

# General practitioners' views on providing nutrition care to patients with chronic disease: a focus group study

Jennifer Crowley PhD;<sup>1</sup> Lauren Ball PhD;<sup>2</sup> Anne-Thea McGill MBChB, PhD, FRNZCGP;<sup>3</sup> Stephen Buetow PhD;<sup>3</sup> Bruce Arroll MBChB, PhD, FRNZCGP;<sup>3</sup> Michael Leveritt PhD;<sup>4</sup> Clare Wall PhD<sup>1</sup>

## ABSTRACT

**INTRODUCTION:** Nutrition care refers to practices conducted by health professionals to support patients to improve their dietary intake. General practitioners (GPs) are expected to provide nutrition care to patients for prevention and management of chronic disease.

**AIM:** This study explores GPs' opinions regarding nutrition care provision to patients with chronic disease.

**METHODS:** An interpretive descriptive approach to qualitative research using seven semi-structured focus groups with 48 GPs in Auckland was used. Focus groups investigated how GPs felt about providing nutrition care; the perceived barriers to and support required for this care; the development of further nutrition knowledge and skills; and possible roles for Practice Nurses. Recorded interviews were transcribed verbatim and analysed using a thematic approach.

**RESULTS:** GPs indicated routine provision of basic nutrition care to patients with chronic disease, but perceived their limited consultation time and nutrition competence constrained their capacity to provide nutrition care. GPs felt they needed further information to provide culturally, socially and economically sensitive nutrition care. GPs displayed variable opinions on the benefits of developing their nutrition knowledge and skills, and the idea of Practice Nurses providing nutrition care.

**CONCLUSIONS:** Despite perceiving that nutrition care is important for patients with chronic disease and facing barriers to providing nutrition care, GPs appear reluctant to further develop their knowledge and skills and for Practice Nurses to provide this care. Strategies to enhance GPs' nutrition-related self-efficacy, nutrition cultural competence and attitudes towards further training care may be warranted.

**KEYWORDS:** General practitioner; medical education; counselling; nutrition therapy; competence; attitude

<sup>1</sup> Discipline of Nutrition, Faculty of Medical and Health Sciences, University of Auckland, New Zealand

<sup>2</sup> Menzies Health Institute Queensland, Griffith University, Gold Coast, Qld 4222, Australia

<sup>3</sup> Department of General Practice and Primary Health Care, Faculty of Medical and Health Sciences, University of Auckland, New Zealand

<sup>4</sup> School of Human Movement Studies, University of Queensland, Queensland, Australia

J PRIM HEALTH CARE  
2016;8(4):357–364.  
doi:10.1071/HC15048  
Published online 21 December 2016

## Introduction

The prevalence of chronic disease is increasing worldwide and contributes significantly to morbidity and mortality.<sup>1</sup> In New Zealand, poor nutrition behaviour is estimated to contribute to ~9000 deaths each year.<sup>2</sup> Individualised nutrition

care can improve biomarkers associated with chronic disease.<sup>3</sup> Nutrition care is any practice by health professionals to improve the nutrition behaviour and subsequent health of patients.<sup>4</sup>

General practitioners (GPs) are ideally placed to provide nutrition care to patients with chronic

## CORRESPONDENCE TO:

**Jennifer Crowley**  
School of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand  
j.crowley@auckland.ac.nz

## WHAT GAP THIS FILLS

**What is already known:** GPs are expected to provide nutrition care to patients for the prevention and management of chronic disease. However, GPs face considerable barriers delivering this care.

**What this study adds:** GPs perceive themselves as having limited capacity to provide nutrition care to patients, due to limited consultation time and nutrition competence. GPs feel they would benefit from nutrition resources that support the nutrition care they provide, and better access to publically funded alternatives for nutrition care.

disease as they are the initial point of contact with medical services, provide care to 80% of New Zealand adults every year<sup>5</sup> and are highly regarded for nutrition care.<sup>6–8</sup> GPs can elicit improvements in patients' nutrition behaviour.<sup>6</sup> However, they require sufficient knowledge, skills and attitudes relating to nutrition to provide effective nutrition care in routine practice.<sup>5,9</sup>

GPs experience numerous barriers to providing nutrition care, including perceived lack of time,<sup>4,10–12</sup> patient non-adherence,<sup>10,11,13</sup> inadequate teaching materials,<sup>10,12</sup> lack of nutrition education,<sup>10,11,13</sup> lack of knowledge,<sup>4,10,13,14</sup> inadequate remuneration<sup>4,10,12</sup> and low confidence.<sup>10</sup> Health systems within countries are likely to influence these barriers. In New Zealand, patients pay relatively high fees per consultation<sup>15</sup> and there is a relatively high ratio of patients to GPs compared with other countries.<sup>16</sup> New Zealand GPs may face unique barriers to providing nutrition care. This warrants investigation to support GPs in their role.

