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Abstract

Aim: To investigate the use of behavioural change techniques by cardiologists, general practitioners and dietitians in adult cardiac patients within 12 months of their cardiac event. **Method:** Quantitative cross-sectional surveys. Frequency analyses were conducted on the respondents' answers to questionnaire items. Chi-squared test of independence compared responses of the three professional groups on the questionnaire items. Analyses of variance were conducted to explore the impact of the independent variables: age, sex and time worked on the behavioural change techniques used by the respondents. **Results:** The respondents included 248 general practitioners (30% response), 189 cardiologists (47% response) and 180 dietitians (60% response). General practitioners and cardiologists acted mainly as advocates for dietary change in the dietary management process. Dietitians provided nutrition knowledge and a range of techniques to assist dietary behavioural change. Cardiologists and dietitians shared little nutrition information with general practitioners (cardiologists with general practitioners = 8%, dietitians with general practitioners = 49%). **Conclusion:** The present study shows that cardiac patients may have insufficient access to knowledge of nutrition and techniques to assist them with dietary behavioural change.

Keywords

practitioners, dietitians, adult, cardiac, patients, dietary, behavioural, change, australian, contribution, cardiologists, general

Disciplines

Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

Publication Details

Pomeroy, S. & Worsley, A. 2009, 'Contribution of Australian cardiologists, general practitioners and dietitians to adult cardiac patients' dietary behavioural change', *Nutrition and Dietetics*, vol. 66, no. 2, pp. 74-80.

ORIGINAL RESEARCH

Contribution of Australian cardiologists, general practitioners and dietitians to adult cardiac patients' dietary behavioural change

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Abstract

Aim: To investigate the use of behavioural change techniques by cardiologists, general practitioners and dietitians in adult cardiac patients within 12 months of their cardiac event.

Method: Quantitative cross-sectional surveys. Frequency analyses were conducted on the respondents' answers to questionnaire items. Chi-squared test of independence compared responses of the three professional groups on the questionnaire items. Analyses of variance were conducted to explore the impact of the independent variables: age, sex and time worked on the behavioural change techniques used by the respondents.

Results: The respondents included 248 general practitioners (30% response), 189 cardiologists (47% response) and 180 dietitians (60% response). General practitioners and cardiologists acted mainly as advocates for dietary change in the dietary management process. Dietitians provided nutrition knowledge and a range of techniques to assist dietary behavioural change. Cardiologists and dietitians shared little nutrition information with general practitioners (cardiologists with general practitioners = 8%, dietitians with general practitioners = 49%).

Conclusion: The present study shows that cardiac patients may have insufficient access to knowledge of nutrition and techniques to assist them with dietary behavioural change.

Key words: behaviour change, cardiology, dietetics, general practitioner, nutrition, problem solving.

INTRODUCTION

The Australian government has initiated a major focus on chronic disease management through the National Chronic Disease Strategy.¹ A key theme of this policy is a patient being individually responsible for managing their personal health. The health promotion literature proposes a number of theories and behavioural change techniques to assist patients with personal health management.^{2–6} Michie and colleagues² review of behavioural change techniques to promote healthy eating, physical activity and to quit smoking found that knowledge combined with behavioural change techniques (providing information and encouraging people to set goals) can be effective at changing behaviour especially in disadvantaged groups. This result has some parallels with Coulter and Ellins⁶ systematic review of patient-focused interventions. They found that when infor-

mation (patients' knowledge and understanding of the situation) is combined with patient involvement in planning for change, patients' recall of advice improved. Techniques that have been shown to have a positive effect in modifying behaviours for cardiovascular disease include self-monitor the identified behaviour, goal setting and problem solving difficult situations.^{5,7–9} Doctors and dietitians are believed to use a combination of these techniques in patient management.^{7–12} Patient counselling frameworks such as patient-centred counselling use many of these behavioural change techniques.⁷

The aim of the present study was to investigate the use of these and related behavioural change techniques by cardiologists, general practitioners (GPs) and dietitians in adult cardiac patients within 12 months of the cardiac event.

METHODS**Design**

Quantitative cross-sectional surveys of Victorian (Australia) GPs, cardiologists and dietitians were conducted from October 2005 to June 2006.

