the Register.

If levels of secondary prevention care are found to be less than optimal, consideration could be given to the use of more comprehensive register-based interventions that involve both individual and practice level interventions.



# Introduction

## Burden of cardiovascular disease

Cardiovascular disease (CVD) is a disease that affects the heart or blood vessels. Coronary heart disease (CHD) and cerebrovascular disease (stroke) are the two main components of CVD. Despite declining rates, both diseases remain the major cause of mortality in Australia. In 2004, CHD accounted for 19.2 per cent of all deaths in males and 17.8 per cent of all deaths in females, whilst stroke accounted for 7.1 per cent and 11.3 per cent of deaths respectively.<sup>1</sup> Similarly, both CHD and stroke are significant contributors to morbidity, resulting in over 360,000 hospital admissions in Australia in 2004-2005.<sup>1</sup>

## Risk of recurrent CHD or stroke events

Once an individual has survived a cardiovascular event such as a heart attack or stroke, they are at increased risk of a further event.<sup>2,3</sup> The average annual rates of non fatal acute myocardial infarction (AMI) in males with a previous infarction has been reported as being between 25 and 30 per cent.<sup>4</sup> Similarly, reported rates for recurrent AMI and stroke among people over 60 years of age in rural NSW are three times greater than the rates for first events.<sup>5</sup>

With regard to the risk of recurrent stroke, for those individuals who have had a suspected acute stroke or transient ischemic attack, the five-year cumulative risk of a second stroke has been reported as 15 per cent. The risk of recurrent stroke is greatest (8.8%) in the first 6 months after the initial event.<sup>6</sup> Ten years after a first-ever stroke the cumulative risk of a first recurrent stroke has been reported to be 43 per cent with an average annual risk of recurrent stroke of 4 per cent.<sup>7</sup>

## Effectiveness of CVD secondary prevention treatments

Given the increased risk of subsequent CHD and stroke events, considerable opportunity exists for their prevention. Prevention of such further events is known as secondary prevention,<sup>8</sup> a term that refers to treatment that will reduce the likelihood of and mortality from recurrent CHD or stroke events.

The options for secondary prevention treatment can be broadly divided into two categories: pharmacological and behavioural treatments. Pharmacological treatments that have been shown to reduce the risk of CVD events and mortality include Beta Blockers,<sup>2</sup> ACE Inhibitors,<sup>9,10</sup> Statins<sup>11,12</sup> and anti-platelets agents.<sup>13,14</sup> Similarly, behavioural risk reduction treatments focused on smoking cessation, increasing physical activity, and improving diet have been shown to be effective in reducing the risk of recurrent CHD and stroke events.<sup>15-19</sup>

Based on such evidence, guidelines for the management of individuals following a CHD or stroke event have been developed. In 1995, the American Heart Association published a Secondary Prevention Guideline that recommended patients who have had an AMI be provided Aspirin, beta blockers, ACE inhibitors, diet counselling, lipid lowering agents, smoking cessation care, and be referred to outpatient cardiac rehabilitation.<sup>20</sup> Similar guidelines focusing on stroke were released in the United States in 2006.<sup>21</sup>

Since 2000 in Australia, the National Heart Foundation has produced risk reduction treatment guidelines for patients with or at risk of CVD, which are regularly updated.<sup>22</sup>

## Prevalence of CVD risks among those with CHD or stroke history

Despite strong evidence in support of the effectiveness of secondary prevention treatments, several studies have reported continuing high risk factor levels in individuals who have had a CHD or stroke event.<sup>23-24</sup> For example, the prevalence of uncontrolled high blood pressure among patients with CHD has been reported to vary between 50 and 82 per cent.<sup>25-27</sup> Similarly, the prevalence of elevated cholesterol levels among patients with CHD has been reported to vary between 33 and 75 per cent.<sup>25,27-29</sup>

In terms of behavioural risks, the prevalence of smoking has been reported to range between 10 and 27 per cent of patients with CHD, whilst the prevalence of overweight and obesity has been reported to vary between 25 and 75 per cent.<sup>25,27,29-31</sup> Fifty eight per cent of people with CHD have been reported to be physically inactive.<sup>32</sup> In Australia, the prevalence of risk factors for people who

have had a stroke has been reported as follows: high blood pressure 50 per cent; high cholesterol 31 per cent; physical inactivity 77 per cent; smoking 18 per cent; and obesity/overweight 53 per cent.<sup>33</sup>

## General practitioners as providers of secondary prevention treatments

The high level of risk factors among patients following a CHD or stroke event indicates an opportunity to reduce the burden of CVD through secondary prevention.

Secondary prevention following a CHD or stroke event should commence in the hospital setting. However, GPs have an important role in its ongoing provision as it is usual practice for such patients to be referred to their GP following discharge from hospital.<sup>23</sup> In an unpublished survey undertaken by the research team, over 90 per cent of patients attending a hospital based cardiac rehabilitation program had visited their GP within three months of discharge.

In addition to being patients' primary health care providers, GPs are suggested to be able to motivate patients to modify lifestyle risks and to comply with drug therapy.<sup>24,34-38</sup> Importantly, patients are suggested to be receptive to secondary prevention care provided by GPs as they perceive such practitioners to be authoritative sources of information.<sup>38</sup> Nearly 90 per cent of GPs believe that their role includes patient education about health related risk factors.<sup>39</sup>

## Prevalence of secondary prevention care

Despite the existence of supportive evidence and clinical practice guidelines, the provision of secondary prevention treatments is less than optimal. For example, although beta blockers and ACE inhibitors are recommended treatments for high blood pressure, the prevalence of beta blocker use has been reported to be as low as 32 per cent,<sup>30</sup> with ACE inhibitor treatment varying between 24 and 53 per cent of patients.<sup>25,27,40</sup> Use of ACE Inhibitor treatment following an AMI has been reported as between 14 and 23 per cent of patients,<sup>41</sup> whilst anti-hypertensive treatment has been reported to be provided to between 60 and 86 per cent of people who have had a stroke.<sup>42-43</sup>

In terms of lipid lowering medication, between 16 and 62 per cent of patients with CHD, and between 17 and 32 per cent of patients following a stroke have been reported to receive such treatment.<sup>25-28,40,44-46</sup> Similarly, between 47 and 90 per cent of patients with CHD report Aspirin use,<sup>25,27,30,40,47,48</sup> whilst 72 per cent of patients following a stroke report being provided either anti-platelet or anti-coagulant therapy.<sup>49</sup>

With regard to the treatment of behavioural risk factors, the prevalence of physician advice regarding smoking cessation, modification of a fatty diet and increasing physical activity has been reported to range between 8 and 88 per cent of people with CHD.<sup>27,32,34,35,50,51</sup>

## Interventions to improve the provision of secondary prevention care following discharge from hospital

Given the gap between evidence of its effectiveness and the prevalence of its delivery, a need exists to identify strategies that enhance the routine delivery of secondary prevention care by GPs. A considerable amount of research has assessed the effectiveness of strategies in improving general practice care, including the provision of preventive care.<sup>52,53</sup> Such research has demonstrated the effectiveness of information-based strategies such as practitioner reminders, patient recall and reminders,<sup>54</sup> practice audits and feedback,<sup>55</sup> decision support aids,<sup>56</sup> practice registers and record systems,<sup>57,58</sup> clinical practice guidelines,<sup>59-66</sup> and other strategies such as practitioner remuneration and employment of practice nurses.<sup>67</sup>

A key opportunity to promote the provision of secondary prevention care by GPs occurs immediately following a patient's discharge from hospital. A limited number of studies have assessed the effectiveness of strategies aimed at improving the provision of secondary prevention care at this time. In a cluster randomised controlled trial (RCT) conducted in Newcastle, Australia, Heller et al<sup>68</sup> assessed the effect of mailing general advice to patients regarding diet modification, increasing physical activity and smoking cessation.

Patients also received a supportive phone call. The patient's GP was mailed a letter providing general advice regarding the benefits of Aspirin and beta blocker medication. The intervention resulted in a significant reduction in self-reported fat intake at 6 month follow-up, but no effect on other care or risk outcomes.

A further cluster RCT conducted in Southampton, England, assessed the effect of a liaison nurse in facilitating the provision of secondary prevention care by general practice nurses following a patient's discharge from hospital.<sup>69,70</sup>

At one and four months follow-up, a significant increase in patient attendance at consultations was found, as was a greater uptake of cardiac rehabilitation, and trends towards improved diet and physical activity. At 12 month follow-up, no differences in risk status (smoking, physical activity, cholesterol level or blood pressure) were found.

Finally, a cluster RCT conducted in London, England,<sup>54</sup> assessed the effect of mailing information on two occasions to patients following their discharge from hospital. The information included general recommendations regarding how to reduce risks, and a recommendation to visit their GP. In addition, GPs were sent, on two occasions, the patients' hospital discharge summaries. The letters included general information regarding secondary prevention care, reference to guidelines, and a secondary prevention review card for insertion into the patient's medical record. The intervention was successful in increasing consultation rates, and the provision of behavioural risk advice, but did not increase prescribing of beta-blocker or cholesterol-lowering medications or patient reported change in behavioural risk factors.

Although each of these studies reported partial success in either improving care or risk factors, interpretation of their findings is limited by the low statistical power to detect clinically important differences,<sup>54,68</sup> and the failure to utilise strategies known to enhance effectiveness such as individual tailoring of intervention strategies, provision of specific feedback, and ready access to guidelines.<sup>55,59-66</sup> In addition, the interventions did not address a common barrier to the provision of preventive care, which was a lack of practitioner knowledge of referral options for behavioural risk reduction.<sup>71,72</sup>

## **Disease registers and secondary prevention**

As described above, a variety of information-based strategies may be effective in facilitating GP provision of secondary prevention care to patients following their discharge from hospital. In the previously described efficacy studies,<sup>54,68-70</sup> the assessment and communication of a patient's need for care was undertaken by the researchers. Further research is required to identify and assess the effectiveness of mechanisms for the routine delivery of these strategies. One potential option for the ongoing delivery of such strategies involves the use of disease registers.<sup>11,37,73</sup> Centralised disease registers have been successfully used in this way for cancer prevention initiatives, facilitating immunisation, and for improving the management of chronic diseases such as diabetes.<sup>67,74,75</sup> In Australia, limited CVD disease registers exist, and the focus of these has primarily been on estimating incidence, mortality and case-fatality, or assessing treatment outcomes.

Given that individuals are at increased risk of recurrent events following an initial CHD or stroke event, and given the suggested less than optimal provision of secondary prevention care to reduce this risk, an effectiveness study, known as the Prevent Another Vascular Event (PAVE) Study, was undertaken.

## SECTION 3

# Aim

To determine the effectiveness of two register-based interventions in increasing the use of CVD medications by individuals who have had a CHD or stroke event, and in increasing GP provision of behavioural risk advice to such individuals.

# The intervention

## Content and allocation of interventions

Based on previously described evidence, two register-based interventions were developed to prompt GP delivery of secondary prevention care: one for participants (Patient Intervention), and one for GPs (GP Intervention). The components of each intervention and their delivery to participants in the respective experimental groups are shown in Table 1 and described below. The control group did not receive any of the intervention components.

**Table 1: Intervention components and delivery to experimental groups**

Intervention Component	Intervention Group		
	Patient	Patient and GP	GP
<b>Patient Intervention</b>			
Patient Letter	Yes	Yes	
Patient Report	Yes	Yes	
Map of providers	Yes	Yes	
<b>GP Intervention</b>			
GP Letter		Yes	Yes
GP Report		Yes	Yes
Map of providers		Yes	Yes
Stroke Guideline*		Yes	Yes
Heart Guideline*		Yes	Yes

\* where relevant to participant discharge diagnosis

### Patient Intervention

The Patient Intervention involved an information package being mailed to the participant by the study team. The package included a tailored patient risk and care report card, and a map of behavioural risk reduction service providers.

Based on their responses to a questionnaire sent by the Hunter Area Heart and Stroke Register (hereafter referred to as the Register), the letter (Appendix 1) and the report card (Appendix 2) summarised the participant's potential gaps in care, and recommended that participants discuss these with their GP.

The report card compared participant report of risk factors and risk treatment with care recommended by

guidelines, and highlighted potential areas for intervention. Separate report cards were developed for those participants with a CHD diagnosis, and those with a stroke diagnosis. For those participants with a CHD diagnosis, risk factor information was provided regarding blood pressure, physical activity, smoking, cholesterol, weight and diabetes, plus information on cardiac rehabilitation attendance and medication use. For those participants with a stroke diagnosis, the report card included the same material, with the inclusion of atrial fibrillation as an additional risk factor.

To address a potential lack of participant knowledge regarding local providers of behavioural risk reduction services, a local map listing such opportunities was provided. Separate maps were developed for urban and rural areas, and listed services for diabetes care, dietitians, physical therapists, exercise classes and smoking cessation help lines.

### GP Intervention

The GP Intervention involved an information package being mailed to the participants' usual GP by the study team. The package included a letter (Appendix 3), a tailored patient risk and care report card (Appendix 4), and a map of behavioural risk reduction service providers (Appendix 5). In addition, clinical guidelines relevant to the participant's discharge diagnosis were included.

The letter included Register statistics describing the prevalence of secondary prevention care provided by GPs in the Region. The letter further informed the GP that the participant had consented to sharing their Register information with their GP, and included information regarding government incentive payments available to support the provision of secondary prevention care.

The report card compared participant self-report of their risk factors and risk treatment with care recommended by guidelines, and highlighted potential areas for intervention.

The National Heart Foundation 'Guide to risk reduction for patients with/or at risk of Cardiovascular Disease – 2002'<sup>76</sup> was included in the intervention package.