New Zealand GPs' views about providing nutrition care have not been documented. One study has demonstrated that they feel confident to provide some aspects of nutrition care but are less confident with others.<sup>17</sup> However, the quantitative approach of this research allowed limited insight into why confidence to provide nutrition care is variable. Using a qualitative approach, another study reported that New Zealand GPs feel responsible for supporting patients in weight management,

yet disempowered by their ability to do this.<sup>18</sup> Our qualitative research to investigate GPs' perceptions of the provision of nutrition care for patients with chronic disease similarly allows insight to inform future interventions. The aim of this study was to explore New Zealand GPs' opinions regarding nutrition care provision to patients with chronic disease.

## Methods

We used a qualitative design to produce thematic descriptions of experience in nutrition care.<sup>19,20</sup> The study was approved by the University of Auckland's Ethics Committee (reference: 011080). The Royal New Zealand College of General Practitioners endorsed the study.

Potential participants were GPs attending a monthly Continuing Education (CE) meeting arranged by four of Auckland's Primary Health Organisations (PHOs) during February–April 2014. The Chief Executive Officers from five of Auckland's six PHOs were contacted regarding participation in this study and four responded. Clinical Advisors (CA) from these PHOs were emailed a letter introducing the study. Following a meeting between the CAs and researchers, a CE meeting date was set. One month before the CE meeting, the CAs emailed a flyer to GPs to explain the purpose and format of the meeting. A reminder email was sent 1 week before the CE meeting.

At the beginning of each meeting, GPs completed a questionnaire to assess their attitudes and confidence to provide nutrition care; these results are reported elsewhere.<sup>17</sup> GPs then participated in focus groups to explore opinions regarding providing nutrition care to patients with chronic disease. One PHO hosted one focus group, and three PHOs hosted two focus groups each. Participants from two of seven focus groups practised in central Auckland, including Waiheke Island; participants from three focus groups practised in south Auckland; and the remaining participants practised in east and central-east Auckland. At the conclusion of the focus groups, the lead researcher (JC) presented a short nutrition update to GPs.

## Data collection and interview design

Open-ended questions guided discussions in seven focus groups. Two trained facilitators who were not part of the research team conducted the discussions, following an identical format for all groups.<sup>21,22</sup> Table 1 shows interview questions their rationale. The interview guide was developed following a literature review. Questions were piloted with three individuals from the potential participant pool to ensure questions were comprehensive, understandable and appropriate to the investigative aims of this study. Data collection occurred until additional interviews did not reveal new information; that is, data saturation was achieved. Consequently, an eighth focus group was not conducted. Focus groups averaged 64 min in length and interview data were recorded using a digital recording device. Written notes of responses were also taken by the lead researcher (JC) who observed one focus group from each PHO.

## Data analysis

After each focus group was conducted, recorded interviews were transcribed verbatim by the lead researcher (JC). JC manually coded the transcripts and grouped the codes into themes on the basis of recurrent and related ideas. Two investigators (JC and LB) independently reviewed the themes and identified common or dissident viewpoints. Discussions among the investigators continued until agreement was reached on the titles of themes and subthemes, and the links between them. Indicative quotes from transcripts have been used to illustrate themes identified from the data.

## Results

From the four PHOs, 48 GPs from a potential pool of 199 participated in this study. Participants' characteristics are reported in Table 2. The facilitators engaged with all participants and achieved robust discussion throughout the focus groups.

## Provision of nutrition care

Participants reported that providing basic nutrition care for patients with chronic disease

was routine clinical practice and some enjoyed providing this care.