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Accepted November 2008

Sample

The sampling frame for GPs was a random sample of 825 Victorian GPs whose names and addresses were recorded on the Australian Medical Association Online Doctor Search website. For the dietitians, the Dietitians Association of Australia mailed the questionnaire to 758 Victorian financial members. For the cardiologists, the sampling frame consisted of 405 Australian cardiologists who permitted their contact details to be circulated through the Cardiac Society of Australia and New Zealand membership for purposes of research.

Ethics

The study received ethics approval from Deakin University, and complies with the Declaration of Helsinki (2000).

Questionnaire design

Analysis of narratives from earlier semi-structured interviews with 30 GPs together with questionnaire items relating to behavioural change techniques,^{10,11} and reports,^{3,12} formed the basis of a questionnaire, which was sent to the three professional samples between October 2005 and June 2006. The questionnaire included 19 questions with 159 closed and open items, formatted according to the framework suggested by Dillman.¹³ One key section, reported here, asked cardiologists, GPs and dietitians about their use of behavioural change techniques. These items covered the preparation of patients for dietary behavioural change (Table 1), food knowledge (Table 2), assistance with problem solving (Table 3) and consultations (Table 4).

As shown in Table 1, responses for each item are given on a 5-point frequency scale rated from 'never' (1) to 'often' (4) with 'unsure' ranked as neutral option.

Pre-testing

To confirm content validity, seven GPs, three cardiologists and four dietitians provided formal expert review. On average, the doctors and dietitians took 25 minutes to complete the questionnaire (range 20–40 minutes).

Reliability

Items included within particular questions were analysed and summed to yield internally reliable scales. The reliability of the items included in the question that examined behavioural change techniques was assessed using Cronbach's coefficient alpha. The internal reliability coefficient for the items listed in each question was greater than 0.80: cardiologists' questionnaire (47 items, $\alpha = 0.95$), GPs' questionnaire (47 items, $\alpha = 0.91$) and dietitians' questionnaire (41 items, $\alpha = 0.87$).

Survey administration

Administration of the surveys followed the protocol for postal surveys outlined by Dillman.¹³ That is, there were

three mail-outs to potential respondents: pre-questionnaire postcard, questionnaire, thank you postcard and a replacement questionnaire for non-respondents.

Statistical analysis

Descriptive statistics were used to compare response distributions using SPSS (Version 12, 2002; SPSS Inc., Chicago, IL, USA). Chi-squared test of independence compared responses of the three professional groups on the questionnaire items. Analyses of variance were conducted to explore the impact of the independent variables: age, sex and time worked on the behavioural change techniques used by the respondents.

Fewer than 2% of respondents gave the response 'not sure'; therefore they were omitted from analyses. Because of the number of techniques, the results are reported in four tables. The responses for 'never' and 'rarely' have been summed into one category.

RESULTS

The respondents included 248 GPs (30% response), 189 Australian cardiologists (47% response) and 180 dietitians (60% response). Based on available data, it was estimated that 300 dietitians and 405 cardiologists routinely consulted to adult cardiac patients.

They broadly represented their respective populations for age, sex and hours worked per week. The sample sizes ($n = 248$; $n = 189$, $n = 180$) exceeded the number ($n = 110$) required to achieve 80% power, and be able to detect a difference of 5% between groups at the 0.05 level of significance.¹⁴

Preparation of patients for dietary change

The professionals' discussions with patients about their nutrition habits were based around foods usually eaten at meal times and for snacks (Table 1a). The majority of cardiologists (76%) and GPs (83%) prepared their patients for dietary change by warning them about the risks associated with their current lifestyle and diet, then they discussed the benefits of nutritious diet (Table 1b,c). Seven out of 10 GPs and cardiologists asked their patients about sources of saturated fats in diet, and their intentions to change their dietary behaviours (Table 1d,e). The dietitians reported using the same approaches. In addition, they discussed possible challenges such as lack of transport and access to nutritious foods in their locality (Table 1).