No nationally accepted or endorsed guidelines for stroke were available at the time of the study. Given this, a stroke guideline was developed using a modified version of the National Heart Foundation CVD guideline. Consultation with appropriate bodies was used to determine the information that should be included in the guideline, and local and national experts provided comment prior to its inclusion in the study.

Between 91 and 98 per cent of participants reported that the print size and colours of the materials were suitable. All study participants were able to correctly report that the aim of the letter was to inform people how to prevent having another event. All participants were able to identify the purpose of the report card, which was to plan health improvements.

## **Pre-testing of intervention materials**

Three focus groups involving 48 people were conducted to pre-test the intervention materials. The groups included patients participating in outpatient cardiac rehabilitation, a group of people attending a diabetes education service, and a group of patients attending a Stroke recovery group.

Eighty-seven per cent of focus group participants reported that they would have read the information (patient letter, report card and resource map) if it was mailed to them. Ninety one per cent, 84 per cent and 81 per cent thought there was sufficient information in the patient letter, report card and resource map respectively. Fourteen per cent reported there was too much information in the report card and 16 per cent thought there was too little information on the resource map. Approximately seven per cent reported that the patient letter and the resource map were difficult to understand and 14 per cent reported that the report card was difficult to understand. Amendments were made to the materials to address the limitations that were identified.

## SECTION 4

# Methods

### Design

A 2X2 factorial cluster RCT was undertaken to assess the individual and combined effect of two interventions. Patients discharged from hospital were allocated to one of four experimental groups based on the patient's usual GP. Each group received one of the following: Patient Intervention; GP Intervention; both Patient and GP Interventions; No Intervention. Outcome data for all participants were collected on two occasions: following discharge from hospital (baseline); and again six months later (follow-up).

### Setting and recruitment

#### Heart and Stroke Register

The study was conducted in the Hunter Valley Region of New South Wales, Australia. The Region had a population of 603,367 in 2004. Participants for the study were recruited through the Register.

The Register was established by the Hunter Area Health Service in 1995 to monitor the incidence and prevalence of heart disease and stroke in the Hunter Region, and to provide a sampling frame for research. The Register obtains computerised data for all public hospital admissions in the Hunter Region for individuals aged 20 years or over with a CVD discharge diagnosis.

At approximately two months following discharge from hospital, individuals with a CVD discharge diagnosis were sent a letter requesting permission to include their identifying and medical details on the Register and be contacted for future studies. Non responding individuals were sent a reminder letter on three occasions. Information on deaths was obtained from the Australian Bureau of Statistics and the State Registry of Births, Deaths and Marriages for inclusion in the Register on a monthly basis.

### PAVE study

Individuals were eligible for inclusion in the PAVE Study if they were eligible for inclusion in the Register, discharged alive from one of all 15 public hospitals in the Hunter Region between August 2002 and August 2003, resident in the Hunter Region, were not living in a nursing home, and had an eligible discharge diagnosis. Table 2 outlines the eligible CHD and Stroke ICD10 diagnostic codes for the study. The codes were selected based on evidence of benefit through secondary prevention.<sup>2,9-22</sup>

A PAVE study information package was included in the letter routinely sent to patients by the Register. The package included an invitation to participate in the study, a study information sheet and consent form, a request for the name of the patients' usual GP, and for permission to provide their usual GP with information from both the Register and a secondary prevention questionnaire. As per standard Register protocol, individuals were followed up on three occasions.

GPs were not formally recruited into the study as they were not required to provide any information directly or via medical records.

### Random allocation of participants

Prior to the start of the study the practices of all GPs in the Region were randomly assigned to one of the four experimental groups. The random allocation followed stratification of practices according to the number of clinicians per practice, and their geographic area (urban or rural). All clinicians in the same practice were allocated to the same experimental group, as were all patients attending the same GP.



**Table 2: ICD10 Diagnosis and procedure codes included in the PAVE study**

ICD10 code	Diagnosis or procedure	Diagnostic category
I20	Angina Pectoris	UAP
I21	Acute Myocardial Infarction	AMI
I22	Subsequent Myocardial Infarction	AMI
I23	Complications following Acute Myocardial Infarction	AMI
I24	Acute Ischaemic Heart Disease	IHD
I25	Chronic Ischaemic Heart Disease	IHD
I61	Intracerebral haemorrhage (up to and including I61.4)	Stroke
I63	Cerebral Infarction (exclusive of I63.6 due to blood dyscrasia)	Stroke
I64	Stroke not specified as haemorrhage or infarction	Stroke
38497, 385, 90201	Bypass Surgery	IHD
353	Angioplasty	IHD
335	Carotid endarterectomy	Stroke
382, 59903	Angiography	IHD
37215	Carotid stent	Stroke

## Measures

Self-report data regarding the study outcomes were collected via participant completion of the secondary prevention questionnaire at baseline (Appendix 6) and at follow-up (Appendix 7). The questionnaire was based on an existing questionnaire used by the Register. The questionnaire included items to determine the participants' self-reported use of CVD medications and receipt of advice from their GP regarding physical activity, diet and smoking cessation. The questionnaire also included items to assess CVD risk factors such as previous diagnosis of high blood pressure, high cholesterol, atrial fibrillation, and participant level of physical activity, smoking behaviour (smoking in past week, and in past 6 months), and following a modified fat diet.

Socio-demographic and clinical characteristics such as patient gender, age, discharge diagnoses, length of stay and address were obtained from hospital data held by the Register.

The follow-up questionnaire sent to the Patient Intervention participants included additional items that assessed the participant's receipt of the various intervention components, and the reported usefulness and acceptability of those components.

## Data management and statistical methods

Data from the secondary prevention questionnaire were entered into a database to generate the patient risk and care report cards. A 10 per cent sub sample of randomly selected baseline surveys was reviewed against coding criteria, and re-entered to assess accuracy of data entry. The Kappa statistic was used to determine agreement between the re-entered data.

Age was categorised into age bands of: less than 59 years; between 60 and 69 years; between 70 and 79 years; and over 80 years of age. Length of hospital stay was calculated by subtracting date of hospital admission from date of hospital discharge, and categorised into: four days or less; between five and seven days; and eight days or more. Discrete discharge diagnoses categories for both heart and stroke events were created as: ischaemic heart disease (IHD), angina pectoris (UAP), AMI, and stroke.

CVD medications were classified according to their primary actions, that is, as either anti-hypertensive, anti-cholesterolaemic, and anti-coagulant medications using the International Anatomical Therapeutic Chemical classification system.<sup>77</sup> In addition, aspirin use was also reported.

Characteristics of eligible individuals who agreed to participate in the study were compared with those who did not, using the chi-square test for categorical variables, and t-test (or the non-parametric rank sum test) for continuous variables. Baseline socio-demographic,



clinical, risk factor, CVD medication use, and CVD behavioural risk advice characteristics of those participants who received each particular intervention and those who did not were similarly compared.

To determine the effect of the interventions, comparisons were made at follow-up between participants who did and did not receive an intervention. For each comparison, the proportions of participants who reported the use of each CVD medication category were assessed, as were the proportions who reported the receipt of advice regarding diet, physical activity and smoking cessation from their GP. The chi square test with an adjustment for clustering was used to determine the statistical significance of any observed differences between participants. With the exception of smoking advice, the denominator in these analyses included all participants. For smoking advice, the denominator used was all smokers.

Separate analyses were conducted to assess the individual effects of the Patient and GP Interventions, and the combined effect of both interventions on each specific medication and behavioural risk outcome. To assess the individual effect of the Patient Intervention, all participants that received the intervention (that is, participants in the Patient Intervention experimental group plus those in the Patient and GP Interventions group) were compared to all participants that did not (that is, participants in the GP Intervention experimental group plus those in the No Intervention group). The effect of the GP Intervention was similarly assessed. All study participants were included in both analyses.

To assess the combined effect of both the Patient and GP Interventions, participants who received the Patient and GP Interventions were compared to those in the No Intervention (control group), thus involving only a subset (approximately half) of all study participants.

It was estimated that there would be approximately 2,250 patients with discharge diagnoses of interest. Assuming a 65 per cent consent rate (10 per cent lower than current Register consent rates to allow some non-consent for provision of secondary prevention data), 1,460 patients were estimated to be recruited. Allowing for an 80 per cent return rate at six month follow-up (including a 10 per cent death rate) it was estimated that there would be approximately 1,170 patients for follow-up analysis. This was considered sufficient to provide 580 participants that would receive a particular intervention, and 580 that would not, sample sizes sufficient to detect a 10 per cent difference between such participants in CVD medication use, regular physical activity and

modified diet, and a 20 per cent difference in quitting smoking, assuming  $p < 0.05$  and 80 per cent power, and an allowance of 30 per cent for adjustment of confounders (10%) and clustering effect (20%).

It was expected that the effect of clustering of patients within GPs would be limited as the number of GPs was large and the number of patients per GP was expected to be small. For a six month period prior to the study, over 400 GPs were linked to Register participants, 50 per cent of whom had between one and three patients admitted, and 80 per cent of whom had less than 15 patients admitted. Assuming an average of five patients per GP, and an intra-class correlation coefficient of 0.05, the design effect was estimated to be 1.2.

## Ethics approval

Ethics approval was granted by the University of Newcastle Human Research Ethics Committee and the Hunter Area Health Service, Hunter Area Research Ethics Committee.

# Results

## Sample

During the period of the study, 2,613 patients over 20 years of age and living in the Hunter Region were discharged alive from a public hospital in the Hunter Region. Of these, 18 were living in a nursing home and were ineligible for the study and 74 could not be contacted (mail was returned to sender). Of the remaining 2,521 individuals, 1,823 (72%) agreed to have their details held by the Register, 1,239 of whom consented to participate in the study (68% of Register participants and 49% of eligible individuals). The figure provides a flowchart of recruitment and participation in the study.

On average, the time between discharge from hospital and agreement to be part of the study was 15 weeks. A median of two weeks elapsed between the date of consent and the date that the intervention was mailed to participants. Median completion of six month follow-up surveys was approximately one week after mail-out.

Of the 1,239 study participants at baseline, 28 had died before follow-up. Of the remaining participants at follow-up, nine had their questionnaire 'returned to sender', 15 refused to provide data and 108 did not respond to contact. Thus 1,059 (85%) of initial participants provided baseline and follow-up data. All subsequent analyses included only these participants.

Table 3 presents details of eligible individuals who did and did not agree to participate in the study. Participants were significantly younger, less likely to be female, less likely to have a diagnosis of stroke, and had a shorter length of stay in hospital than non-participants ( $p \leq 0.0001$  for age, length of stay, gender and diagnosis).

Participants nominated 356 different GPs from 151 practices. One hundred and twenty nine GPs were nominated by one study participant only (12% of participants), 48 GPs by two to five study participants ( $n=564$ ; 53% of participants), and 179 GPs by six or more participants ( $n=365$ ; 33% of participants).

Based on the analysis of data entry and re-entry accuracy, all but one variable had a Kappa score of between 0.85 and 1.00.

## Randomisation of general practitioners and participants

Randomisation of participants (based on their nominated usual GP) resulted in the following allocation to intervention groups: 252 (21%) to Patient Intervention; 287 (23%) to GP Intervention; 329 (27%) to Patient and GP Interventions; and 354 (29%) to No Intervention.

