Scoping Project:

Development of Nutrition and Menu Planning Standards for Residential Aged Care Facilities in Australia and New Zealand

Updated Version, 22 February 2012

LITERATURE REVIEW

DAA commissioned a project to identify the top line literature and documentation pertaining to nutrition and menu planning standards in Australia and New Zealand, and provide key recommendations for the possible development of national menu planning standards for residential aged care facilities (RACFs). The first two objectives of the project were:

1. To review, compare and contrast available nutrition and menu planning standards and related documents within Australia, New Zealand and internationally, and
2. To identify and review sentinel articles relevant to residential aged care facility nutrition and menu standards

This document summarises the findings from the literature review.

CONTENTS

Search Strategy

Using a combination of the search terms “nursing homes”, “residential care facilities”, “menus” and “nutrition standards”, a systematic search of the literature was conducted for sentinel articles on nutrition and menu standards in residential aged care facilities (RACFs). The search was conducted in the following databases, yielding the number of results given in brackets: Science Direct (168), Scopus (152), Cinahl (15), and the Australian Public Affairs (14). In addition, searches were undertaken in Google and Google Scholar with the same terms and the first 20 pages of returned hits in each were reviewed (400). Advice obtained from key stakeholder interviews was also used to identify key references.

After reviewing the abstracts and contents for relevance to this project, 128 articles and reports were retrieved and are referenced in this review.

The Context and Regulatory Framework

Australia

The Australian population is rapidly ageing and the number of Australians aged over 80 years is expected to double in the next 20 years. The coming decade will see a need for 250,600 residential care places by 2015, and by 2050, over 3.5 million Australians are expected to use aged care services each year. In residential care, these older Australians are presenting challenges of increasingly complex clinical needs and higher levels of functional dependence. A diverse range of private for profit, private not-for-profit and public providers manage around 3000 residential aged care services in Australia [6]. With the growing migrant population in Australia, there has also been significant increase in the number of ethnicity-specific nursing homes in Australia, with 193 recorded in 2011 [7].

In June 2011, the Productivity Commission delivered a report on the organisation and financing of aged care in Australia (Caring for Older Australians) [8], and DAA made a comprehensive submission to the enquiry [9], but government reactions to the recommendations have not yet been announced.

“Aged Care” is a generic term that covers a wide range of inter-related services for older people delivered across the continuum of care from acute services to community and residential care. For the purposes of this report, the concept of “residential aged care” encompassed within the *Aged Care Act (1997)* has been adopted [10]. The Act specifies that residential care includes:

> *… personal care or nursing care, or both personal care and nursing care that:*
> *(b) is provided to a person in a residential facility in which the person is also provided with accommodation that includes:*
> *(i) appropriate staffing to meet the nursing and personal care needs of the person; and*
> *(ii) meals and cleaning services; and*
> *(iii) furnishings, furniture and equipment for the provision of that care ...*

In Australia, residential aged care facilities (RACFs), formerly known as nursing homes and hostels, are now regulated under the Aged Care Act via the Aged Care Standards and Accreditation Agency. Standards and processes for accreditation are described in the Standards and Guidelines for Residential Aged Care Services Manual [11].

However, currently there are no national nutrition and menu planning standards for use in the aged care setting in Australia. Many international regulatory systems are based on a strict system of licensing, with the availability of a license contingent on compliance with input-based standards. In many international systems, compliance requirements are state- or provincially-based rather than national. Also in many systems, the quality of care for residents of aged care homes has been the subject of ongoing concern and regulatory activity. The Australian aged care regulatory framework, in contrast, is a national system that combines compliance and continuous improvement objectives for quality in aged care homes in a unique way.

The most significant criticism made about the Accreditation Standards reported in a recent evaluation of the system is that they lack specificity and are too open to interpretation. Some stakeholders would prefer more specific, input- or process-based standards that provide more certainty with respect to compliance [12].

The Accreditation Standards are set out in Schedule 2 of the Quality of Care Principles and are defined by section 18.7 of the Quality of Care Principles as:

> *… standards for quality of care and quality of life for the provision of residential care on and after the accreditation day.*

Section 18.9(1) of the Quality of Care Principles states:

> *The Accreditation Standards are intended to provide a structured approach to the management of quality and represent clear statements of expected performance. They do not provide an instruction or recipe for satisfying expectations but, rather, opportunities to pursue quality in ways that best suit the characteristics of each individual residential care service and the needs of its residents. It is not expected that all residential care services should respond to a standard in the same way* [13].

There are four Accreditation Standards:

- Management Systems, Staffing and Organisational Development (Standard 1);
- Health and Personal Care (Standard 2);
- Resident Lifestyle (Standard 3); and
- Physical Environment and Safe Systems (Standard 4).

These Accreditation Standards are described as outcome standards. They differ significantly in their expression from standards in many other jurisdictions. As an example, the National Minimum Standards that apply in England [14], the National Care Standards that apply to care homes for older people in Scotland (the Scottish Standards [15]) and the US requirements for dietary services in long term care facilities[16] have been compared with the Accreditation Standards. The UK and US

standard are input-based, prescriptive and detailed in comparison to the Accreditation Standards, which are outcome-based and structured so as to provide maximum flexibility to providers [17]. For example:

The National Minimum Standards specify that:

15.2 Each service user is offered three full meals each day (at least one of which must be cooked) at intervals of not more than 5 hours.

The Scottish Standards specify that:

13.3 You have a choice of cooked breakfast and choices in courses in your midday and evening meals.

The US regulations [483.35 (3f)] state that:

(1) Each resident receives and the facility provides at least three meals daily, at regular times comparable to normal mealtimes in the community.
(2) There must be no more than 14 hours between a substantial evening meal and breakfast the following day.

In Canada there are also much more prescriptive standards at the provincial government level. For example, in Ontario clause 40 of the Retirement Homes Act 201 requires:

(a) if the licensee is the sole provider of the resident's meals, the resident is offered at least three meals per day at reasonable and regular meal hours, a beverage between the morning and midday meals, a snack and a beverage between the midday and evening meals and a snack and a beverage after the evening meal;
(b) menus provide adequate nutrients, fibre and energy for the resident, include fresh seasonal foods and are consistent with standards of good nutrition in Canada;
(c) the menu is varied and changes daily;
(d) the menu cycle changes at least every 21 days;
(e) the menu includes alternative entrée choices at each meal;
(f) an individualized menu is developed for the resident if the resident's needs cannot be met through the home's menu cycle;
(g) the resident is informed of his or her daily and weekly menu options;
(h) the resident is given sufficient time to eat at his or her own pace;
(i) food service workers and staff assisting the resident are aware of the resident's diet, special needs and preferences;
(j) staff monitor the resident during meals as required;
(k) staff and volunteers hold and transport perishable hot and cold food safely; and
(l) all dishes, utensils and equipment involved in the provision of a meal and provided by the licensee are clean and sanitary before each use and are cleaned and sanitized after each use [18].

The outcome-based Australian Accreditation Standards, in contrast, only specify that:

2.10 Nutrition and hydration – residents receive adequate nourishment and hydration.

3.9 Each resident (or his or her representative) participates in decisions about the services the resident receives, and is enabled to exercise choice and control over his or her lifestyle while not infringing on the rights of other people.

4.8 Catering, cleaning and laundry services – hospitality services are provided in a way that enhances residents' quality of life and the staff's working environment.

It should be noted, however, that many of the requirements contained in the more detailed, input-based English Standards and Scottish Standards, while not incorporated in the Accreditation Standards, are incorporated within other regulatory and associated instruments. For example, while the Accreditation Standards do not address the dietary requirements in detail, Schedule 1 of the Quality of Care Principles (with which approved providers are required to comply, by the application of section 54.1 of the Act) provides that all residents who need them must be provided with meals and refreshments comprising:

(a) Meals of adequate variety, quality and quantity for each resident, served each day at times generally acceptable to both residents and management, and generally consisting of 3 meals per day plus morning tea, afternoon tea and supper;

(b) Special dietary requirements, having regard to either medical need or religious or cultural observance; and

(c) Food, including fruit of adequate variety, quality and quantity, and non-alcoholic beverages, including fruit juice [13].

