



**Dietitians Association of Australia, Tasmanian Branch**  
**Submission to Tasmanian Government's Green Paper**  
**Delivering Safe and Sustainable Clinical Services**  
**February 2015**

The Dietitians Association of Australia (DAA) is the national association of the dietetic profession with over 5800 members, and branches in each state and territory. DAA is a leader in nutrition and advocates for better food, better health, and wellbeing for all. The DAA, Tasmania Branch appreciates the opportunity to provide feedback on the Tasmanian Government's Green Paper - *Delivering Safe and Sustainable Clinical Services by the Department of Health and Human Services*.

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**DAA interest in this consultation**

The Dietitians Association of Australia is interested in providing input into the development of safe and sustainable clinical services in Tasmania.

Dietitians are highly trained health professionals who form an integral component of the health care team in the clinical, primary care, community and public health settings. Dietitians are also trained to make a valuable contribution to food service systems ensuring food meets the needs of patients.

The Dietitians Association of Australia is excited about the rebuilding of the Tasmanian Health System as it provides an opportunity to strengthen the care system through the provision of effective nutrition and dietetic services. The Dietitians Association of Australia understands that the focus of this paper is on health care services and that preventive

health services are being dealt with through a Parliamentary Inquiry into Preventive Health Services for which we have previously made a submission.

## Summary

- Dietitians (including public health nutritionists) provide a complex mix of specialised and discrete functions across the health system.
- Health services in Tasmania do not currently have the capacity to meet the needs of the population with respect to food and nutrition.
- In 2003 the Department of Health and Human Services undertook a project on Allied Health Professional Workforce Planning. The report on dietetics identified that:

*the supply of public sector dietetics services was severely limited and this was most significant in rural areas (DHHS, 2003)*

- Despite a slow and steady growth in nutrition and dietetics services since, Tasmania still has the lowest number of dietitians per head of population in Australia with just 13.5 dietitians per 100 000 people, compared to the 20.1 per 100 000 nationally (DAA, 2013).
- The shortfall in dietetic services affects all parts of the health system in Tasmania. However, it is of particular concern in the primary care sector where professional leadership and clinical governance is lacking. The limited publically funded services that do exist (including in the non-government sectors), are poorly coordinated and ad hoc.
- Additional investment in dietetic involvement in food service development in the acute care sector would significantly enhance the contribution of food services to patient care.
- An increase in dietetic services in Tasmania, at least to national levels, would contribute to an improvement in the nutritional status of patients throughout the health care system. This will lead to significant cost savings by reducing the burden of malnutrition that currently impacts not only chronic health conditions including diabetes, heart disease and cancer, but also wound care, cognitive function and falls risk in older patients.
- The Dietitians Association of Australia makes the following recommendations that need urgent attention:
  1. more acknowledgement of the specific role of nutrition and dietetic services are needed in the role delineation framework
  2. enhanced investment in dietetic clinical governance and leadership in the primary care sector is needed
  3. existing dietetic services in the acute sector, community nutrition and public health nutrition should be protected from budget cuts given the already limited services and the clear importance of nutrition in both health care services, and, in improving health and wellbeing

- Consideration should be given to a review of nutrition and dietetic services in the Tasmanian health care system to address current and emerging needs, gaps in service delivery and bench-marking with other jurisdictions.

## **About dietitians**

Dietitians (nutritionists) are the only health professionals specifically trained to apply the science of human nutrition to influence the eating behaviour of individuals, groups and communities, and select food to attain, maintain and promote health and to prevent and treat illness and disease.

Entry-level qualifications for the profession of dietetics are:

- a four-year undergraduate course in dietetics, or
- a two-year dietetic masters course following a three-year bachelor of science degree, or
- one to two year postgraduate diploma after studying a three-year bachelor degree in applied science.

Dietitians who are members of the Dietitians Association of Australia are eligible to apply for the Accredited Practising Dietitian Credential (APD) which is a public guarantee of nutrition and dietetic expertise. APDs undertake ongoing training and education to comply with the Dietitians Association of Australia's (DAA) guidelines for best practice. They are committed to the DAA Code of Professional Conduct and Code of Ethics and to providing quality service.

## **Dietitians in Tasmania**

In Tasmania dietitians (including public health nutritionists) are employed across the government, non-government, and community sectors in acute care, primary care, community nutrition and public health nutrition.