Food knowledge

Approximately 9 in 10 respondents informed their patients about saturated fats (Table 2). The majority of GPs (75%) reported that they informed their patients about recommended intakes for fruit and vegetables, and cardiologists

Table 1 Cardiologists, GPs and dietitians prepare their patients for dietary change, within the 12 months post cardiac event (% response)

	Cardiologists			GPs			Dietitians			P-value
	Never plus Rarely	Sometimes	Often	Never plus Rarely	Sometimes	Often	Never plus Rarely	Sometimes	Often	
(a) Assess current food habits using										
Meals and snacks	38	9	53	12	9	75	3	1	96	96.6 0.001*
Food groups	62	5	30	31	7	53	27	3	60	45.3 0.001*
Healthy diet pyramid	63	7	30	32	89	57	28	11	61	
Patient's diet diary	80	4	13	47	11	35	25	10	61	92.4 0.001*
Tools such as WAVE or REAP	95	3	2	91	8	2	94	4	1	6.8 0.42
(b) Direct persuasion										
Give a stern warning about current lifestyle	15	6	79	10	9	81	28	16	56	78.8 0.001*
(c) Links between nutrition and cardiovascular disease										
Links between food, lipids and hypertension	18	6	76	7	17	76	9	6	85	6.5 0.38
Risks with current diet	17	5	76	5	8	83	2	2	95	6.6 0.37
Benefits of nutritious diet	8	3	88	3	6	88	2	3	95	9.0 0.01
(d) Assess diet										
Hyperlipidaemia: saturated fats	23	2	75	13	13	74	5	0	95	5.8 0.05
Hypertension: intake of salty foods	27	1	72	23	18	59	13	14	73	115.6 0.003*
Overweight/obesity: total energy	41	15	44	23	19	58	3	3	94	112.1 0.002*
(e) Discuss willingness to change eating behaviours										
Seek agreement on eating behaviours that need to be changed	30	12	58	22	89	67	1	4	95	68.3 0.001*
Intention to change	19	8	73	10	12	73	2	4	92	31.2 0.001*
Self confidence to change	41	11	44	25	11	55	7	8	79	51.5 0.001*
(f) Discuss expected challenges										
Access to nutritious foods e.g. home or workplace	53	12	33	35	16	43	9	12	77	73.7 0.001*
Resources to obtain nutritious food e.g. finance and transport	50	7	37	38	11	41	8	12	75	60.1 0.001*
Availability of nutritious food in locality	20	28	52	10	35	55	1	4	92	31.2 0.001*

Cardiologists (n = 189), GPs (n = 248), dietitians (n = 180). χ^2 = chi-squared test of independence for 'often' response, degrees of freedom = 2. * = significant association. Bold = high level of response ($\geq 70\%$ response). REAP, WAVE = Tools to enable doctors to assess patient's diets and exercise habits.

Table 2 Cardiologists' general practitioners' and dietitians' provision of food knowledge, within the 12 months post cardiac event (% response)

	Cardiologists			GPs			Dietitians			χ ²	P-value
	Never plus Rarely	Sometimes	Often	Never plus Rarely	Sometimes	Often	Never plus Rarely	Sometimes	Often		
Provide food knowledge											
Hyperlipidaemia: reducing saturated fats	6	4	89	5	5	88	4	3	89	5.83	0.25
Hypertension: reducing dietary sodium	21	7	72	28	12	58	13	15	72	115.6	0.003*
Overweight/obesity: reducing total energy	56	4	38	39	10	51	2	9	89	98.1	0.001*
Increasing fruit and vegetable intake	33	9	56	13	11	75	2	4	93	78.9	0.001*
Buying nutritious foods prepared away from the home e.g. takeaways	56	6	38	39	19	42	5	11	84	98.1	0.001*
Selecting nutritious food from a menu e.g. restaurant	67	11	22	45	13	42	12	17	71	109.7	0.001*
Managing food portion sizes	56	7	35	81	4	15	4	14	87	145.3	0.001*
Understanding food labels	86	5	7	69	7	24	14	12	72	198.2	0.001*

Cardiologists (n = 189), GPs (n = 248), dietitians (n = 180). χ^2 = chi-squared test of independence for 'often' response, degrees of freedom = 2. * = significant association. Bold = high level of response ($\geq 70\%$ response).

(72%) highlighted food sources of sodium (Table 2). In addition to the knowledge provided by the doctors, dietitians (77%) informed the patients about the purchase of food. Cardiologists and GPs rarely provided this practical knowledge.

Techniques to assist behavioural change

Both cardiologists and GPs used two techniques to assist patients with problem solving: facilitation of weight loss goals and discussion of clinical tests (Table 3). Anthropometric measures were performed more by GPs than cardiologists (83%; 68%; $\chi^2 = 31.4$, $P = 0.001$). The vast majority of dietitians reported problem solving unhelpful behaviours with their patients (Table 3).