Also, in the Standards and Guidelines for Residential Aged Care Services Manual there are some more specific criteria [11]. Under the Standard 2.10 for Nutrition and Hydration, the criteria specify that:

a. *residents' nutrition and hydration needs are assessed, documented, regularly reviewed and acted upon;*
b. *residents are offered a varied, healthy and well-balanced diet that takes individual preferences into account;*
c. *residents received sufficient food and fluid to meet their nutritional requirements;*
d. *residents are assessed for and are provided with assistive devices that enhance the resident's ability to meet their nutrition and hydration needs;*
e. *residents are assisted to maintain their dietary customs according to their religious and cultural beliefs; and*
f. *residents' swallowing is regularly assessed, documented and reviewed, and that food and fluids of appropriate texture are provided.*

The Guidance document section on implementation of the Nutrition and Hydration Standards notes the following considerations relevant for menu planning:

- *Resident information indicates the types of foods and fluids that are available to residents and the choices that are offered*
- *Availability of dietary information for the development and review of menus to ensure residents' needs are met*
- *Menu planning includes a variety of food and fluid textures that are appropriate to residents' needs.*

Furthermore, the Aged Care Standards and Accreditation Agency has a series of detailed checklists available for assessors, that detail the process of assessment to be used and information that can be used to assess compliance with the standards. Module 7 is on Nutrition, Hydration, Oral and Dental Care [19]. It focuses primarily on the home's monitoring systems for identifying and preventing nutrition problems arising, as well as consultation with residents about the food services, including cultural preferences, and does not include any specific menu standards.

Thus these standards and regulations contain only very general statements of the requirements for residents to receive adequate nourishment and hydration and, as a result, staff in facilities have limited, readily accessible information available to assist them when interpreting the guidelines and addressing the nutritional needs of individual residents. Similarly, the general aspirations in Standard 3.9 do not give any specific guidance about the degree of food choices that should be available to residents. However they do imply that residents should be offered some level of food choices at meals and involved in menu planning decisions.

Under the Act, some residential aged care facilities offer 'extra services' in the form of additional 'hotel' type services or lifestyle extras, including higher standards of accommodation and increased entertainment and food choices. Residents are required to pay an additional fee for these services and may be requested to pay a bond for either high care or low care accommodation. In the guidelines for these extra services related to food, there are a number of more specific food-related requirements, including: [20]

- *Summer and Winter menus with at least a four-week cycle for each*
- *Only one sandwich/toast meal [can be] counted as a main meal choice*
- *Availability for each resident of their preferred hot meal presented at least twice per week*
- *A selection of light meals available at morning tea, afternoon tea and supper.*

The same document includes a checklist for quantitative benchmarking of the extra services, which includes a range of food-related options than can be used to count towards a minimum score to satisfy the extra service requirements. These include:

- at least one hot dish at breakfast, and at least two main courses plus soup/entrée and desserts at the other two meals
- availability of quality wine with meals
- all food prepared by a chef/cook on site
- meals available for residents over a span of at least 1.5 hours (see Figure 1).

It should be noted however that these standards do not apply to residents who do not pay for extra services, and therefore they do not set minimum standards for all RACFs. It is also unlikely that universal provision of this level of food service would be economically viable for many existing facilities.

The Encouraging Best Practice in Residential Aged Care (EBPRAC) program commenced in 2007 with the aim of identifying and developing sustainable strategies to encourage residential aged care facilities to implement existing evidence-based best practice guidelines [21]. EBPRAC supported the uptake of evidence-based guidelines by funding organisations to translate the best available evidence into effective approaches for staff to use in their everyday practice, including a major project on best practice in nutrition and hydration support [22].

The Department has also recently undertaken work reviewing the standards across both community care and residential aged care [23, 24]. There is an increased focus on the resident and encouraging the provision of resident-centred care, which is in line with other national and international health standards and practices. There has also been a focus on articulating more clearly the requirements of care under the Aged Care Act, reducing duplication across the standards, and maintaining the present culture of continuous quality improvement. In relation to nutrition and hydration management, it is now proposed that there is be a performance requirement related to identification, management and monitoring of malnutrition, which has been welcomed by DAA [25]. It is possible that the future revised national care standards will be incorporate some of the recommendations in the British Dietetic Association toolkit, a new version of which is due for release in early 2012 [26]. One other likely implication of the revised standards is that providers will be looking to best-practice guidelines to use as part of their evidence that they are providing good quality care.

The Victorian Department of Health is currently conducting a consultation process for the development of a nutrition standard for Victorian public hospitals, in response to the Health Ministers National Safety and Quality Health Service Standards [27]. While these standards will not directly apply to RACFs, they are likely to be influential in the 200 RACF facilities managed by the Victorian government in association with hospital sites. Much of the focus of the draft standards is on nutritional monitoring, but they also include requirements for:

1. *regular monitoring of the use of evidence based policies, protocols and procedures consistent with national guidelines; and*
2. *the provision of food services is consistent with implementation of evidence based nutritional guidelines.*

New Zealand

At the 2006 Census of Population and Dwellings, there were 495,600 New Zealand residents who were aged 65 years and over. Over the last half a century, the 65+ group has consistently outpaced the growth of total New Zealand population and they now make up 12.3% of all New Zealanders, compared with 8.5% in the early

1970s. The 65+ population is expected to more than double to 1.48 million by 2051, when they will make up one-quarter or more of all New Zealand residents [28].

The older population (age 65 years and over) has increased by 43% while the number of residential care beds has increased by only 3% in the last 20 years. Thus the proportion of older people in aged residential care has decreased from 74 to 53 persons per 1000 people aged 65 years and over and the level of dependency of those in care have significantly increased [29]. People over 85 years of age are the fastest growing population group in New Zealand, projected to grow to 8% by 2050. The corresponding funds to meet an increased need for care as a result of increased dependency have not been forthcoming from the public sector [30]. This mismatch is most acutely experienced in rest home level facilities. Residential care for older people is, therefore, an area in need of ongoing quality improvement [31].

New Zealand has a higher proportion of people in residential care than most other countries – and the second highest proportion in the OECD of older people receiving care or other support. While the use of institutional care is decreasing in most OECD countries, New Zealand's rates continue to be high with more than 42,000 people receiving care in some 700 certified aged residential care facilities every year [32].

Approximately two- thirds (68%) of aged residential care facilities in New Zealand (commonly called "rest homes" there) are controlled by For Profit operators, in partnership with the Government, which provides the funding for those who qualify for the subsidy [33]. This contrasts with Australia where Not for Profit providers still operate most facilities. The New Zealand system is close in design to the Australian system, having moved from a licensing system to a certification system, with compliance with standards audited by approved independent auditors.

The Health and Disability Sector Standards approved under the Health and Disability Services (Safety) Act 2001, set standards for consumers of health and disability services in New Zealand, including aged care residential facilities. These standards, which enable consumers to be clear about their rights and to help healthcare providers understand their responsibilities for safe outcomes for their clients, were first developed in 2001 and revised in 2008 [34].

Outcome 3 of NZS 8134:2008 requires that a service demonstrate:

> *Consumers participate in and receive timely assessment, followed by services that are planned, co-ordinated and delivered in a timely and appropriate manner, consistent with current legislation.*

Standard 3.13 (Nutrition, safe food, and fluid management) requires that a consumer's individual food, fluids and nutritional needs are met where this service is a component of service delivery. The criteria to assess compliance include that:

- *3.13.1 Food, fluid and nutritional needs of consumers are provided in line with recognised nutritional guidelines*
- *3.13.2 Consumers who have additional or modified nutritional requirements or special diets have these needs met, and*
- *3.13.3 The personal food preferences of the consumer are met where appropriate.*

It is noted in the accompanying Guidance document that the first of these criteria can be achieved by (but not limited to) complying with Food and Nutrition guidelines from the Ministry of Health and that 3.13.2 may be achieved by *ensuring input into menus and diets from registered dietitians*. The third criterion, on personal preferences, requires that:

- *The menu range is appropriate for those receiving the service*
- *Consumers have input into the range and choices*
- *The presentation and texture is appropriate to the individual consumer*
- *Consumers have adequate time to eat and adequate assistance to meet their nutritional needs*
- *Meals are served at times that reflect community norms.*

In the audit workbook developed in 2001, the criteria related to food were limited only to the following [35]:

> *Does the food service deliver adequate and nutritious meals and refreshments, which as much as possible take into account personal likes/dislikes, address cultural, medical or religious restrictions and are served at times that reflect community norms? Evaluation method(s) to be used: Dietician (sic) report/satisfaction survey/Cook or Manager interview.*

However, there were also the following examples of solutions to demonstrate actions to demonstrate consumer safety [36]*:*

> *5.4.1 (b) menus are planned and reviewed at regular intervals by appropriately qualified service providers with specialist dietary advice, and*
> *5.4.1 (e) menus comply with the Ministry of Health food and nutrition guidelines wherever practicable and appropriate.*

While these guides are no longer in the current audit tool, they have been interpreted widely as requiring dietitian involvement in menu planning and review, and the Menu Audit Tool of Dietitians New Zealand [37] is the standard method used to demonstrate compliance.