**Table 3: Characteristics of study consenters and non-consenters**

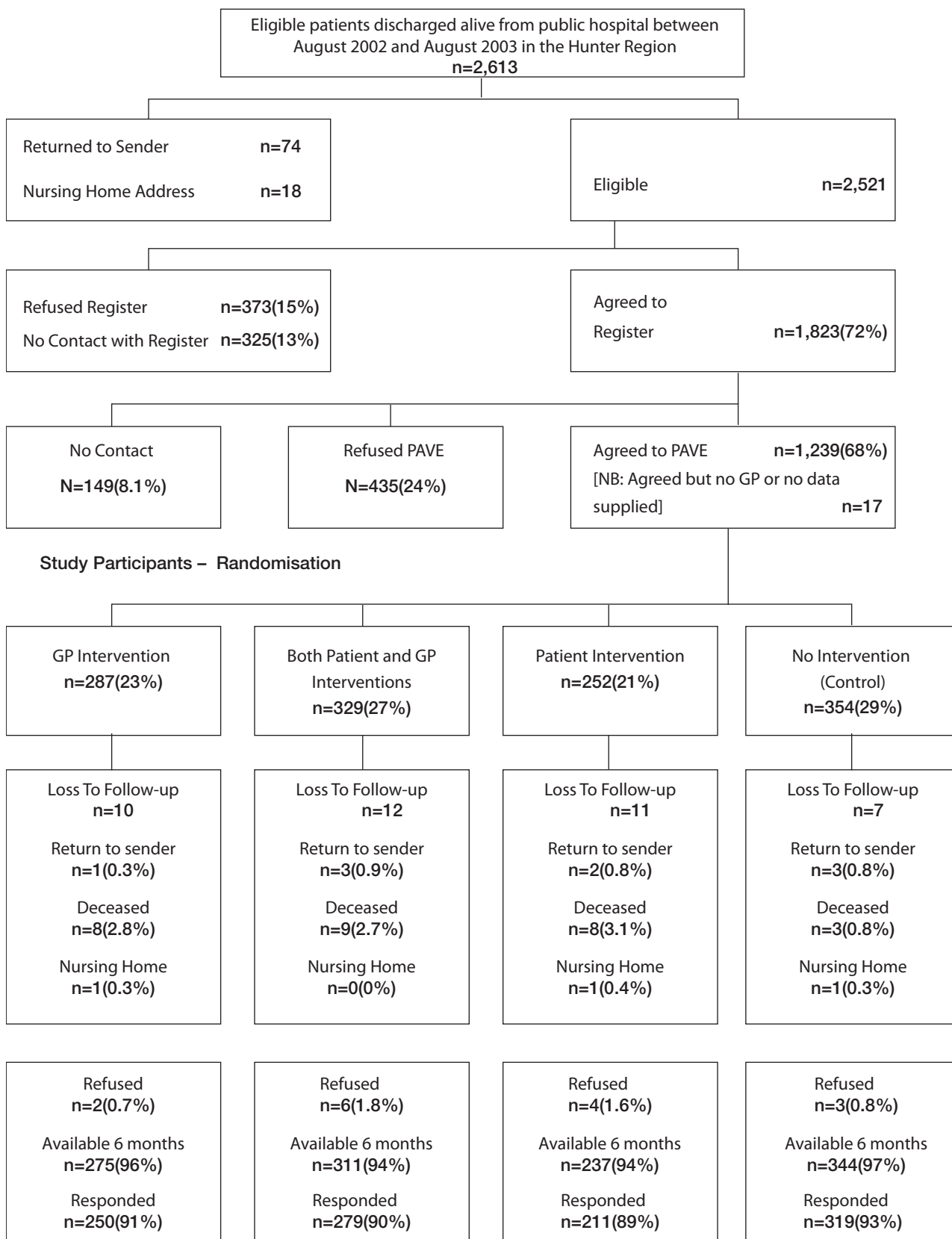
	Consented to participate		Test statistic	
	Yes (n=1,239)	No (n=1,282)	df	P
<b>Age – years</b>				
Mean (SD)	68.0 (0.33)	69.7 (0.32)	1	<0.0001 <sup>a</sup>
<b>Length of stay - days</b>				
Median (range)	3 (1 – 6)	4 (1 – 7)	1	<0.0001 <sup>b</sup>
<b>Gender</b>			1	<0.0001 <sup>c</sup>
Male n (%)	824 (67)	700 (55)		
Female n (%)	415 (33)	582 (45)		
<b>Diagnosis</b>			3	<0.0001 <sup>c</sup>
IHD n (%)	235 (19)	171 (13)		
UAP n (%)	509 (41)	516 (40)		
AMI n (%)	313 (25)	314 (25)		
Stroke n (%)	179 (14)	279 (22)		

<sup>a</sup>students

<sup>b</sup>ranksum

<sup>c</sup>chi square

Figure: Flow diagram of participants' progress through the PAVE Study



## Socio-demographic and clinical characteristics of participants

The socio-demographic and clinical characteristics of study participants by type of intervention received are shown in Tables 4a to 4c. There was a higher proportion of participants who received the GP Intervention residing

in an urban location, relative to those that did not (72% versus 65% respectively;  $P=0.01$ ). Similarly, there was a greater proportion of participants who received Patient and GP Interventions that were from an urban location, relative to those who received No Intervention (75% versus 64% respectively;  $P=0.007$ ).

**Table 4a: Characteristics of Patient Intervention participants**

Characteristic	Received Patient Intervention				$\chi^2$	df	P
	Yes		No				
	n	%	n	%			
Male Gender	335	68	370	65	1.32	1	0.25
Age Group							
< 59 years	105	21	143	25			
60-69 years	134	27	147	26			
70-79 years	182	37	193	34			
80+ years	69	14	86	15	2.73	3	0.43
Urban location	348	71	379	67	2.38	1	0.12
Discharge diagnosis							
AMI	124	25	144	25			
UAP	198	40	239	42			
IHD	92	19	110	19			
stroke	76	16	76	14	1.05	3	0.79
New Admission	338	69	374	66	1.26	1	0.26
Length of Stay							
≤4days	320	65	370	65			
5-7 days	93	19	106	19			
8 + days	77	16	93	16	0.08	2	0.96

**Table 4b: Characteristics of GP Intervention participants**

Characteristic	Received GP Intervention				$\chi^2$	df	P
	Yes		No				
	n	%	n	%			
Male Gender	355	67	350	66	0.14	1	0.71
Age Group							
< 59 years	122	23	126	24			
60-69 year	136	26	145	27			
70-79 years	188	36	187	35			
80+ years	83	64	72	12	6.01	3	0.11
Urban location	382	72	345	65	6.23	1	0.01
Discharge diagnosis							
AMI	135	26	133	25			
UAP	220	42	217	41			
IHD	88	17	114	22			
stroke	86	16	66	12	6.01	3	0.11
New Admission	369	70	343	65	3.04	1	0.08
Length of Stay							
≤ 4days	341	64	349	66			
5-7 days	104	20	95	18			
8 + days	84	16	86	16	0.52	2	0.77

**Table 4c: Characteristics of combined intervention participants**

Characteristic	Received Patient and GP Interventions				$\chi^2$	df	P
	Yes		No				
	n	%	n	%			
Male Gender	194	70	209	66	1.09	1	0.29
Age Group							
< 59 years	59	21	80	25			
60-69 years	70	25	81	25			
70-79 years	106	38	111	35			
80+ years	44	16	47	15	1.52	3	0.43
Urban location	208	75	205	64	7.37	1	0.007
Discharge diagnosis							
AMI	71	25	80	25			
UAP	111	40	130	41			
IHD	48	17	70	22			
stroke	49	18	39	12	4.62	3	0.20
New Admission	202	72	207	65	3.88	1	0.05
Length of Stay							
≤ 4days	176	63	205	64			
5-7 days	58	21	60	19			
8 + days	45	16	54	17	0.38	2	0.82

## CVD risk factor characteristics of participants

At baseline, approximately two-thirds of participants reported being told they had high blood pressure, between 56 and 60 per cent reported being told they had high cholesterol and between 27 and 32 per cent reported being told they had atrial fibrillation. Almost half of the study participants reported adequate physical activity at baseline (49%–52%), between 12 and 16 per cent reported smoking in the

previous six months, with fewer (5.8%–9.0%) reporting smoking in the past week, and more than 80 per cent (81%–82%) followed a modified fat diet.

Baseline prevalence of CVD risk factors by type of intervention received is shown in Tables 5a to 5c. The self-reported prevalence of risk factors was similar for all participants, except that a slightly higher proportion of those who received the GP Intervention reported smoking in the last week (9.0%), relative to those that did not (5.8%;  $P = 0.04$ ).

**Table 5a: Baseline risk factors of Patient Intervention participants**

Risk Factor	Received Patient Intervention				Test Statistic <sup>#</sup>	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Ever told high blood pressure	319	66	374	66	0.02	0.89
Ever told high cholesterol	279	58	330	59	0.03	0.86
Ever told atrial fibrillation	138	29	166	30	0.24	0.62
Adequate physical activity	228	51	253	49	0.35	0.55
Following modified fat diet	324	82	369	81	0.15	0.68
Smoking in the past 6 months	59	12	88	16	2.69	0.16
Smoking in the past week	30	6.2	47	8.4	1.85	0.29

<sup>#</sup>  $\chi^2$  with 1 degree of freedom

**Table 5b: Baseline risk factors of GP Intervention participants**

Risk Factor	Received GP Intervention				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Ever told high blood pressure	350	66	343	66	0.04	0.85
Ever told high cholesterol	297	57	312	60	0.89	0.32
Ever told atrial fibrillation	143	28	161	32	1.72	0.20
Adequate physical activity	241	50	240	49	0.02	0.87
Following modified fat diet	340	81	353	81	0.01	0.94
Smoking in the past 6 months	79	15	68	13	0.93	0.38
Smoking in the past week	47	9.0	30	5.8	4.02	0.08

#  $\chi^2$  with 1 degree of freedom

**Table 5c: Baseline risk factors of combined intervention participants**

Risk Factor	Received Patient and GP Interventions				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Ever told high blood pressure	183	66	207	66	0.00	0.98
Ever told high cholesterol	155	57	188	60	0.58	0.46
Ever told atrial fibrillation	74	27	97	32	1.46	0.31
Adequate physical activity	135	52	147	50	0.28	0.60
Following modified fat diet	180	82	209	81	0.09	0.78
Smoking in the past 6 months	35	13	44	14	0.24	0.69
Smoking in the past week	22	7.9	22	7.0	1.19	0.73

#  $\chi^2$  with 1 degree of freedom

## Baseline CVD medication use

A large proportion of participants reported being on antihypertensive medication (83%–86%), cholesterol lowering medication (69%–76%), or aspirin (81%–84%) at baseline. Only a small proportion of participants were on anticoagulation medication (7.5%–11%).

Baseline prevalence of CVD medication use by type of intervention received is shown in Tables 6a to 6c. A higher proportion of participants who did not receive the GP Intervention used cholesterol lowering medication relative to those who received the GP Intervention (76% versus 69%;  $P = 0.01$ ).

**Table 6a: Baseline CVD medication use of Patient Intervention participants**

Medication	Received Patient Intervention				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Anti-hypertensive	417	85	488	86	0.09	0.75
Anti-cholesterolaemic	362	74	409	72	0.53	0.44
Aspirin	397	83	455	81	0.34	0.54
Anticoagulant	44	8.9	60	10	0.72	0.39

#  $\chi^2$  with 1 degree of freedom

**Table 6b: Baseline CVD medication use of GP Intervention participants**

Medication	Received GP Intervention				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Anti-hypertensive	448	85	457	86	0.50	0.46
Anti-cholesterolaemic	367	69	404	76	6.27	0.01
Aspirin	430	84	422	81	0.28	0.59
Anticoagulant	47	8.9	57	11	1.04	0.32

#  $\chi^2$  with 1 degree of freedom

**Table 6c: Baseline CVD medication use of combined intervention participants**

Medication	Received Patient and GP Interventions				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Anti-hypertensive	232	83	272	85	0.50	0.38
Anti-cholesterolaemic	199	71	241	76	1.36	0.18
Aspirin	231	83	256	81	0.58	0.39
Anticoagulant	21	7.5	34	11	1.75	0.14

#  $\chi^2$  with 1 degree of freedom

## Baseline CVD behavioural risk advice

Between 75 and 80 per cent of participants reported receiving advice to undertake physical activity, with slightly fewer reporting receiving dietary advice (65%-70%). Most smokers (86%-94%) reported receiving smoking cessation advice.

Baseline prevalence of CVD behavioural risk factor advice by type of intervention received is shown in Tables 7a to 7c. The provision of such advice did not differ significantly between participants of any intervention type.

**Table 7a: Baseline behavioural risk factor advice of Patient Intervention participants**

Self-report of receipt of:	Received Patient Intervention				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Physical activity advice	370	78	410	76	2.41	0.08
Dietary advice	268	68	311	67	0.09	0.77
Smoking cessation advice	51	89	78	91	0.06	0.81

#  $\chi^2$  with 1 degree of freedom

**Table 7b: Baseline behavioural risk factor advice of GP Intervention participants**

Self-report of receipt of:	Received GP Intervention				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Physical activity advice	391	78	389	77	0.25	0.57
Dietary advice	295	70	284	65	1.67	0.23
Smoking cessation advice	73	94	56	86	2.22	0.14

#  $\chi^2$  with 1 degree of freedom

**Table 7c: Baseline behavioural risk factor advice of combined intervention participants**

Self-report of receipt of:	Received Patient and GP Interventions				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Physical activity advice	212	80	231	75	1.79	0.16
Dietary advice	154	70	170	65	1.16	0.31
Smoking cessation advice	32	94	37	88	0.81	0.39

#  $\chi^2$  with 1 degree of freedom

## Follow-up CVD medication use

Levels of CVD medication use at follow-up by type of intervention received are shown in Tables 8a to 8c. There were no significant differences in antihypertensive, cholesterol lowering, aspirin and anti-coagulant use for each intervention comparison.

**Table 8a: Follow-up medication use by Patient Intervention participants**

Medication	Received Patient Intervention				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Anti-hypertensive	415	85	497	87	1.55	0.19
Anti-cholesterolaemic	370	76	424	75	0.14	0.69
Aspirin	386	80	436	79	0.96	0.30
Anticoagulant	51	10	66	12	0.38	0.56

#  $\chi^2$  with 1 degree of freedom**Table 8b: Follow-up medication use by GP Intervention participants**

Medication	Received GP Intervention				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Anti-hypertensive	450	85	462	87	0.98	0.30
Anti-cholesterolaemic	385	73	409	77	2.72	0.07
Aspirin	407	79	415	80	0.09	0.76
Anticoagulant	53	10	64	12	1.14	0.29

#  $\chi^2$  with 1 degree of freedom**Table 8c: Follow-up medication use by combined intervention participants**

Medication	Received Patient and GP Interventions				Test Statistic #	
	Yes		No		$\chi^2_1$	P
	n	%	n	%		
Anti-hypertensive	233	84	280	88	2.22	0.10
Anti-cholesterolaemic	206	74	245	77	0.70	0.35
Aspirin	220	80	249	79	0.76	0.33
Anticoagulant	24	8.6	37	12	1.46	0.20

#  $\chi^2$  with 1 degree of freedom



## Follow-up CVD behavioural risk advice

Levels of CVD behavioural risk advice at follow-up by type of intervention received are shown in Tables 9a to 9c. No significant differences were observed in receipt of advice regarding diet modification and smoking cessation for each intervention comparison.

Patient reported receipt of advice regarding physical activity was significantly higher for participants who received the Patient Intervention relative to those that did not (86% versus 81% respectively;  $\chi^2 = 4.32$ ,  $df = 1$ ,  $P = 0.04$ ).