Consultations

As shown in Table 4a, approximately half of the GPs and cardiologists reported that they discussed dietary change with their patients over a number of short consultations, but few (6% and 8%, respectively) utilised a whole consultation for this purpose. Both cardiologists and GPs primarily referred patients with diabetes and excess body weight to dietitians (Table 4b). There was little evidence that cardiologists communicated with GPs about dietary change practice (Table 4c). Half of the dietitians shared patients' nutrition details with the referring GPs in written reports.

DISCUSSION

This is the first time, to our knowledge, that the contribution of Australian cardiologists, GPs and dietitians towards cardiac patients' modification of their dietary behaviours has been explored.

There were three key findings: (i) GPs and cardiologists apply similar behavioural change techniques; (ii) dietitians communicate more nutrition recommendations, practical food skills and behaviour change techniques than doctors; and (iii) few cardiologists and about half of dietitians provided nutrition recommendations for patients in written reports to GPs.

The majority of the cardiologists and GPs advocated for dietary change with their patients. They often gave warnings about current lifestyle, discussed the links between nutrition and cardiovascular disease, asked patients about their intention to change dietary behaviours, facilitated weight loss goals, provided printed nutrition materials and feedback on results of clinical tests. These practices represent minimal management requirements for high-risk patients as reported in major publications for doctors in the USA.^{15,16} These include: dietary assessment, explanation of the problem for the patient, decision about an appropriate therapeutic plan and description of the plan to the patient; emphasise the benefits, arrange referrals with allied health professionals and arrange follow-visits to assess progress. Minimum responsibilities for Australian doctors are less clear. This finding also supports our earlier results that showed that

Table 3 Cardiologists', general practitioners' and dietitians' assist patients to problem solve dietary behaviours, within the 12 months post cardiac event (% response)

	Cardiologists			GPs			Dietitians			P-value
	Never plus Rarely	Sometimes	Often	Never plus Rarely	Sometimes	Often	Never plus Rarely	Sometimes	Often	
Problem solve										
Identify problem eating behaviour	95	2	3	41	16	43	9	16	75	73.8 0.001*
Identify goals										
Weight loss	12	7	79	6	11	83	10	8	82	2.9 0.23
Eating behaviours	43	9	45	27	10	63	5	6	88	78.6 0.001*
Generate solutions										
Discuss many solutions as possible	92	2	6	80	16	4	6	4	90	395.1 0.001*
Discuss obstacles to change e.g. unhelpful partner	53	14	33	35	20	45	9	14	77	73.7 0.001*
Set clear steps to achieve solution	95	2	3	83	16	1	6	4	90	395.1 0.001*
Reinforce change										
Encourage patient to reward positive changes	95	2	1	81	16	3	2	4	93	395.1 0.001*
Self monitor										
Food intake and cues to eating behaviours e.g. a log book	82	4	14	49	11	40	13	16	71	88.6 0.001*
Discuss opportunities for support										
Family, partner or peer	74	5	20	48	21	31	6	7	85	152.6 0.001*
Dietetic services offered at community health centre(s)	88	4	6	54	38	8	42	25	33	67.9 0.001*
Arrange follow-up visits to discuss										
Feedback on performance	96	2	2	5	87	6	2.7	1.7	95	394.0 0.001*
Relevant clinical tests	0	5	93	2	0	98	6	17	77	68.6 0.001*
Anthropometric measures	26	4	68	5	10	83	9	17	74	31.3 0.001*
Provide nutrition information										
Printed information e.g. leaflets, web sites	38	9	51	12	17	71	5	9	86	57.9 0.001*

Cardiologists (n = 189), GPs (n = 248), dietitians (n = 180). χ^2 = chi-squared test of independence for 'often' response, degrees of freedom = 2. * = significant association. Bold = high level of response ($\geq 70\%$ response).