In addition, the standardised national aged care residential contract was introduced in 2002, for use between District Health Boards and providers of long-term residential care facilities. The contract requires conformance to Health and Disability Service Standards, but does not provide detailed requirements for food and nutrition services [38]. Standard D15.2 (Accommodation) requires provision of:

> *A food service of adequate and nutritious meals, and refreshments and snacks at morning/afternoon tea and supper times, that reflects the nutritional requirements of older people, and as much as possible takes into account the personal likes/dislikes of the Subsidised Resident, addresses medical/cultural and religious restrictions, and is served at times that reflect community norms.*

The Ministry of Health designates Designated Audit Agencies to monitor all hospitals, rest homes and residential disability care facilities to ensure they provide safe and reasonable levels of service for consumers under the Health and Disability Services (Safety) Act:2001. At present six different agencies are designated to carry

out audits of residential care facilities, in accordance with ISO/IEC 17021:2001 and the Ministry of Health Designated Auditing Agency Handbook [39]. These agencies also have third party accreditation and the system operates under the policies of the Joint Accreditation Scheme of Australia and New Zealand (JAS-ANZ) [40].

HealthCERT is the agency within the Ministry of Health responsible for ensuring hospitals, rest homes, residential disability care facilities and fertility providers provide safe and reasonable levels of service for consumers. It is given the role to administer and enforce the legislation, issue certificates, review audit reports and manage legal issues [41]. It also provides 'train the trainer' education for auditors, and one of their bulletins provides additional guidance on compliance with Standard 1.3.13 [42]. Bulletin number 3 notes that if the auditors find no evidence that dietitians are providing input into menu planning generally then they will need other evidence to demonstrate how this criterion is being met and comply with the requirements identified in the Food and Nutrition Guidelines for Healthy Older People [43].

However, there is a growing public concern about the quality of aged care in New Zealand. In some 342 complaints about rest homes to the Health and Disability Commissioner last year (up to 15% from the usual 10% of total complaints received by the office):

> *Issues essentially fall into the following categories: lack of appropriate knowledge and experience in specialist areas such as dementia care, communication (particularly with families and legal representatives [Enduring Powers of attorney]), wound care, falls (and fractures), nutrition and fluid management, medication, end-of-life care, and a lack of coordination of care.*
> (Acting Health and Disability Commissioner, July 2010)

In 2010 the New Zealand Labour and Greens parties conducted an inquiry into aged care, which noted that issues of substandard nutrition and dehydration was a major concern raised by many submitters, "*with drinks or meals, many unappetising at best, taken away untouched because staff haven't had the time to encourage a resident to eat or drink more*" [32].

Nutrition Issues for Residential Aged Care Facility residents

Many older people have difficulty obtaining sufficient energy from their food due to increased requirements or reduced appetite, and the prevalence of malnutrition in older people remains worryingly high[44-46]. In old age, energy requirements are lowered but the nutrient requirements are similar or higher than those of younger adults [47], necessitating the need for more nutrient-dense foods [48]. Older people have an increased risk of developing health problems as a results of inadequate food and nutrition intake [49] and those residing in RACFs are thought to be at increased risk because of factors associated with the ageing process [50-54]. These may include impaired functional capacity requiring feeding assistance, poor dentition and/or swallowing problems, and physiological changes such as reduced smell and taste that may reduce appetite.

In 1999, the National Health and Medical Research Council released Dietary Guidelines for Older Australians [55] and in New Zealand a very comprehensive background paper on Food and Nutrition Guidelines for Older People was published by the Ministry of Health in 2010 [43]. While these guidelines provide excellent starting points for the planning of menus for older people (and the Australian report includes some discussion of the needs of residents in RACFs), they were primarily designed for healthy older people in the community. The residents of RACFs, who are likely to be more clinically frail and often have severe chronic disease or disability, have specific nutritional requirements [56]. However, there is limited research into the nutritional status of older persons living in residential aged care facilities.

Overseas studies indicate the prevalence of malnutrition in nursing homes ranges from 17-65% [51, 57, 58], and this affects not only physical health, but also quality of life for residents [59]. Australian studies have shown that some residents in aged care facilities are at risk of not receiving adequate nutrition through the food supply [60-63] and two recent studies (in Queensland and Melbourne) reported that as many as 50% of residents were malnourished [64, 65]. Residents in RACFs often have "modifiable" nutrition risk factors including, for example, use of restricted diets and limited menu choices [50, 66]. Clearly in some situations – such as residents needing texture modified food, or dietetic management of pressure injuries – there will be a need for specific diet modifications [67, 68]. However, restrictive diets can adversely affect nutritional intakes [69] and there have been calls to liberalise the diet prescriptions for older adults in long-term care [70, 71].

Access to staff with expertise in nutritional assessment and management for this population is often limited – compounding the problem. There are benefits for residents from ensuring best practice approaches are developed and implemented in the aged care setting. Intervention studies in organised care have demonstrated that the nutritional intake of residents and clinical and health outcomes can be improved by managing nutritional risk for individuals, including improving the food supply and meeting individual needs of the resident [72-75]. Changes in food service systems can also improve the nutrient intakes of older residents [76, 77]. Furthermore, with an increasingly multi-ethnic population, there may be need for more emphasis on menus designed for particular cultural groups [78, 79].

While the older person's underlying state may predispose towards malnutrition, inadequate food intake is the most important risk factor for malnutrition among older people in care [80]. In turn, food intake is greatly influenced by the facility's food services (including food quality, presentation and meal schedules), social aspects of eating, and appropriate levels of staffing and assistance with eating [76, 81-88]. Simple food service modifications, such as providing smaller, more energy-dense meals, serving food earlier in the day, including fortified foods and offering more choice can promote better intakes and reduce plate waste, and involving residents in meal planning has also been related to improved food satisfaction and intakes [89-91].

However the complexity of health problems facing residents makes meal planning particularly challenging in RACF settings. One third of all RACF residents are now over 90 years, and a 2011 report from the Australian Institute of Health and Welfare estimated that just over half of all permanent residents living in RACFs had a diagnosis of dementia [92]. Reduced oral intake is expected with advanced dementia and providing appropriate feeding options can provide difficult ethical challenges [93]. Some residents with dementia and other similar conditions may benefit from the availability of finger foods, which can facilitate increases in oral intake, independence and self-feeding [94, 95], but this is only one possible strategy. The presence of disability [96] and other physical and mental health issues, along with the common effects of multiple medications on appetite, digestion and bowel function, mean that the food service needs to be very flexible to meet the needs of the most nutritionally at-risk residents. Maintaining adequate hydration of residents is also a particular issue of concern in RACFs [22, 97, 98].

Of course, food served to residents is only valuable if it is consumed, and several studies in RACFs have reported levels of plate waste of between 7% and 27% [60, 62, 76, 99-102]. While these levels are not as high as in acute hospital settings, they are higher than in other commercial foodservice settings [103] and they increase the risk that residents will not have nutritionally adequate intakes.

Several government-funded projects have worked to encourage best practice nutritional care in aged care settings, and their reports contain extensive bibliographies with more detail on the general nutritional issues in RACFs than can be summarised in this brief review. These include:

- *"Well for Life" – Improving nutrition and physical activity for residents of aged care facilities: Summary Report* (2000) [104]
- *Encouraging best practice nutrition and hydration in residential aged care: Final Report* (2009) [89].