**Table 9a: Follow-up behavioural risk factor advice by Patient Intervention participants**

Self-report of receipt of:	Received Patient Intervention				Test statistic #	
	Yes		No		$\chi^2_{11}$	P
	n	%	n	%		
Physical activity advice	406	86	453	81	4.32	0.04
Dietary advice	324	82	367	78	2.37	0.13
Smoking cessation advice	40	93	57	90	0.21	0.64

#  $\chi^2$  with 1 degree of freedom

**Table 9b: Follow-up behavioural risk factor advice by GP Intervention participants**

Self-report of receipt of:	Received GP Intervention				Test Statistic #	
	Yes		No		$\chi^2_{11}$	P
	n	%	n	%		
Physical activity advice	429	84	430	83	0.38	0.54
Dietary advice	344	81	347	78	1.04	0.33
Smoking cessation advice	53	95	44	88	1.50	0.22

#  $\chi^2$  with 1 degree of freedom

**Table 9c: Follow-up behavioural risk factor advice by combined intervention participants**

Self-report of receipt of:	Received Patient and GP Interventions				Test statistic #	
	Yes		No		$\chi^2_{11}$	P
	n	%	n	%		
Physical activity advice	230	87	254	81	3.35	0.07
Dietary advice	184	82	207	76	2.68	0.15
Smoking cessation advice	24	92	28	85	0.77	0.35

#  $\chi^2$  with 1 degree of freedom

## Behavioural risk factor prevalence at follow-up

There were no significant differences in the prevalence of CVD behavioural risk factors between participants by type of intervention received.

## Patient Intervention delivery

Three quarters of participants reported receiving the intervention pack, 61 per cent stated that they received the report card, with most reading, using and understanding it (Table 10). However, less than 20 per cent took the report card to their GP. While almost half of the participants reported receiving and using the resource map, only 11 per cent contacted providers identified on the map.

**Table 10: Intervention process measures**

<b>Variables</b>	<b>n</b>	<b>%</b>
Received Pack	357	76
Read report card	262	61
Used report card	236	58
Understood report card	243	61
Kept report card	156	39
Took report card to GP	71	18
Left report card copy with GP	39	9.8
Read Map	201	50
Used Map	180	45
Understood Map	193	49
Kept Map	133	34
Make contact with provider on Map	43	11

*Note: Numbers do not add to total because of missing values*

## SECTION 6

# Discussion

The aim of the PAVE study was to determine whether the delivery of secondary prevention care to individuals following a CHD or stroke hospital admission could be enhanced by two mailed register-based interventions. The findings of the study clearly demonstrate that the simple collation and mailing of register statistics, albeit tailored to an individual's need for preventive care, was not sufficient to achieve this aim. High levels of secondary prevention care for most care elements addressed by the study were evident at baseline.

The use of a 2x2 factorial cluster RCT design was a strength that enabled the rigorous and concurrent analysis of a number of interventions, both singularly and in combination. Similarly, the use of multiple and diverse outcome measures enabled the effectiveness of these interventions to be efficiently assessed across a range of the most relevant outcome measures. Implementation of the study was successful in terms of the success of practitioner/participant randomisation, and the limited loss of participants at follow-up.

A statistically significant finding was obtained with respect to an increase in physical activity advice provided to those participants who received the Patient intervention ( $p=0.04$ ). Although this finding suggests the potential efficacy of the intervention, given the observed level of significance, and the increased probability of such a result occurring as a consequence of the large number of analyses conducted, caution should be exercised in interpreting the result in this way. Given the number of analyses conducted, a more conservative probability level of at least  $p=0.01$  may be considered appropriate for concluding a significant intervention effect.

Previous evidence has suggested that disease registers can be effective in enhancing the delivery of care, preventive or otherwise.<sup>11,37,67,72,73</sup> There are no other studies that have assessed the effect of centralised disease register interventions on increasing CVD secondary prevention care with which to draw direct comparisons. The results of this study contrast with the findings of general practice-based studies that suggest that reminder and prompt interventions are efficacious in increasing practitioner adherence to clinical practice guidelines.<sup>52,57,59-66</sup>

A number of factors may have contributed to the non-significant findings of this study. First, data from previous studies,<sup>24-28,30,32,34,35,40,44-51</sup> and early data from the Register itself suggested that a significant proportion of individuals were not receiving recommended secondary prevention care following discharge from hospital. In contrast to these previous reports, a large proportion of participants in this study reported being on anti-hypertensive, cholesterol lowering, or aspirin medications (69%–86%). Similarly, a large proportion of relevant participants (75%–94%) reported receiving advice regarding physical activity and smoking, with slightly fewer reporting receiving dietary advice (65%–70%). Although an opportunity exists to further enhance these forms of care, particularly anti-coagulant use and dietary advice, the higher than expected prevalence of secondary prevention care at baseline may have limited the capacity of the study to achieve its stated outcomes.

A second possible explanation for the non-significant findings of the study relates to a number of aspects of the design and delivery of the interventions. The focus of the interventions was the need for enhanced communication of patient information between hospital and GP. Both interventions were designed based upon strategies shown to be effective in addressing this need. Implicit in the design of the interventions was an expectation that the mailed delivery of tailored patient information would be sufficient to alter the clinical behaviour of GPs.

However, evidence has been published that suggests that changing the clinical practice of health care providers requires a more complex array of determinants to be addressed, and hence may require a more comprehensive intervention approach than the provision of information alone.<sup>78</sup> The determinants suggested as important in the achievement of clinical practice change include: the development of professional support for the changed practice within the clinical environment; the development of infrastructure and systems that enable the routine implementation of that practice; the training of health care providers in the rationale for, and skills required to undertake the changed practice; and the ongoing monitoring and feedback to clinicians of their delivery of

that practice.<sup>78</sup> In short, initiatives to increase secondary prevention need to focus on not only the information needs of GPs, but also on their organisational capacity to respond. In comparison to this prescription, the PAVE study interventions only partially addressed a number of these determinants, and importantly did not address the professional support, training, or system aspects of delivering secondary prevention care at the practice level.

A key design element of both interventions involved the delivery to GPs of risk and care information regarding specific patients in their usual care. The intention of providing such information was to provide feedback to the practitioner regarding the potential care needs of such patients. In addition to this specific tailored information, the GP Intervention also included aggregate data regarding the provision of secondary prevention care to Register patients. Existing evidence of the effectiveness of feedback in improving practitioner delivery of care indicates that such feedback needs to be specific, personalised and immediate.<sup>55</sup> In many instances such evidence has involved the provision of feedback and/or prompts, often in computerised form in the context of a specific patient consultation.<sup>57</sup> It is possible that the practitioners in this study did not perceive the patient information met these criteria.

With regard to the timing of the information package being delivered to the GP, the average period of at least 3 months between hospital discharge and mailing of the intervention is unlikely to have met the requirement for immediacy of feedback. In any future study of register-based interventions, more efficient data dissemination systems need to more closely align the provision of information with a specific occasion of care delivery. The potential exists, for example, for the register data to be disseminated electronically to the GP in much the same way as electronic discharge summaries are currently forwarded to practitioners following a patient's discharge from hospital.

In addition to the content and timing of the intervention being possible explanations for the non-significant study findings, the method of intervention delivery may have also contributed. Previous research undertaken with Australian GPs has demonstrated that clinical practice change regarding the provision of preventive care is less likely to occur if dissemination of an intervention occurs by mail, and is more likely to occur if the intervention is more intensive and delivered in person.<sup>79</sup> In the context of these possible explanations for the non-significant findings of this study, a more comprehensive intervention approach, delivered in a face-to-face fashion, may be required if GP provision of secondary prevention care is

to be increased.

A third possible explanation for the non-significant study findings involves the low level of participant usage of key elements of the Patient Intervention. Most notably, only 18 per cent of participants took their risk and care report card to their GP. Based on these data, it is unlikely that the intended purpose of the Patient Intervention, that is, to empower participants to facilitate the delivery of secondary prevention care by their GP, was achieved at a level sufficient to result in a significant positive outcome. The reasons for this less than intended uptake of the intervention by participants are not known, as are the practitioners' responses to such patient initiated action. Further analysis of the likelihood of such a patient intervention being effective is therefore required. Such an analysis should consider, in the first instance, the nature of the interaction between patient and practitioner, the perceived roles of patients and practitioners in the consultation process, and the likelihood of each undertaking the intervention actions required.

Finally, the PAVE study interventions were founded on the use of data from an assumed credible source. Although the integrity of the data, and of the Register itself are not in question, the Register may not have been sufficiently well recognised by GPs or members of the public for it to facilitate the required level of response. Prior to the study, the Register was an internal health service unit jointly managed by the University of Newcastle and the former Hunter Area Health Service, with its activity overseen by an advisory committee that included GP and consumer representatives. Its primary role was to collate epidemiological and health service data for use, in an ad hoc fashion, by the health service, other interested health care providers, and by researchers. Its role in proactively disseminating such information to the public, or directly influencing care delivery practices or policies, was limited. Any future research into the effectiveness of register-based interventions should therefore ensure an adequate level of public and practitioner awareness of the register and its purposes.

The potential impact of a number of additional study design and study implementation factors need to be considered. The use of patient self-report data in the measurement of the study outcomes raises the possibility that limitations in participant knowledge, recall, or preparedness to respond accurately may have resulted in inaccurate reporting of medication use, or receipt of advice. The extent to which this occurred, and resulted in the prevalence of these outcomes being either an under or over estimate of actual care provision is unknown.

However, given the successful randomisation of participants to groups in the study, it is considered unlikely that any inaccuracy in the reporting of the outcome measures would have varied systematically between groups, and hence resulted in biased study results.

Given the possible impact of inaccuracy in the self-report of the study outcomes, caution should be exercised in generalising the observed prevalence of secondary prevention care in this study sample to other populations. With regard to the significance of these prevalence estimates for the Hunter Region population itself, an assessment of the validity of the self-report data routinely collected by the Register may be warranted. In the event that such an assessment indicates that the levels observed in this study reflect actual levels of care provision, an opportunity exists for the development of targeted interventions that value add to existing levels of clinical care. If such an assessment indicates lower levels of actual care, the need for consideration of additional intervention initiatives, register-based or otherwise is strengthened.

The low overall response rate (49%) achieved in the study raises the possibility that those who participated were least likely to respond positively to the interventions. Analysis of the characteristics of responders and non-responders identified differences between the two groups in terms of age, gender, length of stay and diagnosis. The potential exists for these and other, unmeasured characteristics, to have contributed to the observed pattern of findings. For example, the finding that older patients, and those with a longer length of stay, and those with a discharge diagnosis of stroke were less likely to participate, may have contributed to a bias towards participants with less severe health impacts and poorer health outcomes being more likely to participate in the study. The impact of such a bias on participant response to the intervention, or practitioner delivery of secondary prevention care to such participants is unknown.

With the exception of smoking advice, all outcome analyses included all participants in the denominator, rather than only those participants with the relevant risk factor. This design was selected to ensure the feasibility of obtaining a sufficiently large sample of participants in the study period. In addition, this approach was chosen as the validity of self-reported risk factor status was uncertain, that is, individuals may not have been told or could not recall being told they have high blood pressure. The possibility exists that, as a consequence of this analytical approach, any effect of the interventions on those most 'at risk' may have been masked.

## SECTION 7

# Conclusion and recommendations

The findings of this study suggest that the simple mailing of CVD register-based information and prompts, as described in this study, were not effective in increasing participant use of recommended CVD medications, or their receipt of GP CVD behavioural risk advice. The consistency of no intervention effect across the intervention types and levels, and across the multiple and diverse outcome measures strengthens this conclusion. Given these findings, and those of previous studies, there is insufficient evidence upon which to make a recommendation that such interventions should be incorporated into the routine practice of CVD registers.

This study found higher than expected levels of some aspects of preventive care at baseline. Further research is required to confirm these findings with more recent data and to identify whether alternative approaches to the use of register data can be effective in improving GP delivery of secondary prevention care. It is recommended the Register conduct such research and consider adopting a more proactive approach to facilitating GP delivery of preventive care.

## SECTION 8

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# Appendices

## Appendix 1: Sample patient letters (Heart)

### How to Prevent Another Vascular Event (Heart & Stroke)



HUNTER HEALTH  
*Improving Health in the Hunter*

22<sup>nd</sup> August 2002

Mrs .....

Address

Suburb

Dear Mrs .....



**Heart  
Foundation**



The UNIVERSITY  
of NEWCASTLE  
AUSTRALIA

Recently you completed a Questionnaire from the Heart and Stroke Register, from your answers we have put together a summary which highlights the health advice and care you reported in that survey. This summary also suggests areas which current research shows are likely to help you avoid further heart problems.

From your report, the areas of **your** health which may need to be addressed in a care plan include:

- Blood Pressure control
- Cholesterol control
- Physical Activity increase
- Diet changes

A new health program in the Hunter is helping patients and General Practitioners work as a team to improve the health of people with heart problems. This may result in your GP developing a care plan for you which includes appropriate specialist services such as physiotherapists, dietitians, occupational therapists, rehabilitation etc. Dr (*name*) has also received a report detailing your risk factors.

A package attached to this letter contains

- a map which lists locations and phone numbers of local services
- a report which lists your heart disease risk factors as well as National Health Recommendations to help you reduce the risk of further heart problems.

We hope you will find this package useful.

When you next visit your doctor please take your summary sheet to help plan your care. You may need to ask for a longer consultation, which you can still claim from Medicare.

Yours sincerely

Project Manager: Alison Koschel  
Level 3, David Maddison Clinical Sciences Building  
Ph: (02) 49236276 e-mail akoschel@mail.newcastle.edu.au

## How to Prevent Another Vascular Event (Heart & Stroke)

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22<sup>nd</sup> August 2002

Mrs .....  
Address  
Suburb

Dear Mrs .....

