Insights into nutritionists' practices and experiences in remote Australian Aboriginal communities

Susan L. Colles,[1] Suzanne Belton,[1] Julie Brimblecombe[1]

Abstract

Objective: To explore and describe methods of communication, education practices, perceived challenges and the potential role of nutritionists working in remote Australian Aboriginal communities in order to inform future public health efforts.

Methods: Nutritionists who work or have worked in remote Aboriginal communities in Australia's Northern Territory within the past decade were identified via purposive and snowball sampling, and responded to a semi-structured survey in 2012. Content and interpretive thematic analysis was used to generate themes.

Results: Working approaches of 33 nutritionists are presented, representing 110 years of working experience in the Northern Territory. Emerging themes included: 'Community consultation is challenging', 'Partnering with local people is vital', 'Information is not behaviour', 'Localisation of nutrition education is important' and 'Evaluation is tricky'. Available time, training background and workforce structure were said to constrain practice and those nutritionists with longer experience described a more culturally competent practice.

Conclusions: Modifications in structure, training and support of the public health nutrition workforce, facilitation of professional and cultural partnerships, outcome evaluation and localisation and evaluation of health messages may promote more meaningful nutrition communication in remote communities.

Implications: Findings can inform further investigation into the structures needed to improve public health skills for nutritionists transitioning from mainstream practice into the challenging cross-cultural context of Aboriginal health settings.

Key words: nutrition, health communication, health promotion, Aboriginal, social determinants

Access to and adequate intake of a range of foods to meet the body's energy and nutrient requirements is a universal cornerstone of good health and wellbeing. Among Aboriginal Australians, nutrition plays a significant direct and indirect role in suboptimal growth and development in children and the excessive burden of preventable chronic disease in adults.[1,2] Public health nutrition is an integral part of population health that seeks to promote optimal nutrition status and good health, and prevent illness and associated economic and social costs of disease.[3-5]

For more than 20 years, public health and community nutritionists have worked in the Northern Territory (NT) within remote Aboriginal communities, both within the government public health sector and non-government organisations, such as Aboriginal Community Controlled Health Organisations. The term 'public health nutritionist' refers to practitioners working in population approaches to public health nutrition.

In the remote Aboriginal context, stakeholders within the food landscape can include remote community stores/shops, schools, childcare, aged-care facilities and health centres, community groups, Aboriginal health workers (AHWs) and families and individuals.[6] Within these settings, nutritionists ideally work with and through local community members, including AHWs, to jointly address expressed food and nutrition-related priorities. For these reasons, the terms 'community nutritionist' and 'public health nutritionist' have been used interchangeably. The term 'dietitian' tends to refer to practitioners focusing on clinical and individual aspects of nutritional health. Increasingly, dietetic qualifications are mandatory for nutritionists working with remote Aboriginal communities, as many practitioners also provide a clinical service.

In remote Aboriginal communities, nutritionists perform numerous functions calling for a wide range of competencies that require social, communication and relationship building skills[3] and cultural adeptness, including a culturally competent[7] and culturally safe approach.[8] The call for nutrition practitioners, and their training and employment structures, to move towards broader sociological[9] and critical[10] approaches appears especially relevant in a cross-cultural world where food permeates many aspects of life. This also supports the internationally agreed notion of 'health' that recognises the existence of various cultural and world views, and the imperative of supporting the layers of social and ecological factors that underpin one's state of health by addressing healthcare at multiple levels.[11] Across all these skills and levels, one universal and fundamental element is communication. All health workers in cross-cultural settings must communicate across social and cultural world views. Clear health communication is vital to

1. Menzies School of Health Research, Northern Territory
Correspondence to: Associate Professor Suzanne Belton, PO Box 41096, Casuarina NT 0811; e-mail: suzanne.belton@cdu.edu.au
Submitted: May 2014; Revision requested: August 2014; Accepted: November 2014

The authors have stated they have no conflict of interest.
Aust NZ J Public Health. 2016; 40 (Suppl. 1) S7-S13; doi: 10.1111/1753-6405.12351

assist with understanding and to empower individuals and groups to make informed decisions.[12,13] Community empowerment is one key element of successful community nutrition interventions.[14] Nutritionists working in remote Aboriginal communities ideally engage with a range of community stakeholders, including Aboriginal health and local community workers.

Remote health staff and health services speak of numerous challenges in providing remote health services and the complexities of delivering primary and health promotion services.[15-19] While high staff turnover is a considerable issue,[17] little is understood of the challenges facing nutrition practitioners especially in this cross-cultural context.[20,21] We used a qualitative methodology to explore communication methods, education practices and approaches, perceived challenges and the potential role of nutritionists. The study aimed to support nutritionists working in remote Aboriginal communities and inform ongoing efforts to create supportive environments that promote nutritional health and effective communication and facilitate behaviour change.