Nutrition and Menu Standards

Nutrition and menu standards for RACFs are likely to be most useful when they form part of a broader strategy or policy framework to support the health of older adults in residential care [105, 106]. In Australia, there are a variety of State-level nutrition and menu planning standards for use in the hospital sector, and those in Victoria [107] and Queensland [3] incorporate recommendations for aged care facilities. There is also an Australian Food Standards Code covering Food Safety Programs for Food Service to Vulnerable Persons (Standard 3.3.1), which applies to aged care facilities [108]. None of these (aside from the Food Safety Programs standard – which focuses on food processing rather than menu planning) has any regulatory force, especially for RACFs in the private sector, and the importance of detailed nutrition standards for residential care homes has been noted elsewhere [105].

There are, however, a number of resources designed either to support providers and caterers in RACFs, or to give checklists to auditors, which provide more detailed

food and nutrition benchmarks and menu guidance. The contents of 30 of these are summarised in Table A below. Some of these resources have grown out of government funded research programs, such as the Victorian "Well For Life" project to improve nutrition and physical activity for residents of aged care facilities, undertaken by the National Ageing Research Institute in partnership with the Dietitians Association of Australia (Victorian branch)[104]. Others are designed to advice on the provision of culturally appropriate care for older people[79] or to assist in the care of home-based older adults who are at nutritionally at risk, but they also contain information of relevance to providers in RACFs [109, 110].

Similarities between hospital and RACF menu standards

Two sets of Australian menu planning standards for hospitals include some recommendations relevant to RACFs. Those in Queensland (which are still in draft form only) include minimum daily nutrient standards and recommendations about menu choice. Those in Victoria are primarily specifications for recipes, to assist food manufacturers producing food for sale to the health sector, and include nutritional standards and recommended portion sizes. However, neither of these documents covers all aspects of menu planning in RACFs, and they are developed for different target populations.

The issues of the high level of frailty in the RACFs, the diverse expectations of residents, and their often very limited food intakes, pose particular challenges. Furthermore, the scientific literature about the nutritional needs of very old institutionalised residents is quite sparse, and further research is needed to build a stronger evidence base for recommendations. For these reasons menu standards in RACFs generally need to focus more on understanding and meeting individual resident needs, and the capacity of the local foodservice, rather than setting prescriptive targets to be applied in every institution.

Nonetheless there is still an opportunity to attempt to harmonise the recipe specifications to be used in both settings. There is a relatively small healthcare market in Australia and New Zealand, and agreement on common requirements for the foods prepared for sale to hospitals and RACFs is desirable to support a viable commercial industry.

Conclusions

No published research was found that has compared the impact of outcome- versus input-based menu standards. Nonetheless, the lack of prescriptive input standards and guidelines for menus in Australia and New Zealand is probably a contributing factor to the known problems of nutritional risk among clients in RACFs. The development of common minimum standards (particularly for serving sizes and nutrition standards for recipes) is likely to be welcomed by external food service companies who produce meals for multiple sites, and by any new RACF providers who are likely to enter the marketplace as the demand for residential care grows with an aging population.

No single existing resource includes all aspects that might be covered in a comprehensive set of nutrition and menu standards for residential aged care facilities in Australia and New Zealand. One of the most widely used is the *Best Practice Food and Nutrition Manual for Aged Care Facilities (2004),* which is currently being updated with funding from the Commonwealth Department of Health and Ageing. That publication has a lot of practical advice for staff providing meals in RACFs, but it does not set nutrition standards, nor specify the minimum choices to be provided, although the planned revision may include some additional guidance on minimum serving sizes and recipe standards [1]. The checklists from Western Australia [111] and Dietitians New Zealand [37] provide useful tools to audit food service provision, but are not designed to set standards or provide practical guidance to providers. More comprehensive nutrition standards are given in the following documents:

- Queensland Health: *Draft Nutrition Standards for meals and menus* [3]
- The Caroline Walker Trust: *Eating Well for Older People* [112]
- The UK Food Standards Agency: *Guidance on food served to older people in residential care* [113]
- Royal Society for Public Health: *Eating for Health in Care Homes: a practical nutrition handbook* [114].

The Council of Europe 2009 report on nutrition in care homes recommended that there should be *"evidence-based recommendations for nutritional quality and quantity of food in care homes"* [58]. The resources that have been identified in this review provide a useful starting point for the development of more complete nutrition and menu standards for residential aged care facilities in Australia and New Zealand.

Table A. Summary of elements contained in nutrition or menu standards, guidelines or checklists

Author and date	Title	Minimum daily nutrient standards	Minimum food group serves per day	Minimum menu choices per meal	Minimum serving sizes	Sample menus or recipes	Nutrition standards for recipes	Advice on dining environment	Food safety guidelines	Audit checklist	Reference Number
AUSTRALIA											
Commonwealth Department of Community Services and Health 1984	Guidelines for Nutritional Care and Food Service in Nursing Homes		X								115
Martin & Backhouse 1993	Good Looking, Easy Swallowing; Creative Catering for Modified Texture Diets					X					116
Commonwealth Department of Health 1998	Australian Guide to Healthy Eating		X								117
National Health and Medical Research Council 1999	Dietary Guidelines for Older Australians (Appendix C – Meal-Assisted Older Australians and Residents of Aged Care Accommodation)		X					X			55
Stewart 2000	Nutrition guidelines for residential aged care facilities		X	X	X			X		X	118
Victorian Government 2003	Well For Life: Improving nutrition and physical activity for residents in aged care facilities		X					X	X		119
Bartl & Bunney 2004	Best practice food and nutrition manual for aged care facilities		X		X	X		X	X	X	1
WA Environmental Health 2007	Menu assessment for aged care facilities checklist		X	X						X	111

Author and date	Title	Minimum daily nutrient standards	Minimum food group serves per day	Minimum menu choices per meal	Minimum serving sizes	Sample menus or recipes	Nutrition standards for recipes	Advice on dining environment	Food safety guidelines	Audit checklist	Reference Number
WA Environmental Health 2007	Nutrition policy checklist for aged care facilities									X	120
Department Human Services Victoria 2009	Nutrition standards for menu items in Victorian hospitals and residential aged care facilities				X		X				107
Priority Research Centre for Gender, Health and Ageing 2009	Implementing Best Practice Nutrition and Hydration Support in Residential Aged Care Tool Kit					X		X			22
Bunney & Bartl 2010	Eating Well. A food and nutrition resource for frail older people & their carers		X			X		X	X		121
Victorian Government 2010	Well for Life emotional care for older people in residential aged care							X			97
Aged Care Standards and Accreditation Agency 2010	Assessment module 7. Nutrition, hydration, oral and dental care									X	19
Queensland Health 2011	Draft Nutrition standards for meals and menus	X		X		X					3
Commonwealth Department of Health 2010	Extra Service benchmarks			X				X			20
NEW ZEALAND											
Jensen & Styles 1996	Quality Food and Nutrition Services: a guide for extended care facilities preparing for accreditation		X						X	X	122

Author and date	Title	Minimum daily nutrient standards	Minimum food group serves per day	Minimum menu choices per meal	Minimum serving sizes	Sample menus or recipes	Nutrition standards for recipes	Advice on dining environment	Food safety guidelines	Audit checklist	Reference Number
Dietitians NZ 2010	Menu audit tool for aged care facilities		X		X					X	37
Heart Foundation of New Zealand 2010	Heartbeat catering guidelines for older people		X			X			X	X	123
Ministry of Health 2010	Food and Nutrition Guidelines for Healthy Older People	X	X			X			X		43
UNITED KINGDOM										X	
The Caroline Walker Trust 2004	Eating Well for Older People	X	X		X	X					112
Northern Health and Social Services Board 2005	Community Nutritional Risk Scoring Tool and Information Pack		X					X		X	124
Department of Health 2006	Care Homes for Older People. National Minimum Standards							X			14
Royal Society of Public Health 2007	Eating in Care Homes: A practical nutrition handbook		X			X		X	X	X	114
The Scottish Government 2007	National Care Standards for Care Homes for Older People			X							15
Food Standards Agency 2007	Guidance on food served to older people in residential care	X	X		X	X			X		113
Food Standards Agency 2007	Final Report: Example Menus for Care Homes					X					125
Social Care Institute for Excellence 2010	Dignity factors – Eating and nutritional care							X			126