'Diet and exercise are part of the consultation. It's routine.' [Group 3 GP]

'It's almost every patient that needs nutrition advice. We should know how to treat it... It's part of what we do every day.' [Group 3 GP]

'I like giving dietary advice, trying to keep it simple.' [Group 5 GP]

Participants felt that nutrition care is best provided when relevant to presenting individuals. With regard to patients with newly diagnosed chronic disease, participants like adding to patients' nutrition education during successive consultations to enable motivated patients to absorb and act on the advice.

'When a patient is newly diagnosed ... they will take things in, they are motivated. ... It is easier to bring up when there is an issue.' [Group 2 GP]

Some participants noted that patients' nutrition queries often related to information obtained from the media. While participants intuitively knew that what was proposed may not be beneficial or appropriate for the patient, they could not always tell why.

Table 1. List of interview questions utilised in focus groups and rationale for inclusion

Interview questions	Rationale
How do you feel about GPs providing nutrition care to patients?	Explore GPs' perceptions for providing nutrition care.
What barriers do you see to GPs including nutrition in patient care?	Identify GPs' perceived barriers for providing nutrition care.
What support would be required for you to provide nutrition care in your practice?	Explore GPs' perceptions of the type of support required for providing nutrition care to patients.
How do you perceive GPs develop and extend skills related to the provision of nutrition care?	Explore GPs' perceptions for opportunities for professional development in providing nutrition care.
Describe your views on the possibility of overseeing other health professionals, such as Practice Nurses, to provide nutrition care.	Explore GPs' perceptions for overseeing Practice Nurses providing nutrition care.

'Patients asking weird questions about nutrition through the media: diets, gluten free, dairy free or a particular supplement. They are rubbish but I cannot explain why. I do not know enough about why they are not a good thing.' [Group 1 GP]

Participants perceived that changing dietary behaviours is challenging for patients but necessary, given New Zealand's high rates of obesity and the relationship of obesity and lifestyle behaviours to chronic disease.

'With an obesity epidemic it is fundamental. We have to do something about it. With older obese patients it's really difficult. ... They are locked into eating habits.' [Group 6 GP]

While participants acknowledged the value some patients place on nutrition care, they perceived others would question GPs wanting to introduce this into the consultation.

'Doctors don't under-rate nutrition. Patients do. They don't come to the doctor to hear they need to do something about their food. They want something more scientific than that.' [Group 7 GP]

Participants acknowledged the social and cultural determinants of patients' dietary behaviours, as well as the importance of addressing these factors when providing nutrition care.

'We need to look at socioeconomic aspects of their life. Are they able to afford to spend money on themselves or do other family members have call

on their income? Family members can influence their lifestyle, and we need to investigate ethnic and religious barriers to food eaten.' [Group 3 GP]

'Develop rapport with patients so that they trust and are prepared to listen to you before raising issues of food and lifestyle. They won't take it from me if I just attack them. What do you know about my culture or social background?' [Group 4 GP]

'We need to have insight into culture, i.e. how to do it in a less energy dense way that is acceptable.' [Group 5 GP]

Some participants recognised that considerable gains could be achieved when patients with chronic disease received generalised nutrition care, but acknowledged that individualised, specific advice is necessary in certain situations. Others felt that there was a role in their providing basic nutrition care and directing patients to further support and further information.

'Big gains can be made from general advice. Specific advice may be needed for specific medical problems.' [Group 7 GP]

'We can help with the guidelines, then we need to refer to a dietitian or a website.' [Group 3 GP]

### Time to provide nutrition care

Lack of time was frequently cited as the main barrier to incorporating nutrition care into consultations for patients with chronic disease. Lack

Table 2. Demographic characteristics of general practitioners (GPs) in each focus group (n = 48)

Focus group	Gender (M, F)	Medical training location (Dom, Ovs)	Self-identified ethnicity (ENZ, Asn, PP, Oth)	Age (years) (Mean ± s.d.)	Experience as GP (years) (Mean ± s.d.)
Group 1 (n = 6)	4, 2	4, 2	3, 3, 0, 0	51 ± 24.9	23 ± 11.6
Group 2 (n = 5)	2, 3	1, 5	4, 1, 0, 0	47 ± 13.7	13 ± 10.5
Group 3 (n = 9)	7, 2	7, 2	2, 2, 1, 4	56 ± 20.1	20 ± 11.5
Group 4 (n = 8)	5, 3	6, 2	1, 2, 1, 4	50 ± 14.4	21 ± 12.9
Group 5 (n = 7)	6, 1	4, 3	2, 3, 2, 0	53 ± 14.6	17 ± 11.3
Group 6 (n = 6)	4, 2	2, 4	5, 0, 0, 1	56 ± 16.6	26 ± 13.1
Group 7 (n = 7)	4, 3	6, 1	4, 1, 0, 2	54 ± 16.9	22 ± 12.4
<b>Total (n = 48)</b>	<b>32, 16</b>	<b>30, 18</b>	<b>21, 12, 4, 11</b>	<b>53 ± 8.1</b>	<b>20 ± 11.7</b>