A new health program in the Hunter is helping patients and General Practitioners work as a team to improve the health of people with stroke problems. This may result in your GP developing a care plan for you which includes appropriate specialist services such as physiotherapists, dietitians, occupational therapists, rehabilitation etc.

From your answers to the Heart and Stroke Register Survey which you mailed back recently we put together a summary which highlights the health advice and care you reported in that survey. This summary also suggests areas which current research shows are likely to help you avoid further stroke problems.

From your report, the areas of **your** health which may need to be addressed in a care plan include:

- Blood Pressure control
- Physical Activity increase
- Control of Atrial Fibrillation

Dr (*name*) has also received a report detailing your risk factors.

This package also contains a map of some relevant health services within the Hunter Region. We hope you will find this package useful.

When you next visit your doctor please take your summary sheet to help plan your care. You may need to ask for a longer consultation, which you can still claim from Medicare, to discuss this with your GP.

Yours sincerely

## Appendix 2: Sample patient report card (Heart)

Patient Summary of Prevention Care		Name: .....	DOB: .....
(as reported on your Heart and Stroke Survey 20/1/2002)		Diagnosis: <b>Myocardial Infarction</b> Discharge Date: <b>22 Jan 2002</b>	
<b>You reported that you:</b>	<b>Discuss with your GP*</b>	<b>Summary of Heart Foundation Recommendations for Care</b>	
<ul style="list-style-type: none"> <li>■ have booked to attend cardiac rehabilitation</li> </ul>		<ul style="list-style-type: none"> <li>■ Attending cardiac rehabilitation can reduce your risk of further heart problems, discuss with your GP</li> <li>■ Contact your local cardiac rehabilitation coordinator (see resource map)</li> </ul>	
<ul style="list-style-type: none"> <li>■ have a history of high blood pressure</li> <li>■ have been advised to increase physical activity</li> <li>■ have not been advised to follow a modified fat diet</li> <li>■ <b>currently taking:</b> Amlodipine, Captopril, Renitec, Atenolol</li> </ul>	*	<ul style="list-style-type: none"> <li>■ Have BP and medication checked regularly by your GP</li> <li>■ Reduce salt and modify/lower fat in your food</li> <li>■ Consult a dietitian ( Resource Map) or contact Heartline 1300362787</li> <li>■ Reduce alcohol intake to two standard drinks per day</li> <li>■ Manage physical activity (Heartmoves /Resource map)</li> <li>■ Manage weight</li> </ul>	
<ul style="list-style-type: none"> <li>■ are exercising for 30 mins on <b>3</b> days/week</li> <li>■ have been advised to increase physical activity</li> <li>■ have been exercising more than 6 months</li> </ul>	*	<ul style="list-style-type: none"> <li>■ At least 30 minutes or more of moderate physical activity on 5 or more days of the week (3 lots of 10 minutes is OK)</li> <li>■ Discuss and get clearance from GP before starting exercise</li> <li>■ Consider referral to Heartmoves</li> </ul>	
<ul style="list-style-type: none"> <li>■ have never smoked</li> </ul>		<ul style="list-style-type: none"> <li>■ Avoid smoke filled rooms and cars as passive smoke increases your risk of further heart problems</li> </ul>	
<ul style="list-style-type: none"> <li>■ have a history of high cholesterol</li> <li>■ do not follow a modified fat diet</li> <li>■ have not been advised to follow a modified fat diet</li> <li>■ are thinking about following a modified fat diet</li> <li>■ are currently taking: Pravastatin</li> </ul>	*	<ul style="list-style-type: none"> <li>■ Have cholesterol levels and medication checked regularly by your GP</li> <li>■ Modify / lower amount of fat in your diet</li> <li>■ Consult dietitian or ring Heartline on 1300362787</li> <li>■ Limit alcohol intake</li> <li>■ Increase physical activity (Heartmoves /resource map)</li> <li>■ Manage / reduce weight</li> </ul>	
<ul style="list-style-type: none"> <li>■ weigh 65kg and your height is 154cm</li> <li>■ within the healthy weight range</li> </ul>		<ul style="list-style-type: none"> <li>■ Maintaining healthy weight by regular physical activity and healthy eating reduces the risk of more heart problems</li> </ul>	
<ul style="list-style-type: none"> <li>■ do not have a history of diabetes</li> </ul>		<ul style="list-style-type: none"> <li>■ Diabetes can increase your risk of heart disease. Please see your GP for routine annual screening</li> </ul>	
<ul style="list-style-type: none"> <li>■ have been advised to take aspirin</li> <li>■ <b>currently taking:</b> Cartia, Clopidogrel</li> </ul>		<ul style="list-style-type: none"> <li>■ Small doses of Aspirin are usually prescribed for people with heart disease (prevents clots from forming)</li> </ul>	

\* = *You and your GP can make a difference - discuss a plan for your ongoing Heart care with your GP*  
*Help Prevent Another Vascular Event (Heart and Stroke)*

# Appendix 2 (cont'd): Sample patient report card (Stroke)

Patient Summary of Prevention Care      Name: .....      DOB: .....  
 (as reported on your Heart and Stroke Survey 20/1/2002)      Diagnosis: **Ischaemic Stroke**      Admit Date: **22 Jan 2002**

	<b>You reported that you:</b>	<b>Discuss with your GP *</b>	<b>Summary of Heart Foundation Recommendations for Care</b>
<b>Blood Pressure</b>	<ul style="list-style-type: none"> <li>■ have a history of high blood pressure</li> <li>■ have been advised to increase physical activity</li> <li>■ <b>Currently taking:</b> Amlodipine, Captopril, Renitec, Atenolol</li> </ul>	*	<ul style="list-style-type: none"> <li>■ Have BP and medication checked regularly by your GP</li> <li>■ Reduce salt and modify/lower fat in your food</li> <li>■ Consult a dietitian (Resource Map) or contact Heartline 1300362787</li> <li>■ Reduce alcohol intake to two standard drinks per day</li> <li>■ Manage physical activity (Heartmoves /Resource map)</li> <li>■ Manage weight</li> </ul>
<b>Atrial Fibrillation</b>	<ul style="list-style-type: none"> <li>■ a history of atrial fibrillation</li> </ul>	*	<ul style="list-style-type: none"> <li>■ Atrial fibrillation is an irregular pulse and increases the risk of stroke. Warfarin (medication) reduces this risk. Have your pulse and medication checked regularly by your GP</li> </ul>
<b>Physical Activity</b>	<ul style="list-style-type: none"> <li>■ exercise for 30 mins x <b>3</b> days per week</li> <li>■ are thinking about exercising more regularly</li> <li>■ have been advised to increase physical activity</li> </ul>	*	<ul style="list-style-type: none"> <li>■ At least 30 minutes or more of moderate physical activity on 5 or more days of the week (3 lots of 10 minutes is OK)</li> <li>■ Discuss and get clearance from GP before starting exercise</li> <li>■ Consider referral to Heartmoves</li> </ul>
<b>Smoking</b>	<ul style="list-style-type: none"> <li>■ have never smoked</li> </ul>		<ul style="list-style-type: none"> <li>■ Avoid smoke filled rooms and cars as passive smoke increases your risk of further heart problems</li> </ul>
<b>Cholesterol</b>	<ul style="list-style-type: none"> <li>■ do not have a history of high cholesterol</li> </ul>		<ul style="list-style-type: none"> <li>■ Have cholesterol levels and medication checked regularly by your GP</li> <li>■ Modify / lower amount of fat in your diet</li> <li>■ Consult dietitian or ring Heartline on 1300362787</li> <li>■ Limit alcohol intake</li> <li>■ Increase physical activity (Heartmoves /resource map)</li> <li>■ Manage / reduce weight</li> </ul>
<b>Weight</b>	<ul style="list-style-type: none"> <li>■ Height 154cm</li> <li>■ Weight 65kg</li> <li>■ are within the healthy weight range</li> </ul>		<ul style="list-style-type: none"> <li>■ Maintaining healthy weight by regular physical activity and healthy eating reduces the risk of more heart problems</li> </ul>
<b>Diabetes</b>	<ul style="list-style-type: none"> <li>■ do not have a history of diabetes</li> </ul>		<ul style="list-style-type: none"> <li>■ Diabetes can increase your risk of heart disease. Please see your GP for routine annual screening</li> </ul>
<b>Aspirin / Antiplatelet</b>	<ul style="list-style-type: none"> <li>■ being advised to take Aspirin</li> <li>■ <b>Currently taking:</b> Cartia, Clopidogrel</li> </ul>		<ul style="list-style-type: none"> <li>■ Small doses of Aspirin are usually prescribed for people with heart disease (prevents clots from forming)</li> </ul>

\* = *You and your GP can make a difference - discuss a plan for your ongoing Heart care with your GP*  
*Help Prevent Another Vascular Event (Heart and Stroke)*

## Appendix 3: Sample GP letter (Heart)

### How to Prevent Another Vascular Event (Heart & Stroke)

Project Manager: Alison Koschel  
Level 3, David Maddison Clinical Sciences Building  
Ph: (02) 49236276 e-mail akoschel@mail.newcastle.edu.au

22<sup>nd</sup> August 2002

<GP Name>

<Address>

<Suburb Postcode>

Dear <GP>

**Re:** <Patient Name>

<Address>

<Hospital> <Discharge Date> <Diagnosis>

Results of a self-reported survey of patients discharged in the Hunter Region with heart disease or stroke showed that:

- 72% of all patients were taking aspirin
- 81% of patients with high cholesterol were on cholesterol lowering medication
- 50% reported receiving advice to increase physical activity
- 42% reported receiving advice to follow a modified fat diet
- About half the smokers reported receiving advice to stop smoking

These results are good, but by improving on these figures we hope to Prevent Another Vascular Event in a larger proportion of patients.

The Hunter Heart and Stroke Health Outcomes Council routinely collects information from patients on the Hunter Register 3-4 months post hospital discharge by means of a self-report survey where patients identify their own risk factors, treatment and current medications. <Patient Name> has consented to providing this information for you to facilitate the secondary prevention of cardiovascular disease.

Attached to this letter is a report detailing <patient name>'s self-reported responses to the Heart and Stroke Register Survey. This report, complete with contact details for relevant health services, may be useful if you are intending to develop an Enhanced Primary Care plan. You are probably aware that a Health Assessment can attract a Medicare rebate of up to \$172.25, a Multidisciplinary Care Plan can attract a Medicare rebate of up to \$156.60. Advice for assistance with completing a care plan can be obtained by contacting your local division of general practice or accessing the web.

We have also included a current copy of secondary prevention heart guidelines as a support tool for you.

<Patient name> has also received a summary of this information and how <gender> can reduce further risk of cardiovascular disease. <Patient name> may come to see you to discuss these issues.

If you have any questions, please do not hesitate to ring Alison Koschel on 4923 6276.

Yours sincerely

## Appendix 3 (cont'd): Sample GP letter (Stroke)

### How to Prevent Another Vascular Event (Heart & Stroke)

Project Manager: Alison Koschel  
Level 3, David Maddison Clinical Sciences Building  
Ph: (02) 49236276 e-mail akoschel@mail.newcastle.edu.au

22<sup>nd</sup> August 2002

<GP Name>

<Address>

<Suburb Postcode>

Dear <GP>

**Re:** <Patient Name>

<Address>

<Hospital> <Discharge Date> <Diagnosis>

Results of a self-reported survey of patients discharged in the Hunter Region with heart disease or stroke showed that

- 72% of all patients were taking aspirin
- 81% of patients with high cholesterol were on cholesterol lowering medication
- 50% reported receiving advice to increase physical activity
- 42% reported receiving advice to follow a modified fat diet
- About half the smokers reported receiving advice to stop smoking

These results are good, but by improving on these figures we hope to Prevent Another Vascular Event in a larger proportion of patients.

The Hunter Heart and Stroke Health Outcomes Council routinely collects information from patients on the Hunter Register 3-4 months post hospital discharge by means of a self-report survey where patients identify their own risk factors, treatment and current medications. «title» «surname» has consented to providing this information for you to facilitate the secondary prevention of cardiovascular disease.

Attached to this letter is a report detailing «title» «surname»'s self-reported responses to the Heart and Stroke Register Survey. This report, complete with contact details for relevant health services, may be useful if you are intending to develop an Enhanced Primary Care plan. You are probably aware that a Health Assessment can attract a Medicare rebate of up to \$172.25, a Multidisciplinary Care Plan can attract a Medicare rebate of up to \$156.60. Advice for assistance with completing a care plan can be obtained by contacting your local division of general practice or accessing the web.

We have also included a current copy of secondary prevention guidelines as a support tool for you. If you have any questions, please do not hesitate to ring the PAVE Project Manager, Alison Koschel on 4923 6276.

Yours sincerely



## Appendix 4: Sample GP report card (Heart)

### Summary of patient reported Secondary Prevention Care (Heart & Stroke)

Name: **Mrs** .....

DOB: .....