Author and date	Title	Minimum daily nutrient standards	Minimum food group serves per day	Minimum menu choices per meal	Minimum serving sizes	Sample menus or recipes	Nutrition standards for recipes	Advice on dining environment	Food safety guidelines	Audit checklist	Reference Number
USA											
National Resource Center on Nutrition, Physical Activity & Aging 2005	Older Americans Act Nutrition Programs Toolkit	X							X		127
Centers for Disease Control and Prevention, 2011	Improving the food environment through nutrition standards. A guide for government procurement						X				128

Figure 1. Food-related benchmarks for significantly higher than average standards for accommodation, services and food in residential aged care homes (from *Extra Service Guidelines for Applicants* [20])

9.2. FOOD – principles

Residents have access to a wide range of main meals, snack meals and beverage options at times of their choosing. The enjoyment and experience of meals is enhanced by the setting, personal services, and use of quality china, glassware, linen and cutlery. Residents' preferences for meal services are sought and acted upon and a range of options is available for residents with restricted ability to eat some foods.

Total points available in this category 25 ***Minimum* score required** 15			
9.2.1 Food		***Points* available**	**Item claimed**
23(a)	• Choice of at least 3 hot dishes, excluding porridge, at each breakfast, eg eggs, bacon, sausages (each counts as one dish)	3	☐
23(b)	**OR** Choice of at least 2 hot dishes, excluding porridge, at each breakfast	Or 2	☐
23(c)	**OR** One hot dish, excluding porridge, at each breakfast	Or 1	☐
24(a)	• Choice of at least 3 main courses plus entrée/soup and/or a choice of desserts at lunch ***and*** dinner	5	☐
24(b)	**OR** Choice of at least 2 main courses plus entrée/soup and/or a choice of desserts at lunch ***and*** dinner	Or 4	☐
25	• Choice of quality wine, beer, soft drinks at main meals	1	☐
26	• Pre-dinner drinks / cocktail time / happy hour at least once a week	1	☐
27	• * BBQs / special occasion meals provided over and above routine social and cultural meals and events provided as part of Specified Care and Services or claimable under the Resident Classification Scale	1	☐
28	• All meals are prepared by chef or cook on site. Superior quality cuts and ingredients, fresh vegetables etc are consistently used.	2	☐
29	• Enhanced dining experience for residents, e.g., enjoyable aromas, ability to view food before it is served (in dining room); fine china, linen and cutlery; meal presentation; choice of seating.	2	☐
30	• Choice of dining venues: in resident's own room, other room or dining rooms as requested by resident	1	☐
31	• Residents can exercise choice of time for breakfast, lunch and dinner (each meal available for at least 1.5 hours)	1	☐
32	• Availability for each resident of their preferred hot meal presented at least twice per week (subject to dietary restrictions)	1	☐
33	• Meals available for guests on request	1	☐
34	• A selection of light meals available at morning tea, afternoon tea and supper (additional to fresh fruit and biscuits)	1	☐
35	• Selection of snacks and non-alcoholic beverages available 24 hours / day (additional to water, tea/coffee, juices, fruit, biscuits)	2	☐

Comments by Applicant
(Please attach additional pages if necessary)

Supporting Information and Evidence
9.2.1 Food
Provide any information or evidence which you believe gives support to your case. This supporting information or evidence can be in any medium.
You must provide at least a four-week menu cycle.
Where distinct summer and winter menus are in use, provide a four-week cycle for each.
Where a menu states that an alternative meal or an alternative menu is available, the alternative meals are to be listed.

Questions 24(a) and 24(b) note that only one sandwich or toast-based meal is counted as a main meal choice eg the choice of a sandwich, or poached eggs on toast, or a chicken casserole is counted as two choices of main meal, not three.

Question 29 need to provide evidence that the enhanced dining experience is an everyday event rather than reserved for special occasions, eg by including photographs of the everyday table settings and dining room surroundings.

Question 32 need to provide evidence to show how this preference for each individual resident is determined and when the meal is offered.

Question 34 need to provide a complete list of meals available.

Attachments
Place text and photographs/sketches/brochures etc at the end of the Food Section, adding pages as necessary. Any bulkier items are to be labelled as Question 9, Food followed by the question number to which the information or evidence relates. The name of the facility must also be on all attachments.

Total for food (not including innovations)	**(maximum 22)**	

References

1. Bartl R and Bunney C. Best practice food and nutrition manual for aged care facilities: addressing nutrition, hydration and catering issues Gosford: Central Coast Health, 2004.
2. Australian Wound Management Association and New Zealand Wound Care Society. Australian and New Zealand Clinical Practice Guideline for Prevention and Management of Venous Leg Ulcers. 2011, (Accessed 13 February 2012 at http://www.awma.com.au/publications/2011_awma_vlug.pdf.)
3. State-wide Foodservices Policy and Planning Queensland Health. Draft Queensland Health Nutrition Standards for Meals and Menus. 2011, Queensland Health: Brisbane.
4. Victorian Government Department of Health. Aged Care in Victoria. Strenthening care outcomes for residents with evidence. Melbourne, 2009. (Accessed 21 February 2012 at http://www.health.vic.gov.au/agedcare/services/score.htm.)
5. Department of Health and Ageing. Aged Care Funding Instrument (ACFI) User Guide. Canberra, 2009. (Accessed 13 February 2012 at http://www.health.gov.au/internet/main/publishing.nsf/Content/D3248F580AA9EE41CA25738000084437/$File/ACFI User Guide.pdf.)
6. Department of Health and Ageing. Older Australians and residential aged care in Australia. Canberra, 2008. (Accessed 4 August 2011 at http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-iar-review-framework.htm~ageing-iar-review-framework-2.htm.)
7. DPS Guide to Aged Care. Nursing homes which are ethnicity specific in Australia. Melrose Park SA, 2011. (Accessed 8 December 2011 at http://www.agedcareguide.com.au/residential.asp?stateid=0&serviceid=16.)
8. Productivity Commission. Caring for Older Australians. Inquiry Report Overview Report No 53. Canberra, 2011. (Accessed 4 August 2011 at http://www.pc.gov.au/__data/assets/pdf_file/0016/110932/aged-care-overview-booklet.pdf.)
9. Dietitians Association of Australia. Submission from the Dietitians Association of Australia to the Productivity Commission: Caring for Older Australians. Canberra, 2010. (Accessed 28 November 2011 at http://daa.collaborative.net.au/files/DAA Submissions/Older Australians DAA FINAL.pdf?)
10. Department of Health and Ageing. A literature review and description of the regulatory framework to support the project for the evaluation of the impact of accreditation on the delivery of quality of care and quality of life to residents in Australian Government subsidised aged care homes. Canberra, 2005. (Accessed 30 November 2011 at http://www.health.gov.au/internet/main/publishing.nsf/content/8D7471B297492057CA257402008348A8/$File/Report 1 - Literature Review.pdf.)
11. Department of Health and Ageing. Standards and Guidelines for Residential Aged Care Services Manual. Canberra, 2004. (Accessed 20 November 2011 at http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-manuals-sgr-sgrindex.htm.)