Table 4 Cardiologists' and general practitioners' consultation practices, within the 12 months post cardiac event (% response)

	Cardiologists			GPs			Dietitians			P-value
	Never plus rarely	Sometimes	Often	never plus rarely	Sometimes	Often	never plus rarely	Sometimes	Often	
(a) Opportunities to discuss diet										
Provide brief advice over short visits (<20 minutes)	49	6	43	38	10	51	5	10	85	0.001*
Use whole visit to discuss diet (≥ 20 minutes)	81	9	8	91	3	6	0	0	98	0.001*
(b) Arrange referrals to dietitians										
Diabetes type 1	15	6	78	7	13	79	NA	NA	NA	0.32
Diabetes type 2	25	7	66	11	14	73	NA	NA	NA	0.001*
Weight reduction	25	14	60	26	20	52	NA	NA	NA	0.001*
Hypertension	66	7	25	59	14	24	NA	NA	NA	0.38
Hyperlipidaemia	39	13	47	50	15	33	NA	NA	NA	0.001*
(c) Reports to GPs										
Summary of nutrition discussion with patients sent to GP	34	21	8	NA	NA	NA	12	20	50	0.001*
Referrals provided to patients for dietitians	80	2	2	NA	NA	NA	NA	NA	NA	

Cardiologists (n = 189), GPs (n = 248), dietitians (n = 180). χ^2 = chi-squared test of independence for 'often' response, degrees of freedom = 2. * = significant association. Bold = high level of response ($\geq 70\%$ response). NA, not applicable.

GPs¹⁷ and cardiologists perceived their primary role to be one of motivating patients to attempt dietary change.

Effective dietary interventions, especially for weight management, seek to assist individual patients to problem solve unhelpful dietary behaviours.¹⁸ All the participants reported facilitating weight loss goals with their patients. This finding is a likely reflection of the Australian Government's Chronic Disease Team Care Arrangement (TCA) policy.¹⁹ GPs receive a fee to initiate team care arrangements between allied health providers and patients. One key element of a TCA is goal setting with patients.

General practitioners, cardiologists and dietitians (71%, 51% and 86%, respectively) reported that they assisted their patients by providing self-help information. Reports have shown that for individual patients to make use of information, it must be relevant and achievable for the patient.²⁰ Our earlier study of the Heart Foundation's Healthy Eating Recommendations (Australia) showed that these same professionals believed many of the recommendations lacked relevance and many were difficult for their patients to achieve.²¹ Further investigation into the nutrition information provided to patients by these professionals is required.

Few GPs received nutrition information of any depth in patient reports from cardiologists. This finding is supported by workforce data that describes the Australian cardiologist as a specialist who conducts, either exclusively or principally, assessments and/or procedures.²² This suggests that cardiologists' speciality does not include nutrition recommendations for their patients. Another explanation could be that cardiologists have limited time for consultations. However, since 1998 the number of repeat visits to cardiologists has risen to two-thirds.²² This increase in demand for consultation services suggests there may be new nutrition opportunities for cardiologists.

Only half of the dietitians reported that they shared information about patients' dietary habits and nutrition status in reports to referring GPs. This is consistent with our earlier findings in which GPs reported a low rate of written reports by dietitians.¹⁷ Clearly, further investigation is needed to determine the factors, which influence dietitians' report writing. Published reports show that doctors value high quality reports from dietitians.²³ The lack of written 'feedback' from dietitians is viewed as compromising patient care.²³

The doctors (GPs and cardiologists) reported that they conducted dietary discussions over a series of short appointments. These findings agree with data, which shows that cardiac patients visit their GP an average of 6.5 times annually²⁴ and have repeat visits to their cardiologists.²² Systematic reviews of the literature suggest that effective behavioural change is associated with the frequency and intensity of dietary counselling.¹² Further investigation of the efficacy of the practices reported here is required.

The main limitation of the present study was the selection bias introduced by low response rates in the three substudies. Participants who volunteered for our research may have been more convinced of the benefit of dietary change than those who did not. In addition, the outcome measure may have been subject to biases relating to self-reporting.

CONCLUSION

The present study shows that patients who do not have access to dietetic care may miss out on nutrition knowledge and techniques to assist them with dietary behavioural change.

ACKNOWLEDGEMENTS

The authors wish to acknowledge the contributions of GPs, cardiologists and dietitians.