M, male; F, female; Dom, Domestic; Ovs, Overseas; ENZ, European New Zealander; Asn, Asian; PP, Pacific Peoples; Oth, Other; s.d., standard deviation.

of time to provide nutrition care was attributed to limited time in consultations, patients' limited nutrition knowledge and patients' expectations for the consultation.

'It is good to talk about nutrition, but how do you fit it in when people come with an agenda for a 15-minute consult?' [Group 1 GP]

'Patients have their own agenda. They come with their own list. They don't want the GP talking about subjects not relevant to the list.' [Group 1 GP]

While many participants expressed concern at lack of time to provide nutrition care in consultations, others disagreed and reported that this viewpoint reflected a suboptimal attitude towards nutrition care.

'Time is an avoidance strategy from some doctors as they don't want to give advice.' [Group 3 GP]

Despite an overall theme of limited time, participants recognised opportunities to promote healthy nutrition behaviours through material in waiting rooms. This was seen as a productive use of time spent waiting before consultations.

'How do we make use of patient waiting time? How do we engage with patients prior to seeing them? Are they watching the TVs in the waiting room? We need to concentrate on making productive use of [waiting] time.' [Group 4 GP]

### Competence to provide nutrition care

Participants perceived that lack of detailed nutrition knowledge hindered GPs' willingness and capacity to provide nutrition care for patients with chronic disease. Participants were also uncertain about how to improve their competence in providing nutrition care.

'Happy, honoured to be asked to take a role, as it belies a trust. I encourage it in ongoing relationships, but recognise limits of time and knowledge.' [Group 1 GP]

'Lack of knowledge, which stems from lack of training. You learn from what you read in the patient information sheets.' [Group 2 GP]

Participants had variable views regarding their development of competence in providing nutrition care to patients with chronic disease. Some participants saw potential personal benefits in further developing their competence in nutrition for patients with chronic disease, while others saw limited benefits in attending professional development courses.

'We need brief bullet points. It is not necessary to go on long courses.' [Group 7 GP]

'As health professionals we can help with guidelines ... We are not trained. Going on a course or having a CE session does not make you an expert. Basic stuff is ok, but then flick on.' [Group 6 GP]

Some participants addressed their limited nutrition knowledge by using resources available in their practice, such as patient education material and other health professionals.

'In our practice, we have a visiting dietitian in our rooms. She takes rehabilitation for patients with heart disease and diabetes. It's basic stuff and by sitting in on sessions, I absorbed the information and felt my confidence increase. Now I have reasonable knowledge.' [Group 7 GP]

Participants expressed a need for readily usable tools to support nutrition care for patients with chronic disease.

'It would be good for doctors to have brief intervention knowledge at our fingertips.' [Group 6 GP]

Some participants wanted to have easy access to dietitians and collaborate with them to provide nutrition care. Participants felt that dietitians should be publically funded or employed by PHOs, as many patients were unable to afford to consult privately. Other participants disagreed and felt GPs should be the main nutrition care provider.

'I would like to see dietitians employed to help. Our PHO doesn't employ dietitians. It is unable to provide and patients cannot afford to see dietitians privately.' [Group 4 GP]

'It would be a waste. We should be the provider [of nutrition care].' [Group 4 GP]

### Role of Practice Nurses in providing nutrition care

Many participants perceived that Practice Nurses (PNs) could provide nutrition care to patients with chronic disease, as patients find them approachable and empathetic.

'Patients appreciate it when nurses talk to them in a way that they can understand.' [Group 4 GP]

'Nurses can provide nutrition care if appropriately trained and supported with time.' [Group 1 GP]

Participants had variable views on the autonomy that PNs should have in providing nutrition care for patients with chronic disease. Some felt that PNs, like doctors, should have nutrition knowledge and autonomy within health care teams.