Methods

Setting

Australia's Northern Territory extends through about two-thirds of the centre of the country. This vast, sparsely populated area is home to about 650 remote and very remote Aboriginal communities ranging in population size from less than 20 to more than 1,000 people.[22] Within these communities, are about 120 larger townships to which government and non-government organisations aim to provide nutrition services via a remote area workforce. There is a large burden of chronic diseases in this area that could be prevented or ameliorated by better nutritional intake.[2]

Sampling

Due to a high turnover of staff and our wish to include experienced nutritionists, non-random sampling included current and past practitioners. Current nutritionists were identified by the NT Department of Health; past practitioners through current workers and social networks. Eligible participants needed to be working or to have worked as a nutritionist in one or more remote NT Aboriginal communities within the past decade. Both sexes and all age groups and experience levels were included. Practitioner qualifications could include a three or four-year undergraduate and/or two- year post-graduate nutrition/dietetic degree and/or public health qualification. In total, 40 eligible individuals were identified within the one-month recruitment period (28 by purposive sampling; 12 by snowball sampling) and invited to participate via email. Non-responders were emailed two weeks later and phone contact attempted. Due to the NT's size and the respondents' geographic spread, participants could choose to participate face-to-face, or via phone or email. Ethics approval was gained from the Human Research Ethics Committee of Northern Territory Department of Health & Families and Menzies School of Health Research (EC 00153) and written informed consent was obtained from all participants.

The survey

A semi-structured survey was used to collect data to provide a format for face-to-face, phone and email respondents (Box 1). The collected information contributed to a larger project aiming to support nutritionists working in remote Aboriginal communities in nutrition and health promotion activities. (More details of this project and an accompanying professional development resource are available at: http://www.menzies.edu.au/page/Resources/Food_and_health_communication_across_cultures/. Questions were developed based on the larger project's objective, the literature and the authors' knowledge and experiences. The larger project aimed to provide non-Indigenous health staff with practical guidance and insights to assist with the participatory process of health and nutrition communication, education and promotion activities that integrate both Indigenous and western belief and knowledge systems. Accordingly, questions were structured to gather information on:

- demographics (questions 1 and 2)
- how nutritionists approach community needs assessment/consultation (3 and 4)
- practices and perceived gaps relating to nutrition communication and messaging (5, 6, 7, 8)
- work with local counterparts (9).

The terms 'nutrition' and 'nutrition messages' were not pre-defined; respondents could make their own interpretations. The survey was pilot-tested with four nutritionists, prompting small alterations in wording and the addition of two questions. The survey was conducted by the lead author (SLC) who clarified questions or probed further. Verbal responses were audio-recorded and transcribed by the interviewer. The survey questions were emailed to some respondents and ambiguities were subsequently clarified by email or phone, and the emailed transcript altered accordingly. These communication methods were appropriate in order to engage the practitioners who were geographically distant from the researchers.

Data analysis

All responses were collated and coded and content and interpretive thematic analysis[23] was used to identify salient themes. Data analysis was triangulated with two authors coding the data while reading the collected responses to each question. Assigned codes were compared and contrasted and reoccurring patterns of meaning identified, and connections made between codes and emerging themes were revised in the re-reading of transcripts.[24] Not all data needed interpretation; for example, individual

Box 1: Survey Questions.

1.	How long did you/have you worked in the role of nutritionist in remote Aboriginal community/ies?
2.	How many communities do you service? How often do you/did you visit each remote Aboriginal community? On average, how long was each visit?
3.	In your role, how do you determine community priorities regarding nutrition?
4.	In your role, what do people living in remote communities ask you for; what do they want to know?
5.	What are your main nutrition messages?
6.	What nutrition resources do you use when providing information on general nutrition and nutrition related to chronic disease, e.g. diabetes? a. What do you consider to be the pros and cons of available resources/programs? What has worked; what has not? b. How are these tailored to the local environment? c. How do you evaluate their use in each local context?
7.	Do you see any gaps related to nutrition education in the remote Aboriginal context?
8.	What materials/resources/information do you think would be of most use to you to assist you in your workplace?
9.	Do you work with Aboriginal health or community workers? If so, how?

demographics, questions about the number of communities visited and types of resources used were reported directly. Numerical identifiers were assigned to respondents and the square brackets after quotes indicate the nutritionists' number of years' experience working in remote Aboriginal settings.

Results and conclusions

Between October 2012 and January 2013, 33 nutritionists contributed to the study. Table 1 outlines respondents' characteristics; they were predominantly female, with slightly more than half currently employed as nutritionists in remote Aboriginal communities. Participants worked in government health services or Aboriginal Community Controlled Health Organisations. They had worked on average for three years in the role of nutritionist but the range was large, with six nutritionists reporting five or more years' experience. In general, communities located closer to base were visited during day trips and more frequently, while more remote communities entailing flights or long drive times were visited less regularly and for two to three nights at a time. All nutritionists had received mainstream training, one had grown up in a town with a large Aboriginal population and another identified as Aboriginal.

The most commonly mentioned nutrition-related messages promoted by nutritionists included reducing sugar/sweetened drinks; reducing fats; eating more fruit and vegetables; drinking more water; and general healthy eating advice regarding 'everyday', 'sometimes' and 'extra' foods. Other topics included infant nutrition, diabetes prevention and management, cooking, and food budgeting. Respondents also spoke more broadly of the pedagogy of nutrition education and how they carried out their public health education. Thematic analysis of these responses drew out the following themes: 'Community consultation is challenging'; 'Partnering with local people is vital'; 'Information is not behaviour'; 'Localisation of nutrition education is important' and 'Evaluation is tricky'. 'Experience counts' emerged as an overarching theme (Figure 1).