12. Commonwealth Department of Health and Ageing. Evaluation of the impact of accreditation on the delivery of quality of care and quality of life to residents in Australian Government subsidised residential aged care homes - Final Report. Canberra, 2007. (Accessed 16 February 2012 at http://www.health.gov.au/internet/main/publishing.nsf/content/ageing-iar-final-report.htm.)
13. Department of Health and Ageing. Quality of Care Principles 1997. Canberra, 2011. (Accessed 2 August 2011 at http://www.comlaw.gov.au/Details/F2011C00126.)
14. Department of Health. Care Homes for Older People: National Minimum Standards (3rd ed). London, 2006. (Accessed 3 August 2011 at http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005819.)
15. The Scottish Government. National care standards for care homes for older people. Edinburgh, 2007. (Accessed 1 December 2011 at http://www.scotland.gov.uk/Resource/Doc/349525/0116836.pdf.)
16. US Code of Federal Regulations. CFR 42: Public Health. Part 483—Requirement for States and Long Term Care Facilitites. Washington DC, 2011. (Accessed at http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=e3979b25f8d8b29c78b1b3f6c66dbdaa&rgn=div5&view=text&node=42:5.0.1.1.2&idno=42 - 42:5.0.1.1.2.2.)
17. Department of Health and Ageing. Evaluation of the impact of accreditation on the delivery of quality of care and quality of life to residents in Australian Government subsidised residential aged care homes - Final Report. Canberra, 2007. (Accessed 30 November 2011 at http://www.health.gov.au/internet/main/publishing.nsf/content/ageing-iar-final-report.htm.)
18. Ontario Government. Ontario Regulation 166/11 made under the Retirement Homes Act, 2010. Ottawa. (Accessed 7 February 2012 at http://www.e-laws.gov.on.ca/html/source/regs/english/2011/elaws_src_regs_r11166_e.htm - BK49.)
19. Aged Care Standards and Accreditation Agency Ltd. Assessment module 7. Nutrition, hydration, oral and dental care. Parramatta, 2010. (Accessed 23/1/12 at http://www.accreditation.org.au/site/uploads/AS_GD_00584 v3_0 Assessment module 7.pdf.)
20. Department of Health and Ageing. Extra service guidelines for applicants. Canberra, 2010. (Accessed 8 December 2011 at http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-publicat-essguide.htm.)
21. Department of Health and Ageing. Encouraging Better Practice in Aged Care Initiative. Canberra, 2011. (Accessed 8 December 2011 at http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-bestpractice-program-ebprac.htm.)
22. Priority Research Centre for Gender Health and Ageing, Implementing Best Practice Nutrition and Hydration Support in Residential Aged Care. 2009, University of Newcastle: Newcastle.
23. Department of Health and Ageing. Draft Residential Aged Care Accreditation Standards. Canberra, 2011. (Accessed 30 November 2011 at http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-rescare-accreditation-standards-draft.htm.)

24. mp Consulting. Report: Outcomes of national workshops on draft revised Accreditation Standards for residential care. Canberra, 2011. (Accessed 30 November 2011 at http://www.health.gov.au/internet/main/publishing.nsf/Content/8D424DBDA7F8DB3DCA2578560083C355/$File/Andrea Matthews report on Accreditation Standards Workshops - 20 May 2011.pdf.)

25. Dietitians Association of Australia. Feedback on the Draft Residential Care Accreditation Standards. Canberra, 2011. (Accessed 25 November 2011 at http://daa.asn.au/wp-content/uploads/2011/05/Draft-Aged-Care-Accreditation-Standards-Consultation-Final.pdf.)

26. British Dietetic Association. Delivery nutritional care through food and beverage services. London, 2006. (Accessed 13 March 2011 at http://www.bda.uk.com/publications/Delivering_Nutritional_Care_through_Food_Beverage_Services.pdf.)

27. Victorian Department of Health. Consultation paper on Draft Victorian Nutrition Standard and Guide for use in hospitals. Melbourne, 2011. (Accessed 16 February 2012 at http://docs.health.vic.gov.au/docs/doc/Consultation-paper-on-the-Victorian-Nutrition-Standard-and-Guide-for-use-in-hospitals---Draft.)

28. Statistics New Zealand. New Zealand's 65+ Populations: A statistical volume. Wellington, 2007. (Accessed 30 November 2011 at http://www.stats.govt.nz/browse_for_stats/people_and_communities/older_people/new-zealands-65-plus-population.aspx.)

29. Boyd M, Kerse N, von Randow M, Chelimo C, Whitehead N, Connolly M, Foster S, Lay-Yee R, Broad J, and Puttick S, Changes in Aged Care Residents' Characteristics andd Dependence in Auckland 1988 to 2008. Findings from OPAL 10/9/8 Older Persons' Ability Level Census, 2009. Freemasons Department of Geriatric Medicine, University of Auckland: Auckland.

30. Kerse N and Boyd M. Improving care for older people in residential care. New Zealand Medical Journal 2010; 123: 13-15.

31. Flicker L. Healthcare for older people in residential care - who cares? MJA 2000; 173: 77-79.

32. New Zealand Labour and the Green Party of New Zealand. A report into aged care. What does the future hold for older New Zealanders? Wellington, 2010. (Accessed 25 November 2011 at http://labour.org.nz/sites/labour.org.nz/files/Aged Care Report.pdf.)

33. Grant Thornton NZ Ltd, Aged residential care service review, 2010. Grant Thornton: Auckland.

34. Standards New Zealand, Health and Disability (Core) Standards. NZS 8134.1:2008, 2008. Standards New Zealand: Wellington.

35. Ministry of Health. Audit tool for measuring compliance with the Agreement for Health and Disability Services (Aged Care Residential Services). Wellington, NZ, 2002. (Accessed at http://www.health.govt.nz/publication/aged-care-audit-tool-measuring-compliance-agreement-health-and-disability-services.)

36. Ministry of Health. New Zealand Handbook. Health and Disability Sector Standards (Residential) Audit Workbook. Wellington: New Zealand Ministry of Health, 2001.

37. Dietitians New Zealand. Menu audit tool for aged care facilities. Wellington, 2010. (Accessed 25 November 2011 at http://www.google.com.au/url?sa=t&rct=j&q=dietitians+new+zealand+menu+audit+tool&source=web&cd=9&ved=0CFcQFjAI&url=http%3A%2F%2Ftreatdiet.biz%2Fmedia%2FMenu-Audit-Tool-Review-2010.doc&ei=mo44T7nkBoGUiQeQyMnqAQ&usg=AFQjCNGNyoszMmKqGMFNSrK1ozMITMmNXA&sig2=JlwSsLQeuq_Vr6NPURqLxA.)
38. New Zealand Ministry of Health. Age related residential care services agreement. Wellington, 2011. (Accessed 25 November 2011 at http://www.moh.govt.nz/moh.nsf/indexmh/hop-longtermresidentialcare-arrcagreement.)
39. New Zealand Ministry of Health. Designated auditing agencies. Wellington, 2011. (Accessed 25 January 2012 at http://www.health.govt.nz/our-work/regulation-health-and-disability-system/certification-healthcare-services/information-providers-healthcare-services/designated-auditing-agencies.)
40. Joint Accreditation System of Australia and New Zealand. About Us. Canberra, 2011. (Accessed 25 January 2012 at http://www.jas-anz.com.au/index.php?option=com_content&task=blogcategory&id=13&Itemid=1.)
41. Ministry of Health. Certification of healthcare services. Wellington, 2011. (Accessed 10 February 2012 at http://www.health.govt.nz/our-work/regulation-health-and-disability-system/certification-healthcare-services/health-and-disability-services-standards.)
42. Ministry of Health. HealthCERT Bulletin Issue 3. Wellington, 2011. (Accessed 10 February 2012 at http://www.health.govt.nz/our-work/regulation-health-and-disability-system/certification-healthcare-services/information-designated-auditing-agencies/healthcert-bulletin.)
43. Ministry of Health, Food and Nutrition Guidelines for Healthy Older People: A background paper, 2010. New Zealand Ministry of Health: Wellington.
44. Australian and New Zealand Society for Geriatric Medicine. Position Statement No. 6. Under-nutrition and the Older Person. Austral J Ageing 2009; 28: 99-105.
45. Wham C, Dyall L, Teh R, and Kerse N. Nutrition risk: cultural aspects of assessment. Asia Pacific J Clin Nutr 2011; 20: 632-638.
46. Wham C, Teh R, Robinson M, and Kerse N. What is associated with nutrition risk in very old age? J Nutr Health Aging 2011; 15: 247-251.
47. National Health and Medical Research Council. Nutrient Reference Values for Australia and New Zealand including Recommended Dietary Intakes. Canberra: Commonwealth Department of Health and Ageing, 2006.
48. Odlund Olin A, Armyr M, S S, Jerstrom I, Classon T, Cederholm G, O L, and Ljungqvist O. Energy-dense meals improve energy intake in elderly residents in a nursing home. Clin Nutr 2003; 22: 125-131.
49. Payette H, Gray-Donald K, Cyr R, and Boutier V. Predictors of dietary intake in a functionally dependent elderly population in the community. Am J Public Health 1995; 85: 677-683.
50. Abbassi A and Rudman D. Undernutrition in the nursing home: prevalence, consequences, causes and prevention. Nutr Rev 1994; 52: 113-122.
51. Morley J and Silver J. Nutrition issues in nursing home care. Ann Int Med 1995; 123: 850-859.
52. Castellanos V. Food and nutrition in nursing homes. Generations 2004; 28: 65-71.