'Doctors should know about nutrition as should nurses and they can be as autonomous as they feel competent.' [Group 1 GP]

'They are part of the team, trust them, see them as equals. They have been to courses and are trained.' [Group 7 GP]

Other participants were less trusting of PNs to work autonomously and perceived the need to stay informed about the content of nurse-provided nutrition care.

'We need to have a general idea of what they are telling patients. It is important that they are giving evidence-based information. They require formal education.' [Group 6 GP]

### Discussion

This study aimed to explore GPs' opinions regarding providing nutrition care to patients with chronic disease. Overall, participants indicated

routine provision of some nutrition care was important, but challenging because of their limited nutrition education, limited time to provide nutrition care, and patients' resistance to change. Participants reported needing more resources to facilitate nutrition care for patients with chronic disease, and better access for patients to publicly funded alternatives for nutrition care.

Participants had variable views regarding the provision of nutrition care to patients with chronic disease, with contrasting approaches to nutrition care apparent. Some GPs appeared interested in taking action to support patients with chronic disease to improve their nutrition behaviours, whereas others appeared less convinced that this was possible and worthwhile. In an Australian study, general questions about patients' diets occurred as frequently as routine clinical care practices, but less emphasis was given to social, cultural and economic determinants of patients' nutrition behaviours.<sup>23</sup> The GPs in the present study acknowledged the social, cultural and economic determinants of patients' nutrition behaviours and the importance of addressing these factors when providing nutrition care.

The two key barriers to GPs providing nutrition care for patients with chronic disease in this study (lack of time and limited nutrition education) accord with previous investigations of doctors' provision of nutrition care.<sup>4,10-14</sup> The reported negative effect of limited nutrition education on GPs' confidence is consistent with this literature, which is that New Zealand GPs are likely to experience barriers that prevent effective provision of nutrition care when appropriate.

Many GPs in this study perceived that they received inadequate nutrition education during undergraduate medical training, and that the relevance of nutrition was not recognised until after graduation. The Royal New Zealand College of General Practitioners training programme introduced a nutrition syllabus in 2012, with competencies for development throughout 3 years of training.<sup>5</sup> However, the participants in the present study graduated, on average, 20 years ago (Table 2) when there was no specific nutrition syllabus. Thorough understanding of GPs' previous nutrition education, as well as practice

experience, is required to inform any initiatives aimed at enhancing the provision of nutrition care by GPs to patients with chronic disease. GPs' lack of time to address nutrition care during standard visits could be addressed by using the free annual diabetes review consultation, 'Get Checked'.<sup>24</sup> Interdisciplinary approaches to nutrition care appear to be more successful than individual health care professional approaches.<sup>25,26</sup>

Participants in this study reported variable views about the role of PNs in providing nutrition care to patients with chronic disease. Some supported the potential for patients to receive nutrition care from PNs, while others questioned the adequacy of PNs' nutrition knowledge and competence to provide nutrition care. While some literature<sup>27</sup> echoes this belief, other evidence suggests that PNs can deliver health outcomes comparable to GPs for patients with chronic disease.<sup>28</sup> Nevertheless, PNs recognise the need for additional training and education to enhance their effectiveness in this area of patient care.<sup>29,30</sup> Establishing nutrition curricular recommendations and core competencies in nurses' training could help to address GPs' concerns regarding PNs' knowledge and competence to provide nutrition care.<sup>27</sup> However, our study's findings suggest possible resistance to PNs providing nutrition care to patients with chronic disease autonomously because the role of PNs in New Zealand is still developing.<sup>31,32</sup>

Some participants in this study reported needing increased access to dietitians, while others had variable views about the role of dietitians in providing nutrition care. In New Zealand, there is support for increased numbers of dietitians in primary care to provide early nutrition intervention and beneficial patient outcomes in patients with chronic disease.<sup>33</sup> In addition to the support dietitians can offer GPs, evidence exists that lifestyle modification is greater if GPs and dietitians work together with individuals and families in their communities.<sup>25,26,34</sup> There is a need to evaluate the feasibility and effect of dietitians working in primary care in collaboration with GPs.