Table 1: Characteristics of the respondents.

Characteristics	Respondents
N	33
Range of years	0.4–21 years (mean=3.3; total accumulated years=110)
Survey method	9 verbal face to face; 10 phone; 14 email
Sex	30 females; 3 males
Working status	19 current; 14 past
Funding organisation	22 government; 11 non-government
Range of communities allocated	1–8 communities
Frequency of visits	Every 2 weeks to >3 months
Time spent in community	Day trips to 3 weeks

Experience counts

Two aspects to experience were apparent: pre-existing experience and experience gained in the job over time. The experience gained working in remote Aboriginal community settings appeared to be associated with differences in reported views and approaches. However, gaining work experience was seen as challenging due to high staff turnover, emotional burnout, inadequate managerial and funding support, and short-term (often 12-month) contracts.

Several nutritionists noted their professional training background had inadequately addressed the complexities of a role in public health and the skills and cultural competency required for work in a remote Aboriginal setting. As one past nutritionist saw it:

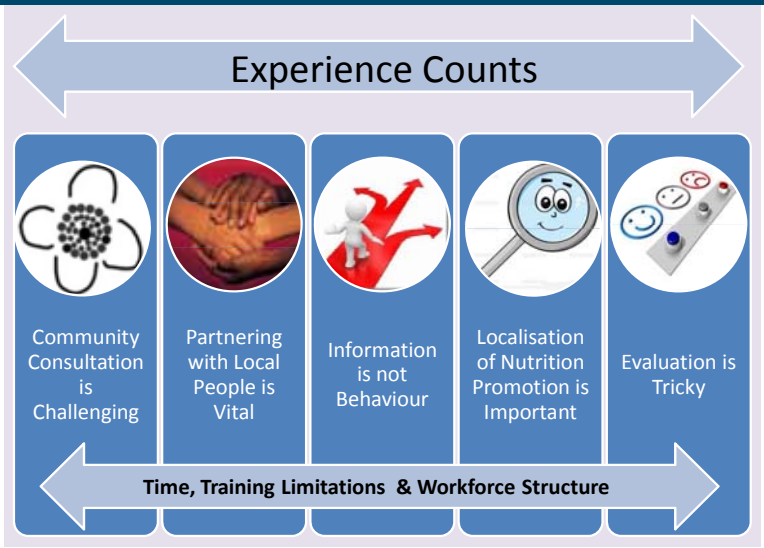
> *Dietitians are trained to deliver a message… In terms of cross-cultural stuff there was nothing on that when I trained; no depth on the detail of cultural differences and community development… As a dietitian wandering into this job there is no grasp of what you're getting yourself into. If you haven't lived it prior, you really wouldn't know much….* [nutritionist #25 ≥2 years]

While most nutrition and dietetic courses in Australia now include content on Aboriginal health and culture as well as public health and health promotion practice, similar to that reported by Hughes,[20] this study found that public health nutritionists operate in specialised areas requiring skills beyond basic professional dietetic competence. Despite this, the workforce consists primarily of dietetic graduates who have not had the opportunity to develop in-depth knowledge in public health. The need for more specialised skills plus strong cultural and professional mentorships was highlighted by several respondents.

Community consultation and engagement is challenging

Community engagement and determining local nutrition priorities was depicted as a 'fluid', often 'impromptu' and challenging process that involved a mixture of top-down and ground-up strategies. Estimates to achieve community consultation and engagement ranged from three to 18 months and were also seen to overlap or run concurrently with program development and/or implementation. Different approaches were used. One practitioner considered that

Figure 1: A diagrammatic representation of the themes generated from the data.



Five key themes identified within the data are represented within the five figure columns. The first two columns relate to processes that were seen as imperative to underpin health education and promotion: community consultation and engagement, and forming and working within partnerships with local Aboriginal people. The final three themes relate more directly to nutrition education: considerations of the relationship between knowledge and behaviour; the need to localise approaches within the context of remote Aboriginal communities and also to the needs of each individual community; the challenges inherent in evaluating nutrition education and promotion in this setting. All of these key themes appeared vulnerable to personal, professional and environmental constraints, particularly time, workforce structure and training background. Overarching all themes, practitioner perspectives and approaches appeared influenced by a practitioner's extent of experience in remote Aboriginal settings.

early participation in activities "lets people know that you're around and you have something to offer…" Another stated:

> *A good starting point I found was to work with reputable organisations already within the community – even if it was just contributing a small amount to their program as a way in, and from there, gradually consulting with the community as to how to work.* [nutritionist #9 ≥2 years]

More experienced practitioners tended to relate effective consultation with engagement that needed time to build relationships and consolidate community involvement. One practitioner reflected:

> *We did not decide priorities alone. We always worked in partnership with a local Aboriginal community member. Community priorities were shared with us once people had built up a relationship with you… Priorities were set by the community NOT outside the community. This way Aboriginal people were involved from the start and were the ones to initiate, plan and run the community based program.* [nutritionist #33 >5 years] (Respondent's underlining in emailed response)

Approaches to consultation and engagement included: attending community meetings; observing other work relationships; using existing programs to explore further needs; listening to and chatting with people; and remaining open to community suggestions and requests. One past practitioner used a self-made visual 'what can a nutritionist do' book to begin discussions and help people determine if and how the community might best use their skills. Respondents reported contacting many people and organisations to help determine community priorities including: AHWs; Community-based workers (CBWs); Strong Women workers; community leaders and elders; health service board members; schools; community stores; healthcare clinics; childcare workers; women's centres; local council/shires; recreation centres; homeland centres; community-based research organisations; arts centres; aged care facilities and Meals on Wheels services. Other areas and information seen to help determine priorities included: the NT government's nutrition and physical activity policies; local health data including child-growth data; Aboriginal medical services; funding organisations; and research papers.

Living in the community (if the infrastructure was available) was seen as optimal, while sporadic community visits was the most commonly mentioned barrier, and this was associated with time and resource shortages, high numbers of allocated communities, geographic remoteness, extreme weather conditions, cultural events, availability of transport and accommodation. High staff turnover resulted in communities experiencing the 'consultative-engagement' phase year after year. One nutritionist noted, "in general, people have been consulted to death and it's difficult to engage them in proper consultation." [nutritionist #8 >5 years].

Partnering with local people is vital

Building relationships and partnering with local people was seen as a crucial part of the on-going processes of community consultation and engagement and success in nutrition promotion activities.

Many respondents stressed the importance of building strong relationships with AHWs and CBWs. AHWs are employed in most remote communities through the local health clinic and hold a certification in health that may have involved a nutrition component; however, the extent of this is variable. CBWs, such as Strong Women workers, are employed in some communities and may not be specifically trained in health or nutrition. Their role can vary depending on their funding organisation. Generally there are very few of these positions available in communities.

Less-experienced nutritionists tended to see local workers as informants to help assess community needs and assist with education delivery. More experienced practitioners talked about working in partnership and as reciprocal mentors, and training and capacity building of AHWs and CBWs. Partnering with local workers was seen as imperative to give the community a voice. They were considered "the experts in local knowledge", essential to "translate scientific and medical information into a form appropriate to the [community] group", and potential "nutrition champions [and] healthy eating role models". Working alongside local Aboriginal staff was seen to help build the collective capacity of the nutritionist, health worker, local health workforce and community. One respondent suggested "valuing and empowering local Indigenous expertise to take the lead, supported by outsiders, would be a great approach" [nutritionist #22 >5 years]. Another commented, "I always work with the philosophy that when I leave, I want an Indigenous person to be able to take over… They are vital, wonderful… we can't do anything without them." [nutritionist #2 >5 years]

The most commonly perceived barrier to partnering with local workers was a lack of access to and availability of these individuals. AHWs, particularly, were seen as "too busy", "over-burdened", "pulled in every direction" and answerable to the health clinic, and therefore difficult to engage in public health work. CBWs were considered more accessible but often inexperienced in nutrition and in need of skills development and training. In order to support these sometimes "disgruntled" and "undervalued" workers, and to enhance the potential for beneficial partnerships, practitioners saw that strategic frameworks and better defined roles were needed to guide and provide education, mentoring and on-going support. More funding was also required, including payment of a "fair wage" to local workers.

The imperative of working closely with health or community workers trained in nutrition was discussed at length by our respondents and has been previously stated by others.[25-28] Acknowledging the need for specifically-trained health workers alongside non-Aboriginal health staff, and building a critical mass of AHWs has been proposed.[29] In this model, health workers specialising in various health fields would constitute a team unto themselves, with visiting workers providing intermittent on-going technical support and guidance.

Information is not behaviour

Community members were largely seen to know the "healthy foods" and relationships between key foods and health; to have: "seen the healthy eating plate, …know that vegetables are good for them, … that dairy foods help to make strong bones …" [nutritionist #3 <2 years]. However, many noted that this knowledge was not reflected in eating behaviour. Many respondents made remarks about the gap between information and behaviour. Those with less experience were more inclined to see the missing link somewhere between information provision and behaviour change, such as shortfalls in the process and timing of education, and staff turnover. More experienced nutritionists demonstrated a great appreciation of health and health-related behaviours as being socially determined, tending to see education as one factor in the process of enabling or bringing about behaviour change. They also considered deficiencies in the broader

environment and systems, particularly stemming from the food supply and people's lack of access to healthy affordable food. One nutritionist reflected:

> *"… how can people develop healthy eating habits if they can't afford to eat a healthy meal more than once per week?* [nutritionist #8 >5 years]

Health and wellbeing can be explained as both an individual responsibility and as socially determined.[30] Accordingly, to improve health, practitioners can work within individual clinical encounters or public health approaches.[30]