53. Wendland B, Greenwood C, Weinberg I, and Young K. Malnutrition in institutionalized seniors: the iatrogenic component. J Am Geriatr Soc 2003; 51: 85-90.

54. Cowan D, Roberts J, Fitzpartrick J, While A, and Baldwin J. Nutritional status of older people in long term care settings: current status and future directions. Int J Nurs Stud 2004; 41: 225-237.

55. National Health and Medical Research Council. Dietary Guidelines for Older Australians. Canberra: Australian Government Publishing Service, 1999.

56. American Dietetic Association. Position Paper of the American Dietetic Association: Nutrition across the spectrum of aging. J Am Diet Assoc 2005; 105: 616-633.

57. Suominen M, Muurinen S, Routasalo P, Soini M, Suur-Uski I, Peiponen A, Finne-Soveri H, and Pitkala K. Malnutrition and associated factors among aged residents in all nursing homes in Helsinki. Eur J Clin Nutr 2005; 59: 578-583.

58. Committee of Experts on Nutrition Food Safety and Consumer Health of the Council of Europe. Nutrition in care homes and home care, 2009. Council of Europe: Strasbourg.

59. Crogan N and Pasvogel A. The influence of protein-calorie malnutrition on quality of life in nursing homes. J Gerontol A: Biol Med Sci 2003; 58A: 159-164.

60. Sherwin A, Nowson C, McPhee J, Alexander J, Wark J, and Flicker L. Nutrient intake at meals in residential care facilities for the aged: validated visual estimation of plate waste. Aust J Nutr Diet 1998; 55: 188-193.

61. Zador D, Rassaby L, Truswell A, and Ash S. Nutritional status of intstitutionalised elderly people: a study in the Blue Mountains, New South Wales. Aust J Nutr Diet 1990; 47: 20-27.

62. Grieger J and Nowson C. Nutrient intake and plate waste from an Australian residential care facility. Eur J Clin Nutr 2007; 61: 655-663.

63. Cameron K, Quartel B, Crosbie K, and Donnelly J. Diet. Are elderly nursing home residents getting what they need? Geriaction 1997; 15(4): 14-19.

64. Gaskill D, Black L, Isenring E, Hassall S, Sanders F, and Bauer J. Malnutrition prevalence and nutrition issues in residential aged care facilities. Austral J Ageing 2008; 127: 189-194.

65. Woods J, Walker K, S I-B, and Strauss B. Malnutrition on the menu: nutritional status of institutionalised elderly Australians in low-level care. J Nutr Health Aging 2009; 13: 693-698.

66. Darmon P, Kaiser M, Bauer J, Sieber C, and Pichard C. Restrictive diets in the elderly: Never say never again? Clin Nutr 2010; 29: 170-174.

67. Dietitians Association of Australia and The Speech Pathology Association of Australia. Texture-modified food and thickened fluids as used for individuals with dysphagia: Australian standardised labels and definitions. Nutr Diet 2007; 64 (Supp2): S53-S76.

68. Trans Tasman Dietetic Wound Care Group. Evidence based practice guidelines for the dietetic management of adults with pressure injuries (endorsed by DAA and Dietitians NZ). Wellington: New Zealand Dietetic Association, 2011.

69. Durant M. A comparison of energy provision by diet order in a long-term care facility. Can J Aging 2008; 27: 225-227.

70. Niedert K. Position of the American Dietetic Association: Liberalization of the diet prescription improves quality of life for older adults in long-term care. J Am Diet Assoc 2005; 105: 1955-1965.

71. Germain S, Dufresne T, and Gray-Donald K. A novel dysphagia diet improves the nutrient intake of institutionalized elders. J Am Diet Assoc 2006; 106: 1614-1623.
72. American Dietetic Association. Practice paper of the American Dietetic Association: Individualized nutrition approaches for older adults in health care communities. J Am Diet Assoc 2010; 110: 1554-1563.
73. Bourdel-Marchasson I. How to improve nutritional support in geriatric institutions. J Am Med Dir Assoc 2010; 11: 13-20.
74. Leydon N and Dahl W. Improving the nutritional status of elderly residents in long-term care homes. J Health Serv Res Policy 2008; 13 (Suppl 1): 25-29.
75. Turic A, Gordon K, Craig L, Ataya D, and Voss A. Nutrition supplementation enables elderly residents of long-term-care facilities to meet or exceed RDAs without displacing energy or nutrient intakes from meals. J Am Diet Assoc 1998; 98: 1457-1459.
76. Shatenstein B and Ferland G. Absence of nutritional or clinical consequences of decentralized bulk food portioning in elderly nursing home residents with dementia in Montreal. J Am Diet Assoc 2000; 100: 1354-1360.
77. Mavrommatis Y, Moynihan P, Gosney M, and Methven L. Hospital catering systems and their impact on the sensorial profile of foods provided to older patients in the UK. Appetite 2011; 57: 14-20.
78. Migrant Health Unit. Food, Technology and Culture. Cook-Fresh, Cook-Chill and Cook-Freeze. Newcastle: Hunter Area Health Service, 1990.
79. Gallegos D and Perry E. A World of Food. A manual to assist in the provision of culturally appopriate meals for older people. Canberra: Commonwealth Department fo Human Services and Health, 1995.
80. Paquet C, St-Arnaud-MacKenzie D, Ferland G, and Dube L. A blue-print based case study analysis of nutrition services provided in a mid-term care facility for the elderly. J Am Diet Assoc 2003; 103: 363-368.
81. Carrier N, Ouellet D, and West G. Certain foodservice characteristics are associated with risk of malnutrition in cognitively intact elderly nursing home residents. Can J Diet Prac Res 2007; 68: 14-20.
82. Simmons S. Quality improvement for feeding assistance care in nursing homes. J Am Med Dir Assoc 2007; 8(Supp 3): S12-S17.
83. Desai J, Winter A, Young K, and Greenwood C. Changes in type of foodservice and dining room environment preferentially benefit institutionalized seniors with low body mass index. J Am Diet Assoc 2007; 107: 808-814.
84. Mathey M, Vanneste V, de Graaf C, de Groot L, and van Staveren W. Health effect of improved meal ambience in a Dutch nursing home: a 1-year intervention study. Prev Med 2001; 32: 416-423.
85. Carrier N, West G, and Ouellet D. Dining experience, foodservices and staffing are associated with quality of life in elderly nursing home residents. J Nutr Health Aging 2009; 13: 565-570.
86. Green S, MArtin H, Roberts H, and Sayer A. A systematic review of the use of volunteers to improve mealtime care of adult patients or residents in insititutional settings. J Clin Nurs 2011; 20: 1810-1823.
87. Nijs K, de Graaf C, van Staveren W, and de Groot L. Malnutrition and mealtime ambiance in nursing homes. J Am Med Dir Assoc 2009; 10: 226-229.
88. Woo J, Chi I, Hui E, Chan F, and A S. Low staffing level is associated with malnutrition in long-term residential care homes. Eur J Clin Nutr 2005; 59: 474-479.

89. Byles J, Perry L, Parkinson L, Bellchambers H, Moxey A, Howie A, Murphy N, Galliene L, Courtney G, Robinson I, Gibson R, Chojenta C, and Capra S. Encouraging Best Practice Nutrition and Hydration in Residential Aged Care Final Report. Newcastle, 2009. (Accessed 29 November 2011 at http://www.newcastle.edu.au/Resources/Research Centres/GHA/PDFs/EBPRAC_NH_Final_report_2Nov09.pdf.)