This study has some limitations. Focus group participants were self-selected. Their views may not represent other GPs' experience and perceptions of providing nutrition care to patients

with chronic disease. The analysis also focused on manifest rather than latent meanings of the interview findings. Participating GPs were older and include fewer females than the national workforce.<sup>35</sup> In addition, PNs were not involved in this study. Nevertheless, our findings indicate a need for further investigation of GPs' nutrition knowledge, confidence to provide nutrition care to patients with chronic disease and support for its delivery to improve patient outcomes.

In conclusion, the GPs in this study reported providing nutrition care to patients with chronic disease but experienced barriers consistent with international findings, including limited nutrition education and limited consultation time. GPs reported variable views about their own role in providing nutrition care and the perceived role of PNs, suggesting that interventions to enhance the nutrition care for patients with chronic disease may need to be multifaceted to address a range of influencing factors. New approaches may be required for supporting GPs to provide nutrition care, which recognise variability in knowledge, perceived role and overall engagement in providing nutrition care to enhance patients' health.

#### References

1. World Health Organization. Global status report on non-communicable diseases 2010; 2011.
2. Ministry of Health and the University of Auckland. Nutrition and the burden of disease: New Zealand 1997–2011. Wellington, New Zealand: Ministry of Health; 2003.
3. Coppell KJ, Kataoka M, Williams SM, et al. Nutritional intervention in patients with type 2 diabetes who are hyperglycaemic despite optimised drug treatment—Life-style Over and Above Drugs in Diabetes (LOADD) study: randomised controlled trial. *BMJ*. 2010;341:c3337
4. Ball LE, Hughes RM, Leveritt MD. Nutrition in general practice: role and workforce preparation expectations of medical educators. *Aust J Prim Health*. 2010;16(4):304–10. doi:10.1071/PY10014
5. Royal New Zealand College of General Practitioners. Nutrition GPEP Syllabus. Royal New Zealand College of General Practitioners; 2013. [cited 2014 November 3]. Available from: [www.rnzcgp.org.nz/assets/documents/Training-and-Beyond/Curriculum-Documents-December-2012/SyllabusNutrition.pdf](http://www.rnzcgp.org.nz/assets/documents/Training-and-Beyond/Curriculum-Documents-December-2012/SyllabusNutrition.pdf).
6. Ball L, Johnson C, Desbrow B, Leveritt M. General practitioners can offer effective nutrition care to patients with lifestyle-related chronic disease: a systematic review. *J Prim Health Care*. 2013;5(1):59–69.
7. Jackson AA. Human nutrition in medical practice: the training of doctors. *Proc Nutr Soc*. 2001;60(02):257–63. doi:10.1079/PNS200081