A number of respondents also mentioned "cultural factors" and ingrained food habits that affected eating behaviours. Some also described a sense of personal autonomy (see also Hamilton;[31] Kruske et al.;[32] Brimblecombe et al.[33]) The concept of planning ahead and "saving for later on", was not seen as common among Aboriginal people. Instead it was noted that "people are more likely to buy a quick meal [so] that they can suppress their hunger immediately, don't have to share [and] the food doesn't get 'humbugged'…" [nutritionist #7 <2 years]. ('Humbug' is a colloquial term for demand sharing. This is a feature of Aboriginal culture where people can express their need to have or take something from others, and there is an obligation to provide it.) The imperative of understanding the context of Aboriginal people's past history, current lives and cultural eating behaviours when creating nutrition promotion strategies has been highlighted.[33,34]

Localisation of nutrition promotion is important

While many past and current written resources were described, the majority of respondents voiced concern over their usefulness and worth. A fundamental weakness was seen in the lack of relevance to local people due to inadequate integration of Aboriginal cultural practices and values into nutritional pedagogy, such as, "… not having a formal system of recognising or valuing community perceptions and understandings of food ..." [nutritionist #16 ≥2 years; respondent identified as Aboriginal]. Others have reported failure to recognise, understand and integrate contemporary Australian Aboriginal cultural beliefs and values as one feature contributing to poor health communication.[32,35,36] Nutritionists provided many examples of strategies to modify resources and approaches to meet local people's learning needs. Table 2 lists strategies identified by respondents.

The localisation of nutrition-related information was considered a challenging process that required skills and time. One nutritionist reflected:

> *"The sophistication of making sure you understood the specific local cultures you were working with was not always very good … To achieve that takes a lot of time and effort … The reach of my work was very limited because I had to spend a lot of time localising my approach."* [nutritionist #25 ≥2 years]

Language, literacy and partnerships were also discussed. Remote Aboriginal communities generally use multiple languages other than English, and literacy levels in any language are low. Many respondents acknowledged mainstream booklets, posters and messages were too wordy, and that most health resources were written in English. While the use of visual images was considered preferable, showing pictures in the absence of meaningful communication was paradoxically noted to lead to "simplistic explanations … by 'outside experts' while detailed information presented in a culturally appropriate way is not offered." [nutritionist #22 >5 years]. Thus people were denied "the full picture" or "whole story"; an important need also identified by others.[37] One nutritionist mentioned the potential problem of visual misrepresentation, recalling:

> *[In one resource] I saw a range of carbohydrate foods that are broken down into sugar – ice-cream, coke, bread, etc, pictured next to fruit, etc. If you can't read, then you can see that people could easily pick up the wrong message.* [nutritionist #21 >5 years]

Caution has also been drawn to differences in the way that images are perceived and understood – or visual literacy, among different cultural groups.[38]

Functioning cross-cultural partnerships and cultural competency can help overcome language and communication barriers to work in a space that is more sensitive to and understanding of local social and cultural contexts.[7,39,40] This again highlights the need for investment in building a local workforce. In this study, a lack of partnerships that involved a "50-50 exchange" or "two-way" sharing or learning was seen to affect the ability to provide locally meaningful information. This stemmed from factors including insufficient cultural competency, limited access to "cultural liaisons", "top-down" approaches to education and programming, poor communication skills, lack of time and experience, poor access to interpreters, and the high workload enforcing a focus on reach rather than depth.

Evaluation is tricky

Evaluation of nutrition-related strategies was considered important; however, most felt they lacked the time and skills, and that within the context of community work evaluation was difficult. One past practitioner reflected:

> *"Even things that were funded didn't have a formal evaluation, maybe a process evaluation, but no outcome measurement at all … because the work was fluid, organic, it kind of flowed so there was never a particular program to actually evaluate."* [nutritionist #28 ≥2 years]

Table 2: Strategies considered to enhance nutrition communication and health promotion.

Visual images and symbols	Larger, good quality images; inclusion of local people, images or recognised reference points (with permission); recipe cards or books; interactive drawings in real-time.
Modern & innovative audiovisual approaches	Audiovisual resources such as computer pads or smart phones and social media or clips from YouTube for health promotion; and production of local videos
Informal and contextual approaches in relaxed comfortable settings	Bush tucker trips or 'chatting while chopping up carrots'; practical approaches in family or small groups chosen by the community – 'hands on skills-based work'.
Practical approaches	Cooking opportunities and workshops; shopping tours; involvement in community gardens; role plays.
Repetition	Repetition of stories; repeated opportunities to observe skills or participate in skills-based approaches.
Story boards and narratives	Seen as useful approaches to identify community priorities and share ideas, concerns, information, etc.
Local language	Working alongside AHWs and CBWs; using relevant local words gathered from community workers or members; using trained health interpreters.
Use a multi-faceted approach	Embed nutrition information within broader health programs and initiatives.