Diagnosis: **Myocardial Infarction**

Admit Date: **22 Jan 2002**

(This report based on Heart and Stroke Register Survey 31/1/2001)

	Patient reported:	*Potential areas for care plan development
<b>Cardiac Rehabilitation</b>	<ul style="list-style-type: none"> <li>■ attending cardiac rehabilitation</li> </ul>	
<b>Blood Pressure</b>	<ul style="list-style-type: none"> <li>■ a history of high blood pressure</li> <li>■ having been advised to increase physical activity</li> <li>■ not having been advised to follow a modified fat diet</li> <li>■ <b>currently taking:</b> Amlodipine, Captopril, Renitec, Atenolol</li> </ul>	*
<b>Physical Activity</b>	<ul style="list-style-type: none"> <li>■ exercising for 30 mins on <b>3</b> days/week</li> <li>■ they have been exercising more than 6 months</li> <li>■ being advised to increase physical activity</li> </ul>	*
<b>Smoking</b>	<ul style="list-style-type: none"> <li>■ never smoking</li> </ul>	
<b>Cholesterol</b>	<ul style="list-style-type: none"> <li>■ a history of high cholesterol</li> <li>■ not following a modified fat diet</li> <li>■ not being advised to follow a modified fat diet</li> <li>■ thinking about following a modified fat diet</li> </ul>	*
<b>Weight</b>	<ul style="list-style-type: none"> <li>■ weighing 65kg and height of 154 cm</li> <li>■ being within the healthy weight range</li> </ul>	
<b>Diabetes</b>	<ul style="list-style-type: none"> <li>■ not having a history of diabetes</li> </ul>	
<b>Aspirin / Antiplatelet</b>	<ul style="list-style-type: none"> <li>■ being advised to take aspirin</li> <li>■ <b>currently taking:</b> Cartia, Clopidogrel</li> </ul>	

#### ACTION FOR GENERAL PRACTITIONER

\* Areas identified by patient report for further management and as a potential focus for EPC planning.

##### **Step 1 Guidelines**

For details of recommended best practice, refer to National Heart Foundation Guide to Risk Reduction for patients with CVD (see attached).

##### **Step 2 Local Resources**

For details of other potential local care providers for referrals and support with EPC planning see attached location map.

## Appendix 4 (cont'd): Sample GP report card (Stroke)

Summary of patient reported Secondary Prevention Care (Heart & Stroke)

Name: Mrs .....

DOB: .....

Diagnosis: **Ischaemic Stroke**

Admit Date: **22 Jan 2002**

(This report based on Heart and Stroke Register Survey 31/1/2001)

	<b>Patient reported:</b>	<b>*Potential areas for care plan development</b>
<b>Blood Pressure</b>	<ul style="list-style-type: none"> <li>■ a history of high blood pressure</li> <li>■ having been advised to increase physical activity</li> <li>■ <b>Currently taking:</b> Amlodipine, Captopril, Renitec Atenolol</li> </ul>	*
<b>Atrial Fibrillation</b>	<ul style="list-style-type: none"> <li>■ a history of atrial fibrillation</li> </ul>	*
<b>Physical Activity</b>	<ul style="list-style-type: none"> <li>■ exercising for 30 mins on <b>3</b> days per week</li> <li>■ they are thinking about exercising more regularly</li> <li>■ being advised to increase physical activity</li> </ul>	*
<b>Smoking</b>	<ul style="list-style-type: none"> <li>■ reports NEVER smoking</li> </ul>	
<b>Cholesterol</b>	<ul style="list-style-type: none"> <li>■ not having a history of high cholesterol</li> </ul>	
<b>Weight</b>	<ul style="list-style-type: none"> <li>■ Height 154cm      Weight 65kg</li> <li>■ being within the healthy weight range</li> </ul>	
<b>Diabetes</b>	<ul style="list-style-type: none"> <li>■ not having a history of diabetes</li> </ul>	
<b>Aspirin / Antiplatelet</b>	<ul style="list-style-type: none"> <li>■ being advised to take Aspirin</li> <li>■ <b>Currently taking:</b> Cartia, Clopidogrel</li> </ul>	

### ACTION FOR GENERAL PRACTITIONER

\* Areas identified by patient report for further management and as a potential focus for EPC planning.

#### **Step 1 Guidelines**

For details of recommended best practice, refer to National Heart Foundation Guide to Risk Reduction for patients with CVD (see attached).

#### **Step 2 Local Resources**

For details of other potential local care providers for referrals and support with EPC planning see attached location map.

## Appendix 5: Newcastle urban map (Heart)

### How to Prevent Another Vascular Event Heart Resource Map

**Contact Numbers**

**Nutrition**  
see individual providers on map  
*see box 1 on reverse*

**Cardiac Rehabilitation**  
Greater Newcastle Area  
Ph 49 214219  
*see box 2 on reverse*

**For Physical Activity**  
Sport & Recreation  
Ph 131302  
*see box 3 on reverse*

**For General Information**  
Heartline  
Ph 1300 362 787  
*see box 4 on reverse*

**For Smoking**  
Quitline  
131848

For further information  
Alison Koschel Ph 02 49236276

<p><b>LAMBTON / BROADMEADOW</b> Dietitian T.Watson 4957 9606</p> <p><b>HeartMoves</b> Adamstown 49576255 Broadmeadow 0411281046 New Lambton 4935 1281 Lambton 4956 2144 West's Gym 49351281 Planet Fitness 49562144</p> <p><b>WALLSEND</b> Dietitian and Diabetes Education and HeartMoves Wallsend Com Health Centre Ph 49246100</p> <p><b>WARNERS BAY</b> Dietitian P.Keach 49471733 Diabetes Education Belmont Hosp 49232246 JHH 4921 3000 HeartMoves Genetics 4956 6557</p> <p><b>TORONTO/ WANGI</b> Dietitian, Diabetes Education and HeartMoves Toronto Polyclinic 4935 1800 HeartMoves Toronto/ Bonnell's Bay 49505962 Gwandalan 0418 266 358</p>	<p><b>Diabetes Education</b> JHH 4921 3000 RNH 4923 6396</p> <p><b>NEWCASTLE</b> Dietitian M.Donnelly 4926 1465 M.Rush 4923 6337 T. Watson 4957 9606 Diabetes Education M.Donnelly 4926 1465 RNH 4923 6734 HeartMoves Howzat 4926 4488 Nautilus 4926 1021 Merewether 4963 6933</p> <p><b>CHARLESTOWN</b> Dietitian P.Keach 4947 1733 Diabetes Education RNH 4923 6734 Belmont Hosp 4923 2246 HeartMoves Genetics 4956 6557 Charlestown 4943 1420 Adamstown 4957 6255 Dudley 4946 0171</p> <p><b>WINDALE / GATESHEAD</b> Dietitian M.Harding 4942 1322 Diabetes Education Eastlakes CHC 49487044 HeartMoves PCYC 49468578</p>	<p><b>BELMONT / SWANSEA</b> Dietitian Belmont Hosp 4923 2246 M.Harding 4942 1322 Diabetes Education Belmont Hosp 4923 6734 HeartMoves Belmont 4972 6249</p>
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### 1. Nutrition Intervention

Encourage patients to base their eating patterns on the following guidelines:

- Use margarine spreads instead of butter or dairy blends.
- Use a variety of oils for cooking – some suitable choices include canola, sunflower, soybean, olive and peanut oils.
- Use salad dressings and mayonnaise made from oils such as canola, sunflower, soybean and olive oils.
- Choose low or reduced fat milk and yoghurt or 'added calcium' soy beverages. Try to limit cheese and ice cream to twice a week.
- Have fish (any type of fresh or canned) at least twice a week.
- Select lean meat (meat trimmed of fat and chicken without skin). Try to limit fatty meats including sausages and delicatessen meats such as salami.
- Snack on plain, unsalted nuts and fresh fruit.
- Incorporate dried peas (eg split peas), dried beans (eg haricot beans, kidney beans), canned beans (eg baked beans, three bean mix) or lentils into two meals a week.
- Make vegetables and grain-based foods such as bread, pasta, noodles and rice the major part of each meal.
- Try to limit take-away foods to once a week. Take-away foods include pastries, pies, pizza, hamburgers and creamy pasta dishes.
- Try to limit snack foods such as potato crisps and corn crisps to once a week.
- Try to limit cakes, pastries and chocolate or creamy biscuits to once a week.
- Try to limit cholesterol-rich foods such as egg yolks and offal, egg liver, kidney and brains.

### 2. Heartmoves


**Heartmoves** is a gentle low to moderate intensity exercise programme which caters for all levels of fitness, age and needs. It involves low impact moves (no jumping or heavy weights) to gentler background music. The exercises are easy and energetic but don't make you breathless. Everyone exercises at their own medium pace and **Heartmoves** allows you to keep exercising as part of a group after you have finished your Cardiac Rehabilitation programme. The accredited **Heartmoves** leaders have been trained by staff from the National Heart Foundation and the Hunter Area Health Services Department of Cardiology, to provide safe and appropriate exercise for people who have had or who have risk factors for heart disease. The programme aims to keep you involved in a safe, ongoing exercise programme. **Heartmoves** is available in local fitness centres, clubs and community halls at a modest price per session. Pre-exercise screening and GP clearance are important parts of the programme. See location map for details or ring Heartline 1300 362 787.

### 3. Heartline

**Heartline** is the National Heart Foundation's telephone information service. For the cost of a local call, patients can access health professionals and trained staff to seek information on heart diseases and to order pamphlets or cookbooks.

## Appendix 5 (cont'd): Newcastle urban map (Stroke)

### How to Prevent Another Vascular Event Stroke Resource Map



**NEWCASTLE Community Health Centre**  
4925 7800  
The team is part of the Hunter Stroke Service with Hunter Area Health. There is an Occupational Therapist, Physiotherapist and Speech Pathologist.  
The service offers education regarding stroke, its causes, effects and prevention; education on how to manage after stroke; retraining in mobility, communication, swallowing, leisure.  
There is NO charge for this service

**NEWCASTLE WEST Community Nutrition Unit**  
4924 6100  
For dietary and nutrition advice

**Diabetes Education**  
RNH 4923 6734

**Contact Numbers**

Community Stroke Team  
Ph 4925 7800

National Stroke Foundation  
Ph 1800 787 653

For Physical Activity Sport & Recreation  
Ph 131302

Hydrotherapy Pools Hunter Rehabilitation Servc Ph 4921 4110

Stroke Clubs  
Ph 4943 9786

For Smoking Quitline  
131848

For further information  
Alison Koschel Ph 02 49236276

### 1. Nutrition Intervention

Encourage patients to base their eating patterns on the following guidelines:

- Use margarine spreads instead of butter or dairy blends.
- Use a variety of oils for cooking – some suitable choices include canola, sunflower, soybean, olive and peanut oils.
- Use salad dressings and mayonnaise made from oils such as canola, sunflower, soybean and olive oils.
- Choose low or reduced fat milk and yoghurt or 'added calcium' soy beverages. Try to limit cheese and ice cream to twice a week.
- Have fish (any type of fresh or canned) at least twice a week.
- Select lean meat (meat trimmed of fat and chicken without skin). Try to limit fatty meats including sausages and delicatessen meats such as salami.
- Snack on plain, unsalted nuts and fresh fruit.
- Incorporate dried peas (eg split peas), dried beans (eg haricot beans, kidney beans), canned beans (eg baked beans, three bean mix) or lentils into two meals a week.
- Make vegetables and grain-based foods such as bread, pasta, noodles and rice the major part of each meal.
- Try to limit take-away foods to once a week. Take-away foods include pastries, pies, pizza, hamburgers and creamy pasta dishes.
- Try to limit snack foods such as potato crisps and corn crisps to once a week.
- Try to limit cakes, pastries and chocolate or creamy biscuits to once a week.
- Try to limit cholesterol-rich foods such as egg yolks and offal, eg liver, kidney and brains.

### 2. Heartmoves

**Heartmoves** is a gentle low to moderate intensity exercise programme which caters for all levels of fitness, age and needs. It involves low impact moves (no jumping or heavy weights) to gentler background music. The exercises are easy and energetic but don't make you breathless. Everyone exercises at their own medium pace and **Heartmoves** allows you to keep exercising as part of a group after you have finished your Cardiac Rehabilitation programme. The accredited **Heartmoves** leaders have been trained by staff from the National Heart Foundation and the Hunter Area Health Services Department of Cardiology, to provide safe and appropriate exercise for people who have had or who have risk factors for heart disease. The programme aims to keep you involved in a safe, ongoing exercise programme. **Heartmoves** is available in local fitness centres, clubs and community halls at a modest price per session. Pre-exercise screening and GP clearance are important parts of the programme. See location map for details or ring Heartline 1300 362 787.

### 3. Heartline

**Heartline** is the National Heart Foundation's telephone information service. For the cost of a local call, patients can access health professionals and trained staff to seek information on heart diseases and to order pamphlets or cookbooks.