90. Taylor K and Barr S. Provision of small, frequent meals does not improve energy intake of elderly residents with dsyphagia who live in an extended care facility. J Am Diet Assoc 2006; 106: 1115-1118.

91. Castellanos V, Marra M, and Johnson P. Enhancement of select foods at breakfast and lunch increases energy intakes of nursing home residents with low meal intakes. J Am Diet Assoc 2009; 109: 445-451.

92. Australian Institute of Health and Welfare, Dementia among aged care residents: first information from Aged Care Funding Instrument. Aged care statistics series no. 32 Cat. no. AGE 63, 2011. AIHW: Canberra.

93. Palecek E, Teno J, Casarett D, Hanson L, Rhodes R, and Mitchell S. Comfort feeding only: a proposal to bring clarity to decision-making regarding difficulty with eating for persons with advanced dementia. J Am Geriatr Soc 2010; 58: 580-584.

94. Jean L. Finger food menu restores independence in dining. Health Care Food Nutr Focus 1997; 14: 4-6.

95. Ford G. Putting feeding back into the hands of patients. J Psychosoc Nurs Ment Health Serv 1996; 34: 35-39.

96. West R and Tang A, Report on nutritional and mealtime practices for people with developmental disabilities in residential care, 1997. Community Services Commission: Strawberry Hills, NSW.

97. Department of Health State Government of Victoria. Well for Life. Emotional wellbeing for older people in residential aged care. Melbourne, 2010. (Accessed 6 December 2011 at http://www.health.vic.gov.au/agedcare/maintaining/wellforlife_ewb_resi.htm.)

98. Woodward M. Guidelines to effective hydration in aged care facilities. Heidelberg, 2007. (Accessed 12 December 2012 at http://www.hydralyte.com/pdf/aged_care_brochure.pdf.)

99. Nichols P, Porter C, Hammond L, and Arjmandi B. Food intake may be determined by plate waste in a retirement living centre. J Am Diet Assoc 2002; 102: 1142-1144.

100. Hayes J and Kendrick O. Plate waste and perception of quality of food prepared in conventional vs commisary systems in the Nutrition Program for the Elderly. J Am Diet Assoc 1995; 95: 585-586.

101. Huang H-C and Shanklin C. An integrated model to measure service management and physical constraints' effect on food consumption in assisted-living facilities. J Am Diet Assoc 2008; 108: 785-792.

102. Suominen M, Laine A, Routasalo P, Pitkala K, and Rasanen L. Nutrient content of served food, nutrient intake and nutritional status of residents with dementia in a Finnish nursing home. J Nutr Health & Aging 2004; 8: 234-238.

103. Williams P and Walton K. Plate waste in hospitals and strategies for change. e-SPEN Eur e-J Clin Nutr Metab 2011; 6: e235-e241.

104. Well for Life Project Team. "Well for Life". Improving nutrition and physical activity for residents of aged care facilities. Summary Report. Melbourne, 2000. (Accessed 29 November 2011 at

http://www.mednwh.unimelb.edu.au/research/pdf_docs/well_for_life_summary_report.pdf.)

105. Blades M. Nutrition and the elderly in residential care. Nutr Food Sci 2002; 32: 174-179.

106. Department of Health Social Services and Public Safety. Promoting Good Nutrition. A strategy for good nutritional care for adults in all care settings in Northern Ireland 2011-2016. Belfast, 2011. (Accessed 1/12/11 at http://www.dhsspsni.gov.uk/promoting_good_nutrition.pdf.)

107. Department of Human Services (Victoria). Nutrition Standards for Menu Items in Victorian Hospitals and Residential Aged Care Facilities. Melbourne, 2009. (Accessed 11 August 2009 at http://www.health.vic.gov.au/patientfood/nutrition_standards.pdf.)

108. Food Standards Australia New Zealand. The Food Standards Code. Canberra, 2010. (Accessed 11 January 2010 at http://www.foodstandards.gov.au/foodstandards/foodstandardscode/.)

109. Wood B, Bacon J, Stewart A, and Race S. Identifying and planning assistance for home-based adults who are nutritionally at risk: A resource manual. Melbourne, 2001. (Accessed 13 February 2012 at http://www.health.vic.gov.au/hacc/downloads/pdf/resourcemanual.pdf.)

110. Dick M. Food Book for Licensed Residential Centres, Hostels & Group Homes Rozelle: Health Promotion Unit, Central Sydney Area Health Service, 1996.

111. West Australian Department of Health. Menu Assessment for Aged Care Facilities Checklist. Perth, 2007. (Accessed 29 November 2011 at http://www.public.health.wa.gov.au/cproot/1587/2/Menu_Assessment_AgedCare.pdf.)

112. The Caroline Walker Trust Expert Working Group. Eating well for older people. 2nd ed Abbots Langley UK: The Caroline Walker Trust, 2004.

113. Food Standards Agency. Guidance on food served to older people in residential care. London, 2007. (Accessed 29 November 2011 at http://www.food.gov.uk/multimedia/pdfs/olderresident.pdf.)

114. Royal Society for Public Health. Eating in Care Homes: A practical nutrition handbook. London: Royal Institute for Public Health, 2007.

115. Nutrition Section Commowealth Department of Community Services and Health. Guidelines for Nutritional Care and Food Service in Nursing Homes. Canberra: Commonwealth Department of Community Services and Health, 1984.

116. Martin J and Backhouse J. Good Looking, Easy Swallowing: Creative Catering for Texture Modified Diets. Unley, SA: Julia Farr Centre Foundation, 1993.

117. Kellett E, Smith A, and Schmerlaib Y. The Australian Guide to Healthy Eating. Background information for nutrition educators. Canberra: Commonwealth Department of Health, 1998.

118. Stewart A. Nutrition guidelines for residential aged care facilities. Black Rock, Vic: Alison Stewart, 2000.

119. Department of Health State Government of Victoria. Well for Life. Improving nutrition and physical activity for residents of aged care facilities. Melbourne, 2003. (Accessed 30 November 2011 at http://www.health.vic.gov.au/agedcare/publications/wellforlife.htm.)

120. West Australian Department of Health. Nutrition Policy Checklist for Aged Care Facilities. Perth, 2007. (Accessed 25 November 2011 at

http://www.public.health.wa.gov.au/cproot/1588/2/Nutrition_Policy_Checklist_AgedCare.pdf.)

121. Bunney C and Bartl R. Eating Well. A nutrition resource for frail older people and their carers. Gosford: Central Coast Local Health Network, NSW Health, 2010.

122. Jensen J and Styles M. Quality Food and Nutrition Services: a guide for extended care facilities. Wellington: NZ Dietetic Association, 1996.

123. Heart Foundation of New Zealand. Heartbeat Catering Guidelines for Older People. Wellington, 2010. (Accessed at https://http://www.heartfoundation.org.nz/programmes-resources/food-industry/heartbeat-catering/residential-catering-resources.)

124. Community Dietitians United Hospitals and Causeway Health and Social Services Trust. Community Nutritional Risk Scoring Tool and Information Pack. Ballymena, Northern Ireland, 2005. (Accessed 30 November 2011 at http://www.nhssb.n-i.nhs.uk/prescribing/documents/Community Nutritional Risk Scoring Tool and Information Pack.pdf.)

125. Daniels L. Final report. Example menus for care homes. London, 2007. (Accessed 29 November 2011 at http://www.food.gov.uk/multimedia/pdfs/carehomemenus.pdf.)

126. Social Care Institute for Excellence. Dignity factors - Eating and nutritional care. London, 2010. (Accessed 28 November 2011 at http://www.scie.org.uk/publications/guides/guide15/factors/nutrition/index.asp.)

127. National Resource Center on Nutrition Physical Activity & Aging. Older Americans Act Nutrition Programs Toolkit. Miami, 2005. (Accessed at http://nutritionandaging.fiu.edu/OANP_Toolkit/toolkit update 2.7.06.pdf.)

128. Centers for Disease Control and Prevention. Improving the food environment through nutrition standards. A guide for government procurement. Atlanta, GA, 2011. (Accessed 28 November 2011 at http://www.cdc.gov/salt/pdfs/DHDSP_Procurement_Guide.pdf.)