Some found themselves unsupported at the organisational level:

> *"… evaluation was seen as a 'city workers" concept and was not [seen as] practical in the outback by management …* [nutritionist #17 <2 years]

The most commonly reported approach to evaluation was verbal assessment of learning outcomes from the community or health workers involved. For example, some questions asked included "Did you find [this] helpful?"; "What parts did you/didn't you like?"; "Would you do things the same/differently next time…?" Observation was another strategy, including monitoring of participant body language and non-verbal cues; levels of engagement or involvement; attendance numbers; and the number of resources taken. Other cited resources or forms of information that informed evaluation included the use of clinic data, comments from associated organisations, and liaison with colleagues specialising in nutrition promotion and evaluation. A number of practitioners reported regularly to their funding organisations, and evaluated barriers and how they tracked against their objectives. One nutritionist described a type of reflective practice, recording "trip reports that include a lot of qualitative information – what worked well, what didn't work well … that [I] read before I head out next time." [nutritionist #6 ≥2 years]. Another alluded to self-reflection activities, commenting, "we often don't consider we need to evaluate how we relate to our community." [nutritionist #24 <2 year]. A minimal level of research skills and formal evaluation of health programs appears common in the Northern Territory.[41]

Implications

This study explored and described some of the communication practices, nutrition approaches, and perceived challenges of nutritionists working in remote NT Aboriginal communities. Our findings highlight the significant influence of the social-ecology on the effectiveness of efforts to support nutritional health including: food access and affordability, cultural community norms, managing organisations and training institutions; as well as practitioners' individual characteristics such as their cross-cultural expertise, and understanding of links between information and behaviour including the social determinants of health. Our respondents stressed that building strong relationships with local Indigenous people was key and enabled a foundation for informed decision-making, and creation and exchange of locally meaningful information. While the professional training of nutritionists does include subjects of public health and behaviour change approaches, a focus on western biomedicine had, in some respondents' views, failed to address or develop the skills and knowledge required for the role. This lack of preparation was compounded by inadequate support from management and mentoring. Moreover, workforce and funding limitations often drove infrequent visits to sometimes high numbers of communities, which undermined the building of strong relationships, sharing of meaningful information and effective practice. Perceptions of a scarcity of time permeated all levels.

Primary health care delivery models that aim to build community strengths, empowerment and control are most equitable and acceptable to Aboriginal people.[42,43] The findings of this study outline some of the constraints and challenges for remote nutritionists that can hinder an approach that is integrated with – and ideally led by – the local community. An exploration of the role of white health professionals in Aboriginal health in South Australia also identified individual, professional and organisational factors that influence health work.[44] Aspects of particular importance to the individual included past experience, personal ideologies, self and cultural awareness, understanding of Aboriginal history, communication skills and flexibility. Professional factors included role perception and professional ideology, and organisational factors such as organisational practices, policies and culture including the presence of Aboriginal staff, and staff turnover.[44]

The findings of this study and others[44-46] suggest the great value in practitioners gaining years of practical experience. Optimising cumulative time spent in the field and reducing staff turnover for nutritionists working in remote Aboriginal communities should be a key goal that requires additional support to encourage multifaceted approaches promoting environments and behaviours conducive to nutritional health.

Strategies brought to light that may help to achieve this include:

1. An increased emphasis within under-graduate and post-graduate nutrition curriculums including bachelor and master's degrees in nutrition and/or dietetic science to contextualise and balance sociological views and principles of community development with the clinical and biological focus that predominates.[9,30,47] This could include greater emphasis and training on cultural competency, community capacity building and culturally appropriate evaluation techniques. A role in public health nutrition may also be supported by attaining a dedicated public health qualification, and the purposeful recruitment of practitioners with public health qualifications.
2. Hiring organisations that consider and balance the financial and practical logic of short-term contracts and high task allocations. A restructuring of job descriptions and increased workforce numbers may further strengthen the capacity of nutritionists to work effectively.
3. Professional and cultural mentorships that offer formal schemes to advance and support practitioner skills may offer practical and cost-effective solutions.[21,25,48,49] Formal peer support, communities of practice and mentoring circles among nutritionists can build workforce capacity, especially those less experienced in remote settings.[50] The value of formal professional relationships between nutritionists and Aboriginal community nutrition workers was stressed in this study. Further, experienced practitioners should be involved in the development of health promotion service delivery models.[46]
4. Greater funding to build local health workforces within Aboriginal communities. Given the vital role of Aboriginal health and community workers, practitioners and organisations need to focus on recruitment from communities in order to build local capacity, reduce communication barriers and enhance shared time and partnership building. Nutritionists can advocate for and become involved in ensuring nutrition-related training and support for these workers.[51]

All of these strategies need to be accompanied by awareness that social, economic and political environments influence and often determine people's health and health-related behaviours. Fuller and more effective health communication can empower people to understand their choices and make informed decisions. However, the long-term adoption of health-promoting behaviours occurs most often when knowledge is supported by the social,

economic and political structures that underpin people's daily life. In this study, we collected data from a range of past and present nutritionists working in remote NT Aboriginal communities using a survey within a geographically dispersed sample. While this method limited the depth of questioning, and the public health nutrition workforce in other Australian states was excluded, broadly similar policies and environments over the past two decades may mean that these findings resonate with nutritionists in other Australian states. Further research could examine the benefits of additional focused public health training and support for remote nutritionists, and examine and incorporate the ideas and experiences of local Aboriginal workers related to ways of working with visiting nutritionists.