## Appendix 5 (cont'd): Newcastle regional map (Heart)

**Contact Numbers**

**For Physical Activity**  
Sport & Recreation  
Ph 131302

**For Smoking**  
Quitline  
131848

**For General Information**  
Heartline  
Ph 1300 362 787

**Cardiac Rehabilitation**  
Upper & Lower Hunter  
Area Ph 49 214219

**Community Stroke Service**  
Ph 49257803

For further information  
Alison Koschel Ph 02 49236276

### How to Prevent Another Vascular Event Heart Resource Map

**Muswellbrook Community Health Centre**  
Dietitian  
Diabetes Education  
Cardiac Rehabilitation  
Stroke Recovery Group  
Ph 6571 9248

**Singleton Community Health Centre**  
Dietitian  
Diabetes Education  
Ph 6571 9248

**Cardiac Rehabilitation**  
Ph 6571 9244

**Cessnock Community Health Centre**  
Diabetes Education Ph 4991 0438  
Dietitian Ph 4991 0425  
Heart Moves Ph 4991 1304

**Scone Community Health Centre**  
Dietitian  
6540 2136

**Nelson Bay Com. Health Centre**  
Dietitian  
Stroke Recovery Group  
Cardiac Rehabilitation  
Ph 4984 0730

Diabetes Education  
Ph 4982 0020

**Maitland and Dungog**  
Diabetes Education  
Ph 4923 6734

**Hunter Rural Resources**

### 1. Nutrition Intervention

Encourage patients to base their eating patterns on the following guidelines:

- Use margarine spreads instead of butter or dairy blends.
- Use a variety of oils for cooking – some suitable choices include canola, sunflower, soybean, olive and peanut oils.
- Use salad dressings and mayonnaise made from oils such as canola, sunflower, soybean and olive oils.
- Choose low or reduced fat milk and yoghurt or 'added calcium' soy beverages. Try to limit cheese and ice cream to twice a week.
- Have fish (any type of fresh or canned) at least twice a week.
- Select lean meat (meat trimmed of fat and chicken without skin). Try to limit fatty meats including sausages and delicatessen meats such as salami.
- Snack on plain, unsalted nuts and fresh fruit.
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**Heartmoves** is a gentle low to moderate intensity exercise programme which caters for all levels of fitness, age and needs. It involves low impact moves (no jumping or heavy weights) to gentler background music. The exercises are easy and energetic but don't make you breathless. Everyone exercises at their own medium pace and **Heartmoves** allows you to keep exercising as part of a group after you have finished your Cardiac Rehabilitation programme. The accredited **Heartmoves** leaders have been trained by staff from the National Heart Foundation and the Hunter Area Health Services Department of Cardiology, to provide safe and appropriate exercise for people who have had or who have risk factors for heart disease. The programme aims to keep you involved in a safe, ongoing exercise programme. **Heartmoves** is available in local fitness centres, clubs and community halls at a modest price per session. Pre-exercise screening and GP clearance are important parts of the programme. See location map for details or ring Heartline 1300 362 787.

### 3. Heartline

**Heartline** is the National Heart Foundation's telephone information service. For the cost of a local call, patients can access health professionals and trained staff to seek information on heart diseases and to order pamphlets or cookbooks.

## Appendix 5 (cont'd): Newcastle Regional Map (Stroke)

### Contact Numbers

**Community Stroke Team**  
Ph 49257800

**National Stroke Foundation**  
Ph 1800 787 653

**For Physical Activity Sport & Recreation**  
Ph 131302

**Hydrotherapy Pools Hunter Rehabilitation Service**  
Ph 4921 4110

**Stroke Clubs**  
Ph 4943 9786

**For Smoking Quitline**  
131848

For further information  
Alison Koschel Ph 02 49236276

## How to Prevent Another Vascular Event Stroke Resource Map

**Hunter Rural Resources**

### 1. Nutrition Intervention

Encourage patients to base their eating patterns on the following guidelines:

- Use margarine spreads instead of butter or dairy blends.
- Use a variety of oils for cooking – some suitable choices include canola, sunflower, soybean, olive and peanut oils.
- Use salad dressings and mayonnaise made from oils such as canola, sunflower, soybean and olive oils.
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- Have fish (any type of fresh or canned) at least twice a week.
- Select lean meat (meat trimmed of fat and chicken without skin). Try to limit fatty meats including sausages and delicatessen meats such as salami.
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### 3. Heartline

**Heartline** is the National Heart Foundation's telephone information service. For the cost of a local call, patients can access health professionals and trained staff to seek information on heart diseases and to order pamphlets or cookbooks.

## Appendix 6: Baseline survey (Heart)



The UNIVERSITY  
of NEWCASTLE  
AUSTRALIA

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### Heart and Stroke Register Survey

We are interested in management of heart disease. To help with this we would be grateful if you would answer all of the following questions.

- |                                                                                                                                                                                                                                                                                                            | <b>Yes</b> | <b>No</b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| <b>1. Have you <b>ever</b> been told by a doctor that you had any of the following conditions?</b>                                                                                                                                                                                                         |            |           |
| a) <b>High Blood Pressure?</b>                                                                                                                                                                                                                                                                             | 1          | 2         |
| b) <b>Diabetes?</b> (sugar in the blood)                                                                                                                                                                                                                                                                   | 1          | 2         |
| c) <b>High cholesterol?</b>                                                                                                                                                                                                                                                                                | 1          | 2         |
| d) <b>Atrial Fibrillation?</b> (irregular heartbeat)                                                                                                                                                                                                                                                       | 1          | 2         |
| e) <b>Stroke?</b>                                                                                                                                                                                                                                                                                          | 1          | 2         |
| f) <b>Previous heart attack?</b>                                                                                                                                                                                                                                                                           | 1          | 2         |
| g) <b>Angina?</b>                                                                                                                                                                                                                                                                                          | 1          | 2         |
| h) <b>Heart Failure?</b> (often called fluid on the lungs or an enlarged heart or weakness of the heart)                                                                                                                                                                                                   | 1          | 2         |
| <b>2. Aspirin Use</b>                                                                                                                                                                                                                                                                                      | <b>Yes</b> | <b>No</b> |
| a) <b>Before</b> your most recent hospital admission were you taking <b>Aspirin</b> on a regular basis, that is every day or almost every day? (Some of the more common medications that include aspirin are: Aspalgin, Aspro, Astrix, Bex, Cardiprin, artia, Decrin, Disprin, Ecotrin, Solprin, Vincents) | 1          | 2         |
| b) <b>Since</b> your most recent hospital admission have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to take <b>Aspirin</b> on a regular basis, that is everyday or almost everyday?                                                                               | 1          | 2         |
| c) <u>Are you currently</u> taking <b>Aspirin</b> on a regular basis, that is every day or almost every day?                                                                                                                                                                                               | 1          | 2         |
| d) Have you been told by a medical person (eg doctor, nurse) that you should <b>not</b> currently be taking <b>Aspirin</b> ?                                                                                                                                                                               | 1          | 2         |
| <b>3 Weight and Height</b>                                                                                                                                                                                                                                                                                 |            |           |
| a) How tall are you without shoes? (please write your answer in <b>either</b> centimetres or feet & inches)                                                                                                                                                                                                |            |           |
|                                                                                                                                                                                                                                                                                                            | cms        | Ft/ins    |
| b) How much do you weigh without clothes/shoes? (please write your answer in <b>either</b> kilograms or stones & pounds)                                                                                                                                                                                   |            |           |
|                                                                                                                                                                                                                                                                                                            | kg         | St/lb     |



<b>4.</b>	<b>Physical Activity</b>	<b>Yes</b>	<b>No</b>
a)	Since your admission to hospital have you been <b>advised</b> by a medical person (eg doctor, nurse, physiotherapist, dietitian) to do any physical activity?	1	2
b)	Since your hospital admission, in an average week, on <u>how many</u> days of the week would you do at least 30 minutes of physical activity? Physical activity can be walking, swimming, gentle cycling etc. Physical activity can be done in 2 lots of 15 minutes or 3 lots of 10 minutes each day. <i>(please circle the no. of days you have been able to do exercise, ie 0 for no days)</i>		
	1                  2                  3                  4                  5                  6                  7		
c)	Do you have any physical problems (eg Arthritis, back problems, hemiparesis) which stop you from doing any physical activity?	<b>Yes</b>	<b>No</b>
		1	2
	The following statements ask about your intentions to exercise. <i>(please circle the number that best describes your intention – choose ONE number only)</i>		
d)	I currently do not exercise and I do not intend to start exercising in the next 6 months	1	
e)	I currently do not exercise, but I am thinking about starting to exercise in the next 6 months	2	
f)	I currently exercise, but not regularly	3	
g)	I currently exercise regularly, but I have only begun to do so within the last 6 months	4	
h)	I currently exercise regularly, and have done so for longer than 6 months	5	
<b>5.</b>	<b>Smoking</b>	<b>Yes</b>	<b>No</b>
a)	Have you smoked more than 100 cigarettes in your entire life?	1	2
b)	Have you smoked any cigarettes in the last 6 months?	1	2
c)	Have you smoked any cigarettes in the last week?	1	2
	<b>If you have EVER smoked</b> <i>(please circle the number that best describes your intention – choose ONE number only)</i>		
d)	I currently smoke and I do not intend to stop smoking in the next 6 months	1	
e)	I currently smoke, but I am thinking about stopping smoking in the next 6 months	2	
f)	I currently smoke, but not regularly	3	
g)	I currently do not smoke, but I have only stopped smoking within the last 6 months	4	
h)	I currently do not smoke, and have not done so for longer than 6 months	5	
i)	<b>If you have smoked in the last 6 months</b>	<b>Yes</b>	<b>No</b>
	Since your admission to hospital have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to stop smoking?	1	2
<b>6.</b>	<b>Relatives</b>	<b>Yes</b>	<b>No</b>
	Have any of your blood relatives (mother, father, sister, brother) been diagnosed with or died from coronary heart disease before the age of 70? (eg <i>angina, heart attack, coronary thrombosis, bypass surgery, angioplasty</i> )	1	2
<b>7.</b>	<b>Follow-up medical care</b>	<b>Yes</b>	<b>No</b>
	Since your admission to hospital have you had an appointment with, or seen		
a)	General practitioner	1	2
b)	Specialist	1	2
<b>8.</b>	<b>Cardiac Rehabilitation</b>	<b>Yes</b>	<b>No</b>
a)	Since your admission to hospital have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to attend an outpatient cardiac rehabilitation program?	1	2
b)	Have you booked to attend an outpatient cardiac rehabilitation program?	1	2
c)	Since your hospital admission have you attended any sessions of an outpatient cardiac rehabilitation program?	1	2





## Appendix 6: Baseline survey (Stroke)



The UNIVERSITY  
of NEWCASTLE  
AUSTRALIA

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### Heart and Stroke Register Survey

We are interested in management of stroke. To help with this we would be grateful if you would answer all of the following questions.

- | 1. | Have you <b>ever</b> been told by a doctor that you had any of the following conditions?                                                                                                                                                                                                                | <b>Yes</b> | <b>No</b> |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| a) | <b>High Blood Pressure?</b>                                                                                                                                                                                                                                                                             | 1          | 2         |
| b) | <b>Diabetes?</b> (sugar in the blood)                                                                                                                                                                                                                                                                   | 1          | 2         |
| c) | <b>High cholesterol?</b>                                                                                                                                                                                                                                                                                | 1          | 2         |
| d) | <b>Atrial Fibrillation?</b> (irregular heartbeat)                                                                                                                                                                                                                                                       | 1          | 2         |
| e) | <b>Heart attack?</b>                                                                                                                                                                                                                                                                                    | 1          | 2         |
| f) | <b>Previous stroke?</b>                                                                                                                                                                                                                                                                                 | 1          | 2         |
| g) | <b>Angina?</b>                                                                                                                                                                                                                                                                                          | 1          | 2         |
| h) | <b>Heart Failure?</b> (often called fluid on the lungs or an enlarged heart or weakness of the heart)                                                                                                                                                                                                   | 1          | 2         |
| 2. | <b>Aspirin Use</b>                                                                                                                                                                                                                                                                                      | <b>Yes</b> | <b>No</b> |
| a) | <b>Before</b> your most recent hospital admission were you taking <b>Aspirin</b> on a regular basis, that is every day or almost every day? (Some of the more common medications that include aspirin are: Aspalgin, Aspro, Astrix, Bex, Cardiprin, artia, Decrin, Disprin, Ecotrin, Solprin, Vincents) | 1          | 2         |
| b) | <b>Since</b> your most recent hospital admission have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to take <b>Aspirin</b> on a regular basis, that is everyday or almost everyday?                                                                               | 1          | 2         |
| c) | Are you <b>currently</b> taking <b>Aspirin</b> on a regular basis, that is every day or almost every day?                                                                                                                                                                                               | 1          | 2         |
| d) | Have you been told by a medical person (eg doctor, nurse) that you should <b>not</b> currently be taking <b>Aspirin</b> ?                                                                                                                                                                               | 1          | 2         |
| 3  | <b>Weight and Height</b>                                                                                                                                                                                                                                                                                |            |           |
| a) | How tall are you without shoes? (please write your answer in <b>either</b> centimetres or feet & inches)                                                                                                                                                                                                |            |           |
|    |                                                                                                                                                                                                                                                                                                         | cms        | Ft/ins    |
| b) | How much do you weigh without clothes/shoes? (please write your answer in <b>either</b> kilograms or stones & pounds)                                                                                                                                                                                   |            |           |
|    |                                                                                                                                                                                                                                                                                                         | kg         | St/lb     |

<b>4. Physical Activity</b>	<b>Yes</b>	<b>No</b>
a) Since your admission to hospital have you been <b>advised</b> by a medical person (eg doctor, nurse, physiotherapist, dietitian) to do any physical activity?	1	2
b) Since your hospital admission, in an average week, on <u>how many</u> days of the week would you do at least 30 minutes of physical activity? Physical activity can be walking, swimming, gentle cycling etc. Physical activity can be done in 2 lots of 15 minutes or 3 lots of 10 minutes each day. (please circle the no. of days you have been able to do exercise, ie 0 for no days)		
	1	2
	3	4
	5	6
	7	
	<b>Yes</b>	<b>No</b>
c) Do you have any physical problems (eg Arthritis, back problems, hemiparesis) which stop you from doing any physical activity?	1	2
The following statements ask about your intentions to exercise. (please circle the number that best describes your intention – choose ONE number only)		
d) I currently do not exercise and I do not intend to start exercising in the next 6 months	1	
e) I currently do not exercise, but I am thinking about starting to exercise in the next 6 months	2	
f) I currently exercise, but not regularly	3	
g) I currently exercise regularly, but I have only begun to do so within the last 6 months	4	
h) I currently exercise regularly, and have done so for longer than 6 months	5	
<b>5. Smoking</b>	<b>Yes</b>	<b>No</b>
a) Have you smoked more than 100 cigarettes in your entire life?	1	2
b) Have you smoked any cigarettes in the last 6 months?	1	2
c) Have you smoked any cigarettes in the last week?	1	2
<b>If you have EVER smoked</b> (please circle the number that best describes your intention – choose ONE number only)		
d) I currently smoke and I do not intend to stop smoking in the next 6 months	1	
e) I currently smoke, but I am thinking about stopping smoking in the next 6 months	2	
f) I currently smoke, but not regularly	3	
g) I currently do not smoke, but I have only stopped smoking within the last 6 months	4	
h) I currently do not smoke, and have not done so for longer than 6 months	5	
i) <b>If you have smoked in the last 6 months</b>	<b>Yes</b>	<b>No</b>
Since your admission to hospital have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to stop smoking?	1	2
<b>6. Relatives</b>	<b>Yes</b>	<b>No</b>
Have any of your blood relatives (mother, father, sister, brother) been diagnosed with or died from coronary heart disease before the age of 70? (eg <i>angina, heart attack, coronary thrombosis, bypass surgery, angioplasty</i> )	1	2
<b>7. Follow-up medical care</b>	<b>Yes</b>	<b>No</b>
Since your admission to hospital have you had an appointment with, or seen		
a) General practitioner	1	2
b) Specialist	1	2
<b>8. Stroke Rehabilitation</b>	<b>Yes</b>	<b>No</b>
a) Since your admission to hospital have you attended an inpatient rehabilitation program?	1	2
b) Since your hospital admission have you attended any sessions of an outpatient rehabilitation program?	1	2
<b>9. Community Services</b>	<b>Yes</b>	<b>No</b>
Please indicate if you have attended or been visited in your home by staff from any of the following:		
a) Community stroke service	1	2
b) Stroke recovery group	1	2
c) Stroke and disability information service	1	2

**10. Medications**

Please list all the medications that you are currently taking. (Please copy the names as written on the container). Include herbal preparations and vitamins.