8. Kolasa KM. "Images" of nutrition in medical education and primary care. *Am J Clin Nutr.* 2001;73:1006–9.
9. Interprofessional Educational Consortium. Bringing nutrition education specialists into the mainstream: rationale for the Interprofessional Educational Consortium. *Am J Clin Nutr.* 1998;68:894–8.
10. Kushner RF. Barriers to providing nutrition counseling by physicians. *Prev Med.* 1995;24(6):546–52. doi:10.1006/pmed.1995.1087
11. Hiddink GT, Hautvast JGAJ, Van Woerkum CMJ, et al. Driving forces for and barriers to nutrition guidance practices of Dutch primary care physicians. *J Nutr Educ.* 1997;29(1):36–41. doi:10.1016/S0022-3182(97)70144-4
12. Wynn K, Trudeau JD, Taunton K, et al. Nutrition in primary care. *Can Fam Physician.* 2010;56:e109–16.
13. Levine BS, Wigren MM, Chapman DS, et al. A national survey of attitudes and practices of primary-care physicians relating to nutrition: strategies for enhancing the use of clinical nutrition in medical education. *Am J Clin Nutr.* 1993;57:115–9.
14. Hopper D, Barker M. Dietary advice, nutrition knowledge and attitudes towards nutrition in primary care. *J Hum Nutr Diet.* 1995;8(4):279–86. doi:10.1111/j.1365-277X.1995.tb00321.x
15. Cumming J, Mays N, Gribben B. Reforming primary healthcare: is New Zealand's primary health care strategy achieving its early goals? *Aust NZ Health Policy.* 2008;5(24). doi:10.1186/1743-8462-5-24
16. New Zealand Medical Association. An analysis of the New Zealand general practitioner workforce – update 2009. Wellington, New Zealand: New Zealand Medical Association; 2008.
17. Crowley J, Ball L, Han D, et al. Doctors' attitudes and confidence towards providing nutrition care in practice: comparison of New Zealand medical students, GP registrars and GPs. *J Prim Health Care.* 2015;7(3):244–50.
18. Claridge R, Gray L, Stubbe M, et al. General practitioner opinion of weight management interventions in New Zealand. *J Prim Health Care.* 2014;6(3):212–20.
19. Sandelowski M. Focus on research methods. Whatever happened to qualitative description? *Res Nurs Health.* 2000;23:334–40. doi:10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G
20. Sandelowski M. What's in a name? Qualitative description revisited. *Res Nurs Health.* 2010;33(1):77–84.
21. Huston SA, Hobson EH. Using focus groups to inform pharmacy research. *Res Social Adm Pharm.* 2008;4:186–205. doi:10.1016/j.sapharm.2007.09.001
22. Parsons M, Greenwood J. A guide to the use of focus groups in health care research: part 1. *Contemp Nurse.* 2000;9:169–80. doi:10.5172/conu.2000.9.2.169
23. Ball L, Desbrow B, Leveritt M. An exploration of individuals' preferences for nutrition care from Australian primary care professionals. *Aust J Prim Health.* 2014;20(1):113–20. doi:10.1071/PY12127
24. Joshy G, Lawrenson R, Simmons D. Retention of patients in the 'Get Checked' free annual diabetes review program in New Zealand. *N Z Med J.* 2008;121(1270):35–44.
25. Gamblen W, Schamehorn S, Crustolo A, Hussey T, Kates N, Ackerman S. The registered dietitian in primary care: the Hamilton experience. *Can J Diet Pract Res.* 2007;68(2):81–5. doi:10.3148/68.2.2007.81
26. Maryon-Davis A. Weight management in primary care: how can it be made more effective? *Proc Nutr Soc.* 2005;64:97–103. doi:10.1079/PNS2004414
27. Kris-Etherton PM, Akabas SR, Douglas P, et al. Nutrition competencies in health professionals' education and training: a new paradigm. *Adv Nutr.* 2015;6(1):83–7. doi:10.3945/an.114.006734
28. Laurant M, Hermens R, Braspenning J, et al. Substitution of doctors by nurses in primary care. *Cochrane Database of Systematic Reviews* 2005, (2): Art No. CD001271. doi:10.1002/14651858.CD001271.pub2
29. Martin L, Desbrow B, Leveritt M, Ball L. The self-perceived knowledge, skills and attitudes of Australian practice nurses in providing nutrition care to patients with chronic disease. *Fam Pract.* 2014;31(2):201–8. doi:10.1093/fampra/cmt070
30. Cass S, Ball L, Leveritt M. Australian practice nurses' perceptions of their role and competency to provide nutrition care to patients living with chronic disease. *Aust J Prim Health.* 2014;20:203–8. doi:10.1071/PY12118
31. Hoare KJ, Mills J, Francis K. The role of Government policy in supporting nurse-led care in general practice in the United Kingdom, New Zealand and Australia: an adapted realist review. *J Adv Nurs.* 2012;68(5):963–80. doi:10.1111/j.1365-2648.2011.05870.x
32. Carryer J, Snell H, Perry V, Hunt B. Long-term conditions care in general practice settings: patient perspectives. *N Z Fam Physician.* 2008;35(5):319–23.
33. Howatson A, Wall C. Position paper and systematic review. Contribution of dietitians in the primary care health workforce. Wellington: Dietitians New Zealand; 2014.
34. Pritchard DA, Hyndman J, Taba F. Nutritional counselling in general practice: a cost effective analysis. *J Epidemiol Community Health.* 1999;53(5):311–6. doi:10.1136/jech.53.5.311
35. The Royal New Zealand College of General Practitioners. 2014 RNZCGP workforce survey. Wellington, New Zealand: The Royal New Zealand College of General Practitioners; 2014.

**ACKNOWLEDGEMENTS**

Thanks to all the GPs who participated in the focus groups and Sally Mabelle and David Hrstich who generously facilitated the focus groups.