



## Reversing social disadvantage in secondary prevention of coronary heart disease



Michael V. Jelinek<sup>a,b,c,\*</sup>, John D. Santamaria<sup>a,b</sup>, James D. Best<sup>a,b</sup>, David R. Thompson<sup>c</sup>, Andrew M. Tonkin<sup>d</sup>, Margarite J. Vale<sup>b,1</sup>

<sup>a</sup> St Vincent's Hospital, Melbourne, Australia

<sup>b</sup> The University of Melbourne, Department of Medicine, St Vincent's Hospital, Melbourne, Australia

<sup>c</sup> Cardiovascular Research Centre, Australian Catholic University, East Melbourne, Australia

<sup>d</sup> Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Australia

### ARTICLE INFO

#### Article history:

Received 2 August 2013

Received in revised form 4 November 2013

Accepted 12 December 2013

Available online 24 December 2013

#### Keywords:

Secondary prevention

Coronary disease

Risk factors

Telephone

Rehabilitation

### ABSTRACT

**Background:** To compare and contrast the coronary heart disease (CHD) risk factors of lower socio-economic status public hospital patients with those of privately insured CHD patients before and after six months of telephone delivered coaching using The COACH Program.

**Methods:** A retrospective observational study which contrasts the lifestyle and biomedical coronary risk factor status of 2256 public hospital patients with the same risk factors of 3278 patients who had private health insurance. All patients received an average of 5 coach sessions over 6 months.

**Results:** The public hospital patients were four years younger and had multiple measures confirming their lower socio-economic status than their private hospital counterparts. At entry to the program, the public hospital patients had worse risk factor levels than the privately insured patients for total and LDL-cholesterol, triglycerides, fasting glucose, smoking and physical activity levels ( $P < 0.0001$ ) but better status for systolic and diastolic blood pressures and alcohol intake. At exit from the program, many of these differences had diminished or disappeared. The public hospital patients had greater improvements in their risk factor status for total and LDL-cholesterol, fasting glucose, body weight, smoking status and physical activity level than did the privately insured patients ( $P < 0.05$ ).

**Conclusions:** This paper demonstrates that a program of initiating contact with patients with CHD, identifying treatment gaps in their management and coaching to achieve guideline recommended risk factor targets can help reduce health inequalities in such patients and thus benefit all patients in the context of ongoing secondary prevention.

© 2013 Elsevier Ireland Ltd. All rights reserved.

### 1. Introduction

Coronary heart disease (CHD) is a lifelong condition which results in a very large burden of death, disability, and health care costs. Whilst some patients die in the initial clinical episode, most will survive to leave hospital and a program of secondary prevention will be recommended. Exercise based cardiac rehabilitation has been the method recommended by authorities to educate the patient and reduce the risk of recurrence of CHD events and premature mortality [1–5]. Systematic review of best practice exercise based cardiac rehabilitation has shown that such programs reduce all-cause and cardiovascular mortality,

decrease hospital readmissions, and improve coronary risk factors [6,7]. However, despite widespread recommendations for the use of exercise based cardiac rehabilitation, only 10–30% of eligible patients attend these programs. This poor attendance has remained steady for at least 20 years despite major attempts to raise the profile and attendance at cardiac rehabilitation [8–11]. Most disturbing has been the finding that non-attenders at cardiac rehabilitation are typically older, are more likely to be female, have lower health literacy and worse coronary risk factors (particularly smoking), more complications of vascular disease and poorer left ventricular function. They are also more likely to be socio-economically disadvantaged [12,13]. There have been several responses to the problem of poor attendance of the neediest groups of patients. Some have recommended home based cardiac rehabilitation programs [14,15]. Others have recommended the use of practice nurses [16]. We have developed The COACH Program, a coaching program delivered by telephone and mail outs for patients with CHD in which a health professional coach trains patients to vigorously pursue the target levels for their particular coronary risk factors whilst working in partnership with the patient's own doctors.

\* Corresponding author at: St Vincent's Hospital, Melbourne, Australia.

E-mail address: [michael.jelinek@svhm.org.au](mailto:michael.jelinek@svhm.org.au) (M.V. Jelinek).

<sup>1</sup> Margarite J Vale is the director of The COACH Program. The data used in this study is not owned by The COACH Program. The data used in this study is owned by each health organisation using The COACH Program. The data was collected by each organisation as part of the usual care of delivering The COACH Program and not for study purposes.

The benefits of The COACH Program have been demonstrated in two randomised controlled trials [17,18]. Furthermore, the improvements in coronary risk factor status achieved at six months are sustained for at least the next 18 months after cessation of coaching [19]. The program has been introduced to the public health system in all Australian states, financed by the state government health departments, and also most health insurance organisations which support patients discharged from private hospitals. All Australian citizens are entitled to hospital care funded in part by a taxation levy based on their annual income. Nearly one-half of Australians have additional health insurance which entitles them to the doctor and hospital of their choice, and the timing of an elective procedure. Private health insurance costs the average working Australian around 5% of their annual income. The lower an individual's personal income, the higher the proportion of that income which is spent on private medical care. Hence patients in private hospitals are usually of higher socio-economic status than those treated in the public hospital systems.

On this background we aimed to compare the impact of The COACH Program on the coronary risk factor status in public and private health systems. In turn, this has allowed us to see whether this telephone assisted management could impact on the more disadvantaged patient who might not attend a typical exercise based cardiac rehabilitation program.