I do not take any medications (*tick box if applicable*)

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Date of completing questionnaire ...../...../.....

We appreciate your assistance with this questionnaire.

Heart and Stroke Health Outcomes Council  
Mrs Janet Fisher  
Project Manger (02) 4923 6313

## Appendix 7: Six month follow-up survey

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### PAVE 6 month Survey

We are interested in your health since you filled in the last health questionnaire for the **Heart and Stroke Register** and Pave study. We would be grateful if you would answer all of the following questions.

- |           |                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Yes</b> | <b>No</b> |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| <b>1.</b> | Have you <b>ever</b> been told by a doctor that you had any of the following conditions?                                                                                                                                                                                                                                                                                                           |            |           |
| a)        | <b>High Blood Pressure?</b>                                                                                                                                                                                                                                                                                                                                                                        | 1          | 2         |
| b)        | <b>Diabetes?</b> ( <i>sugar in the blood</i> )                                                                                                                                                                                                                                                                                                                                                     | 1          | 2         |
| c)        | <b>High cholesterol?</b>                                                                                                                                                                                                                                                                                                                                                                           | 1          | 2         |
| d)        | <b>Atrial Fibrillation?</b> ( <i>irregular heartbeat</i> )                                                                                                                                                                                                                                                                                                                                         | 1          | 2         |
| e)        | <b>Stroke? / Heart attack?</b>                                                                                                                                                                                                                                                                                                                                                                     | 1          | 2         |
| f)        | <b>Previous heart attack? / Previous stroke?</b>                                                                                                                                                                                                                                                                                                                                                   | 1          | 2         |
| g)        | <b>Angina?</b>                                                                                                                                                                                                                                                                                                                                                                                     | 1          | 2         |
| h)        | <b>Heart Failure?</b> ( <i>often called fluid on the lungs or an enlarged heart or weakness of the heart</i> )                                                                                                                                                                                                                                                                                     | 1          | 2         |
| <b>2.</b> | <b>Aspirin Use</b>                                                                                                                                                                                                                                                                                                                                                                                 | <b>Yes</b> | <b>No</b> |
| a)        | Have you ever been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to take Aspirin on a regular basis, that is everyday or almost everyday?                                                                                                                                                                                                                             | 1          | 2         |
| b)        | <u>Are you currently</u> taking <b>Aspirin</b> on a regular basis, that is every day or almost every day?                                                                                                                                                                                                                                                                                          | 1          | 2         |
| c)        | Have you been told by a medical person (eg doctor, nurse) that you should <b>not</b> currently be taking <b>Aspirin</b> ?                                                                                                                                                                                                                                                                          | 1          | 2         |
| <b>3.</b> | <b>Weight and Height</b>                                                                                                                                                                                                                                                                                                                                                                           |            |           |
| a)        | How tall are you without shoes? ( <i>please write your answer in <b>either</b> centimetres or feet &amp; inches</i> )                                                                                                                                                                                                                                                                              | cms        | Ft/ins    |
| b)        | How much do you weigh without clothes/shoes? ( <i>please write your answer in <b>either</b> kilograms or stones &amp; pounds</i> )                                                                                                                                                                                                                                                                 | kg         | St/lb     |
| <b>4.</b> | <b>Physical Activity</b>                                                                                                                                                                                                                                                                                                                                                                           | <b>Yes</b> | <b>No</b> |
| a)        | Since your admission to hospital have you been <b>advised</b> by a medical person (eg doctor, nurse, physiotherapist, dietitian) to do any physical activity?                                                                                                                                                                                                                                      | 1          | 2         |
| b)        | Since your hospital admission, in an average week, on <u>how many</u> days of the week would you do at least 30 minutes of physical activity? Physical activity can be walking, swimming, gentle cycling etc. Physical activity can be done in 2 lots of 15 minutes or 3 lots of 10 minutes each day. ( <i>please circle the no. of days you have been able to do exercise, ie 0 for no days</i> ) |            |           |
|           | 0            1            2            3            4            5            6            7                                                                                                                                                                                                                                                                                                       |            |           |
| c)        | Do you have any physical problems (eg Arthritis, back problems, hemiparesis) which stop you from doing any physical activity?                                                                                                                                                                                                                                                                      | <b>Yes</b> | <b>No</b> |
|           |                                                                                                                                                                                                                                                                                                                                                                                                    | 1          | 2         |
|           | The following statements ask about your intentions to exercise.<br>( <i>please circle the number that best describes your intention – choose ONE number only</i> )                                                                                                                                                                                                                                 |            |           |
| d)        | I currently do not exercise and I do not intend to start exercising in the next 6 months                                                                                                                                                                                                                                                                                                           | 1          |           |
| e)        | I currently do not exercise, but I am thinking about starting to exercise in the next 6 months                                                                                                                                                                                                                                                                                                     | 2          |           |
| f)        | I currently exercise, but not regularly                                                                                                                                                                                                                                                                                                                                                            | 3          |           |
| g)        | I currently exercise regularly, but I have only begun to do so within the last 6 months                                                                                                                                                                                                                                                                                                            | 4          |           |
| h)        | I currently exercise regularly, and have done so for longer than 6 months                                                                                                                                                                                                                                                                                                                          | 5          |           |

	<b>Yes</b>	<b>No</b>
What types of the following activities do you do to get your physical activity? <i>(please circle either 1 for yes or 2 for no for each item)</i>		
i) Sports activities (such as golf, bowls etc)?	1	2
j) Supervised groups (such as tai chi, Heartmoves, pilates, aqua aerobics, gentle exercise classes etc)?	1	2
k) Individual activities (such as walking, running, yoga, swimming, cycling, walking machine etc)?	1	2
l) Incidental activity (such as housework, gardening, lawn mowing etc)?	1	2

<b>5. Smoking</b>	<b>Yes</b>	<b>No</b>
a) Have you smoked more than 100 cigarettes in your entire life?	1	2
b) Have you smoked any cigarettes in the last 6 months?	1	2
c) Have you smoked any cigarettes in the last week?	1	2

**If you have EVER smoked**

*(please circle the number that best describes your intention – choose ONE number only)*

d) I currently smoke and I do not intend to stop smoking in the next 6 months	1	
e) I currently smoke, but I am thinking about stopping smoking in the next 6 months	2	
f) I currently smoke, but not regularly	3	
g) I currently do not smoke, but I have only stopped smoking within the last 6 months	4	
h) I currently do not smoke, and have not done so for longer than 6 months	5	

<b><u>If you have smoked in the last 6 months</u></b>	<b>Yes</b>	<b>No</b>
Since your admission to hospital have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to stop smoking?	1	2
j) Have you made any attempts to quit smoking?	1	2
k) <b><u>If you have tried to quit smoking</u></b> , how many times have you been able to stop for more than 24 hours? <i>(please write the number of times in the box).</i>		<input style="width: 80px; height: 25px;" type="text"/>

**If you have tried to quit smoking**, what ways have you tried to stop smoking?  
*(please circle **all** the ways you have tried to stop smoking)*

	<b>Yes</b>	<b>No</b>
l) Cut down on strength of cigarette	1	2
m) Cut down on number of cigarettes smoked	1	2
n) Cold turkey (stopped abruptly)	1	2
o) Using Nicotine Replacement Therapy (patches, inhalers, gum)	1	2
p) Using Zyban (Bupropion)	1	2
q) Called the Quitline for assistance	1	2
r) Used written material such as a Quit Kit	1	2
s) Hypnotism	1	2
t) Acupuncture	1	2
u) Discussed options and had assistance from Pharmacist	1	2
v) Discussed options and had assistance from your doctor	1	2
w) Other <i>(Please write here)</i> .	1	2

<b>6. Cardiac Rehabilitation</b>	<b>Yes</b>	<b>No</b>
a) Have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to attend an outpatient cardiac rehabilitation program?	1	2
b) Have you booked to attend an outpatient cardiac rehabilitation program?	1	2
c) Have you attended any sessions of an outpatient cardiac rehabilitation program?	1	2
d) Have you completed all but one session of an outpatient cardiac rehabilitation program?	1	2

<b>7. Modified Fat Diet</b>	<b>Yes</b>	<b>No</b>
a) Have you been advised by a medical person (eg doctor, nurse, physiotherapist, dietitian) to follow a modified fat diet?	1	2
b) Are you currently following a modified fat diet?	1	2
The following statements ask about your dietary intentions (please circle the number that best describes your intention – choose ONE number only)		
c) I currently do not follow a modified fat diet and I do not intend to do so in the next 6 months	1	
d) I currently do not follow a modified fat diet, but I am thinking about doing so in the next 6 months	2	
e) I currently follow a modified fat diet, but not regularly	3	
f) I follow a modified fat diet, but I have only started doing so within the last 6 months	4	
g) I currently follow a modified fat diet, and have done so for longer than 6 months	5	

<b>8. Health Care Services</b>	<b>Yes</b>	<b>No</b>
a) Since you last completed a questionnaire have you visited your General Practitioner?	1	2
b) <b>If you have visited your General Practitioner</b> , how many times have you been? (please write the number of times in the box).		
c) <b>Have you visited, or been visited by any other health care professional?</b> (please circle either 1 for yes or 2 for no for each item)	<b>Yes</b>	<b>No</b>
Specialist	1	2
Physiotherapist	1	2
Dietitian	1	2
Acupuncturist	1	2
Occupational therapist	1	2
Massage therapist	1	2
Pharmacist	1	2
Other (please write here)	1	2

**9. Medications**

Please list all the medications that you are currently taking. (Please copy the names as written on the container). Include herbal preparations and vitamins.

I do not take any medications (tick box if applicable)

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**THIS SECTION WAS ONLY SENT TO THOSE WHO WERE IN A PATIENT INTERVENTION GROUP**

Several months ago we sent you a letter and some other information in the mail. This package contained a letter about our study, a report card highlighting some areas of your care that could be improved, a resource map for your area, and a cookbook.

<b>10.</b>	<b>Information package</b>	<b>Yes</b>	<b>No</b>
	Do you remember receiving the letter and information in the mail?	1	2

<b>11.</b>	<b>Report Card</b>	<b>Yes</b>	<b>No</b>
a)	Do you remember receiving the report card mailed in your package?	1	2
b)	Do you remember reading the information in the report card?	1	2
c)	Do you remember if you found the information in the report card useful?	1	2
d)	Do you remember if you found the information in the report card easy to understand?	1	2
e)	Do you remember if you kept the report card to use again?	1	2
f)	Do you remember if you took the report card to your doctor?	1	2
g)	Do you remember if you either left your report card with your doctor or left a copy of your report card with your doctor?	1	2

<b>12.</b>	<b>Resource Map</b>	<b>Yes</b>	<b>No</b>
a)	Do you remember receiving the resource map mailed in your package?	1	2
b)	Do you remember reading the information in the resource map?	1	2
c)	Do you remember if you found it useful to have information on services near your area?	1	2
d)	Do you remember if you found the information in the resource map easy to understand?	1	2
e)	Do you remember if you kept the resource map to use again?	1	2
f)	Do you remember if you made contact with any of the services on your resource map?	1	2

<b>13.</b>	<b>Cookbook</b>	<b>Yes</b>	<b>No</b>
a)	Do you remember receiving the cookbook mailed in your package?	1	2
b)	Do you remember reading the information in the cookbook?	1	2
c)	Do you remember if you found the information in the cookbook useful?	1	2
d)	Do you remember if you kept the cookbook to use again?	1	2

**14.** Are there any other comments you would like to make about the information mailed to you?  
*(please write on the lines below)*

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What treatment or event do you think has helped the most?  
*(please write on the lines below)*

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Did you complete all the pages of this questionnaire? *(the tick boxes may help you)*

Page 1  Page 2  Page 3  Page 4  Page 5  Page 6  Page 7

Date of completing questionnaire ...../...../.....

We appreciate your assistance with this questionnaire.