The work of nutritionists in remote Aboriginal communities is intensely cross-cultural, working across both the social and medical sciences. Further work needs to assemble formal strategies to develop and support professional, cultural and educational competencies and partnerships in nutritionists working in remote Aboriginal settings, especially novice and isolated workers.

References

1. King M, Smith A, Gracey M. Indigenous health part 2: The underlying causes of the health gap. *Lancet*. 2009;374:76-85.
2. Vos T, Barker B, Stanley L, Lopez A. *The Burden of Disease and Injury in Aboriginal and Torres Strait Islander Peoples*. Brisbane: University of Queensland School of Population Health; 2007.
3. Germov J, Williams L. *A Sociology of Food & Nutrition. The Social Appetite*. 3rd ed. Melbourne (AUST): Oxfod University Press; 2008. p. 176-204.
4. Hughes R. *Introduction to Public Health Nutrition Practice*. Sydney (AUST): Allen & Unwin; 2007.
5. Australian Institute of Health and Welfare. *Closing the Gap Clearinghouse*. Canberra (AUST): Commonwealth of Australia; 2011.
6. Department of Health and Community Services. *The Public Health Bush Book. Volume 1: Strategies and Resources.* New Edition. Darwin (AUST): Government of the Northern Territory; 2007.
7. Liaw S, et al. Successful chronic disease care for Aboriginal Australians requires cultural competence. *Aust N Z J Public Health.* 2011;35:238-48.
8. Williams R. Cultural safety – what does it mean for our work practice? *Aust N Z J Public Health.* 1999;23:213-14.
9. Schubert L, Gallegos D, Foley W, Harrison C. Re-imagining the 'social' in the nutrition sciences. *Public Health Nutr.* 2011;15:352-9.
10. Aphramor L, et al. Critical dietetics: A declaration. *Practice.* 2009;48:1-2.
11. World Health Organization. *The Ottawa Charter for Health Promotion* [Internet]. Geneva (CHE): WHO; 1986 [cited 2015 Apr 8]. Available from: http://www.who.int/healthpromotion/conferences/previous/ottawa/en/
12. Anderson K, Devitt J, Cunningham J, Preece C, Cass A. "All they said was my kidneys were dead": Indigenous Australian patients' understanding of their chronic kidney disease. *Med J Aust.* 2008;189:499-503.
13. Lowell A, et al. *Sharing the True Stories: Improving Communication Between Health Staff and Aboriginal Patients. Stage 1 Report*. Darwin (AUST): Cooperative Research Centre for Aboriginal Health; 2005.
14. Black A. *Evidence of Effective Interventions to Improve the Social and Environmental Factors Impacting on Health: Informing the Developments of Indigenous Communtiy Agreements*. Canberra (AUST): Office for Aboriginal and Torres Strait Islander Heath; 2007.
15. McConnel F. Compliance, culture, and the health of Indigenous people. *Rural Remote Health.* 2003;3:190.
16. McLaren B. Reflections on 18 months in a remote Aboriginal practice. *Aust Fam Physician.* 1995;24:1479-88.
17. Lloyd JE, Wise MJ, Weeramanthri T. Changing shape: Workforce and the implementation of Aboriginal health policy. *Aust Health Rev.* 2008;32:174-85.
18. Remote Area Health Corps. *Cultural Orientation Handbook* [Internet]. Canberra (AUST): Commonwealth of Australia; 2009 [cited 2015 Apr 8]. Available from: http://www.rahc.com.au/sites/default/files/documents/RAHC%20Cultural%20Orientation%20Handbook_0.pdf
19. Kowal E, Paradies Y. Ambivalent helpers and unhealthy choices: Public health practitioners' narratives of Indigenous ill-health. *Soc Sci Med.* 2005;60:1347-57.
20. Hughes R. Public health nutrition workforce composition, core functions, competencies and capacity: Perspectives of advanced-level practitioners in Australia. *Public Health Nutr*. 2003;6:607-13.
21. Hughes R. Workforce development: Challenges for practice, professionalization and progress. *Public Health Nutr.* 2008;11:765-7.
22. Australian Bureau of Statistics. *4710.0 - Housing and Infrastructure in Aboriginal and Torres Strait Islander Communities, Australia, 2006* [Internet]. Canberra: ABS; 2007 [cited 2015 Apr 8]. Available from: http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4710.0Main%20Features22006?opendocument&tabname=Summary&prodno=4710.0&issue=2006&num=&view=
23. Patton MQ. *Qualitative Evaluation and Research Methods.* 2nd ed. Newbury Park (CA): Sage; 1990.
24. Liamputtong P. *Qualitative Research Methods*. 4th ed. Melbourne (AUST): Oxford University Press; 2013.
25. National Aboriginal and Torres Strait Islander Nutrition Working Party. *The National Aboriginal and Torres Strait Islander Nutrition Strategy Action Plan 2000-2010 (NATSINSAP)* [Internet]. Canberra (AUST): Australian Indigenous HealthInfoNet; 2010 [cited 2011 Dec 12]. Available from: http://www.healthinfonet.ecu.edu.au/health-risks/nutrition/policies-strategies/natsinsap