## 2. Methods

### 2.1. The COACH Program

Coaching sessions are provided by a series of telephone calls and mail outs after the patient has been discharged from hospital, usually over a period of six months. A distinguishing feature of The COACH Program is that coaches identify and assist patients to close treatment gaps in the management of their lifestyle and biomedical risk factors. These 'treatment gaps' are gaps between the evidence based guideline recommended treatments patients should be receiving as against what they are actually receiving. Progress towards achieving risk factor targets is regularly monitored by the coach, who provides a structured written report that is a summary of each verbal coaching session. The written report is followed by a risk factor chart which lists the coronary risk factors, the actual risk factors levels for the patient, how they compare to the guideline recommended target levels and whether the targets have been achieved. The COACH Program is applicable to all patients with recent CHD hospitalisation, but in particular is appropriate for those patients with short stay admissions nowadays seen after percutaneous coronary interventions who may or may not have suffered myocardial infarction. The COACH Program is also especially useful for patients living in remote locations where access to cardiac rehabilitation or even primary medical care may be difficult.

### 2.2. The patients

The patients reported in this study were either managed in public hospital systems run by two large Australian states or derived from any one of four private health funds throughout Australia. The coaches were dietitians or nurses who had been formally trained in The COACH Program methodology and in the use of the appropriate software. Patients were recruited either in-hospital or after discharge from hospital after an admission for CHD. The duration of involvement in The COACH Program for each patient was up to six months. We report here on all the patients enrolled by either public or private hospitals between March 21st 2007 and December 16th 2011.

### 2.3. Socio-economic status

Objective support for our hypothesis that public hospital patients were, on average, more socially disadvantaged than private hospital patients was obtained by asking the patients for the highest level of education that they had achieved, and by using postcode derived measures of social advantage or disadvantage derived from data from the Australian Bureau of Statistics Socio-Economic Indexes for Areas (SEIFA) [20]. SEIFA is a suite of four summary measures that have been created from 2006 Census information. The indexes can be used to explore different aspects of socio-economic conditions by geographic areas. For each index, every geographic area in Australia is given a SEIFA score which shows how disadvantaged that area is compared with other areas in Australia.

Each index summarises a different aspect of the socio-economic conditions of people living in an area. They each summarise a different set of social and economic information. The indexes take into account a range of factors in determining socio-economic conditions.

The four indexes in SEIFA 2006 are:

- Index of Relative Socio-economic Disadvantage: focuses primarily on disadvantage, and is derived from Census variables like low income, low educational attainment, unemployment, and dwellings without motor vehicles.
- Index of Relative Socio-economic Advantage and Disadvantage: is a continuum of advantage (high values) to disadvantage (low values), and is derived from Census variables related to both advantage and disadvantage.
- Index of Economic Resources: focuses on financial aspects of advantage and disadvantage, using Census variables relating to residents' incomes, housing expenditure and assets.
- Index of Education and Occupation: includes Census variables relating to the educational attainment, employment and vocational skills.

### 2.4. Variables measured

All blood test results for fasting lipid profile, fasting glucose and HbA1c in patients with diabetes were verified by the coach from pathology reports. Information regarding blood pressure, body mass index (BMI), waist measurement, smoking status, alcohol intake and performance of regular moderate intensity physical activity was obtained by coaches over the telephone from patient self-report. Coronary risk factor targets were those recommended by the National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand (see Table 1).

### 2.5. Statistical analysis

Analysis was performed on de-identified patient data. For categorical data, the tables of variables for public versus private are shown. Data are expressed as median (interquartile) range for continuous variables, and numbers (percentage) for categorical variables. Comparisons between groups were made with non-parametric methods (Mann-Whitney U test, Kruskal-Wallis test) and with Fisher's Exact Test or chi-squared analysis, respectively. Data were analysed with Stata version 12 (StataCorp, College Station, TX) and a P-value less than 0.05 set for statistical significance.

Differences in coronary risk factor status were compared from entry to The COACH Program to the end of the coaching six months later. Comparison was made on the status of patients in public and private hospitals on admission to The COACH Program, discharge from The COACH Program and the net difference between the admission and discharge status of these patients in the two differing health care systems.

## 3. Results

### 3.1. Patient demographics

Table 2 presents the patient demographics. There were 2266 public hospital patients and 3278 private hospital patients. The public hospital patients were 4 years younger than those derived from private hospitals ( $P < 0.0001$ ). There were a higher proportion of women and indigenous Australians in the public hospital patients ( $P < 0.0001$ ). Public hospital patients were, on average, less well educated than were the private hospital patients ( $P < 0.0001$ ). More public hospital patients were employed and more private hospital patients were not in the workforce or looking for work ( $P < 0.0001$ ). All of the postcode (SEIFA) derived information confirmed that the public hospital patients were, on average, of lower socio-economic status ( $P < 0.0001$ ).

### 3.2. Coronary risk factor status on admission to The COACH Program

On entry to The COACH Program, nearly all coronary risk factors of public hospital patients were worse than their privately insured counterparts (Table 3). The public hospital patients had higher total and LDL-cholesterol levels, higher triglyceride levels, higher fasting blood glucose levels, higher body weight, and lower levels of physical activity ( $P < 0.0001$ ). A much higher proportion of public hospital patients were smokers on entry to The COACH Program than were privately insured patients (19.5% v 2.4%,  $P < 0.0001$ ). A higher proportion of privately insured patients consumed alcohol above the recommended targets than did public hospital patients ( $P = 0.007$ ). On admission to The COACH Program, the blood pressure of the public hospital patients was 4/4 mm Hg lower than that of the privately insured patients ( $P < 0.01$ ).

Download English Version:

<https://daneshyari.com/en/article/5973074>

Download Persian Version:

<https://daneshyari.com/article/5973074>

[Daneshyari.com](https://daneshyari.com)