REFERENCES

- 1 Australian Government Department of Health and Ageing. *COAG Health Services—Promoting Good Health, Prevention and Early Intervention*. Fact Sheet. Canberra: Commonwealth Government, 2006.
- 2 Michie S, Jochelson K, Markham WCB. *Low-Income Groups and Behavior Change Intervention: A Review of Intervention Content and Effectiveness*. London: The King's Fund, 2008; 1–23.
- 3 Whitlock EP, Orleans CT, Pender N, Allan J. Evaluating primary care behavioural counseling interventions: an evidence-based approach. *Am J Prev Med* 2002; **4**: 267–84.
- 4 Avenell A, Sattar N, Lean M. ABC of obesity. Management: part I—behavior change, diet, and activity. *Br Med J* 2006; **333**: 740–43.
- 5 Ockene JK, Ockene IS. Primary prevention of cardiovascular disease: helping patients change lifestyle behaviors. In: Becker RC, Alpert JS, eds. *Cardiovascular Medicine Practice and Management*. New York: Arnold, a member of the Hodder Headline Group, 2001; 313–36.
- 6 Coulter A, Ellins J. Effectiveness of strategies for informing, educating, and involving patients. *Br Med J* 2007; **335**: 24–7.
- 7 Rosal MC, Ebbeling CB, Lofgren I, Ockene JK, Ockene IS, Hebert JR. Facilitating dietary change: the patient-centered counseling model. *J Am Diet Assoc* 2001; **101**: 332–41.
- 8 National Health and Medical Research Council. *Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults*. Canberra: Commonwealth of Australia, 2004.
- 9 Thompson RL, Summerbell CD, Hooper L *et al*. Relative efficacy of differential methods of dietary advice: a systematic review. *Am J Clin Nutr* 2003; **77**: S1052–7.
- 10 Ammerman A, deVellis RF, Carey TS *et al*. Physician-based diet counseling for cholesterol reduction: current practices, determinants, and techniques for improvement. *Am J Prev Med* 1993; **22**: 96–109.
- 11 Hiddink GJ, Hautvast JG, van Woerkum CM, Fieren CJ, van 't Hof MA. Nutrition guidance by primary-care physicians: LISREL analysis improves understanding. *Am J Prev Med* 1997; **26**: 29–36.
- 12 Pignone MP, Ammerman A, Fernandez L *et al*. Counseling to promote a healthy diet in adults: a summary of the evidence for the U.S. Preventive Services Task Force. *Am J Prev Med* 2003; **24**: 75–92.
- 13 Dillman DA. *Mail and Internet Surveys: The Tailored Design Method*. New York: John Wiley, 2000.
- 14 Dawson-Saunders B, Trapp RG. *Basic and Clinical Biostatistics*. Norwalk, CA: Appleton and Lance, 1990.
- 15 Fletcher GF, Balady GV, Vogel RA. Preventive cardiology: how can we do better? Presented at the 33rd Bethesda Conference, Bethesda, Maryland, December 18, 2001. *J Am Coll Cardiol* 2002; **40**: 579–651.
- 16 Adult Treatment Panel III. The third report of the national cholesterol education program expert panel on detection, evaluation, and treatment of high blood cholesterol in adults. Final report. *Circulation* 2002; **106**: 3143–421.
- 17 Pomeroy S, Worsley A. Nutrition care for adult cardiac patients: Australian general practitioners' perceptions of their roles. *Fam Pract* 2008; **25**: i123–9.
- 18 Wadden T. Characteristics of successful weight loss maintainers. In: Allison D, Pi-Sunyer F, eds. *Obesity Treatment: Establishing Goals, Improving Outcomes and Reviewing the Research Agenda*. New York: Plenum Press, 1995; 103–11.
- 19 Australian Government Department of Health. *Medicare Benefits Schedule*. Canberra: Commonwealth Department of Health and Ageing, 2000.
- 20 Kreuter MW, Strecher VJ, Glassman B. One size does not fit all: the case for tailoring print materials. *Ann Behav Med* 1999; **21**: 276–83.
- 21 Pomeroy S, Worsley A. The relevance of the Heart Foundation of Australia dietary recommendations for adult Australians: a comparison of views of general practitioners, cardiologists and dietitians. *Asia Pac J Clin Nutr* 2008; **2**: 290–96.
- 22 Australian Medical Workforce Advisory Committee. *The Specialist Cardiology Workforce in Australia: Supply and Requirements 1998–2009*. Sydney: Department of Health, 1999.
- 23 Krenkel JA, St Jeor ST. The quality of RD written communication with physicians and the relationship to clinical practice factors. *J Am Diet Assoc* 2007; **107**: A72.
- 24 Commonwealth Government of Australia. *General Practice in Australia*. Canberra: Department of Health and Ageing, 2005.