26. Leonard D, Hobson V. The Indigenous Nutrition Workforce: A northern perspective. *Food Chain*. 2004:10-11.
27. Priestly J. *Facilitating the Promotion, Allocation and Development of Community Based and Controlled Nutrition Worker Projects in a Rural District of the Northern Territory* [Graduate Diploma Thesis]. Newcastle (AUST): University of Newcastle; 1995.
28. Scrimgeour D, Rowse T, Lucas A. *Too Much Sweet. The Social Relations of Diabetes in Central Australia*. Alice Springs (AUST): Menzies School of Health Research; 1997.
29. Keighley H. Personal Communication. 2013; Sep 6.
30. Baum F. *The New Public Health*. 3rd ed. Melbourne (AUST): Oxford University Press; 2008.
31. Hamilton A. *Nature and Nurture - Aboriginal Child-Rearing in North-Central Arnhem Land*. Canberra (AUST): Australian Institute of Aboriginal Studies; 1981.
32. Kruske S, Belton S, Wardaguga M, Narjic C. Growing up our way: The first year of life in remote aboriginal australia. *Qual Health Res.* 2012;22:777-87.
33. Brimblecombe J, et al. Factors influencing food choice in an Australian aboriginal community. *Qual Health Res.* 2014;24:387-400.
34. Lee AJ, Leonard D, Moloney AA, Minniecon DL. Improving Aboriginal and Torres Strait Islander nutrition and health. *Med J Aust*. 2009;190:547-8.
35. Bonnici, R. Promoting awareness of nutritional risk factors contributing to chronic disease in Indigenous communities: an outreach model. *Developing Practice*, 53-62 (2008).
36. Burgess P, Mileran A, Bailie R. Beyond the mainstream - health gains in remote aboriginal communities. *Aust Fam Physician*. 2008;37:986-8.
37. Trudgen R. *Why Warriors Lie Down and Die.* Darwin (AUST): Aboriginal Resource and Development Services; 2000.
38. Vass A, Mitchell A, Dhurrkay Y. Health literacy and Australian Indigenous peoples: An analysis of the role of language and worldview. *Health Promot J Austr*. 2011;22:33-7.
39. Mungabareena Aboriginal Corporation and Women's Health Goulburn North East. *Using A Health Promotion Framework with An 'Aboriginal Lens'* [Internet]. Wangaratta (AUST): WHGNE; 2008 [cited 2015 Apr 8]. Available from: http://www.whealth.com.au/mtww/documents/MTWW_Health-Promotion-Framework.pdf
40. Hughes P, More A. Aboriginal ways of learning and learning styles. In: *Proceedings of The Annual Conference of the Australian Association for Research in Education;* 1997 November 30 to December 4; Brisbane, Australia.
41. Grundy J, Johnston F. Building research capacity in primary health care settings in the Northern Territory. *Aust J Primary Health. 2003;*9(1):9-17.
42. Wakerman, J. *et al.* Primary health care delivery models in rural and remote Australia – a systematic review. *BMC Health Services Research* **8**, 276-285 (2008).
43. Hoy, W. E. "Closing the gap" by 2030: aspiration versus reality in Indigenous health. *Med J Aust* **190**, 542-544 (2009).
44. Wilson A. *Addressing Uncomfortable Issues: The Role of White Health Professionals in Aboriginal Health*. Adelaide (AUST): Flinders University; 2012.
45. Hughes R, Shrimpton R, Recine E, Margetts B. *A Competency Framework for Global Public Health Nutrition Workforce Development: A Background Paper*. Bewdley (UK): World Public Health Nutrition Association; 2011 [cited 2015 Apr 8]. Available from: http://www.wphna.org/htdocs/downloadsapr2012/12-03%20WPHNA%20Draft%20competency%20standards%20report.pdf
46. Judd J, Keleher H. Reorienting health services in the Northern Territory of Australia: A conceptual model for building health promotion capacity in the workforce. *Glob Health Promot.* 2013;20(2):53–63.
47. Leitzmann C, Cannon G. Dimensions, domains and principles of the new nutrition science. *Public Health Nutr.* 2005;8:787-94.
48. Strategic Inter-Governmental Nutrition Alliance. *Eat Well Australia: Strategic Framework for Public Health Nutrition 2000-2010*. Canberra (AUST): National Public Health Partnership and Commonwealth Department of Health and Aged Care; 2001.
49. Baillie E, Bjarnholt C, Gruber M, Hughes R. A capacity-building conceptual framework for public health nutrition practice. *Public Health Nutr.* 2009;12:1031-8.
50. Palermo C, Hughes R, McCall L. A qualitative evaluation of an Australian public health nutrition workforce development intervention involving mentoring circles. *Public Health Nutr.* 2011;14:1458-65.
51. Christie M, et al. *East Arnhemland Client Health Education and Health Interpreting Scoping Report and Project Proposal*. Darwin (AUST): Charles Darwin University; 2010.