In 2003 the Department of Health and Human Services undertook a project on Allied Health Professional Workforce Planning. The report on dietetics identified that:

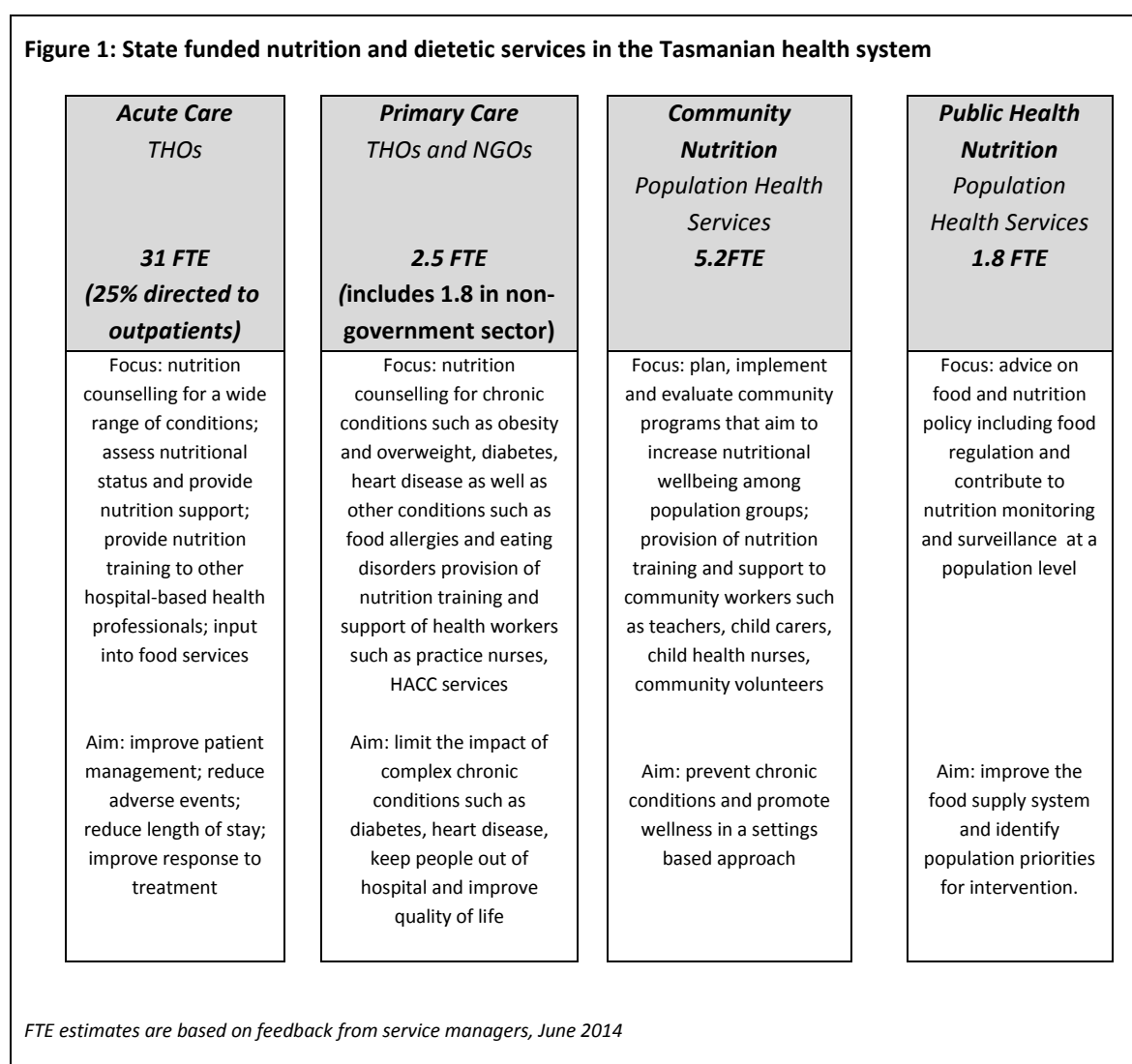
*the supply of public sector dietetics services was severely limited and this was most significant in rural areas. (DHHS, 2003)*

Despite a slow and steady growth in dietetics services since, Tasmania still has the lowest number of dietitians per head of population in Australia with just 13.5 dietitians per 100 000 people, compared to the 20.1 per 100 000 nationally. (DAA, 2013) The nature of the small professional group with huge demand has led to a supportive professional environment with good cooperation among the dietitians in Tasmania. As services have evolved they

have done so in order to complement one another across the health care system, avoiding duplication. Consideration has been given to low volume specialty areas such as metabolic diets and some patients travel interstate for rare nutrition interventions. However, with better state-wide coordination there may be sufficient volume to develop and maintain expertise in these areas.

Of particular concern is the very limited availability of dietetic services in the primary care sector and in rural areas. This impacts on Tasmanians' ability to reduce risk of chronic diseases such as diabetes, cardiovascular disease, renal, overweight and obesity, eating disorders, allergies, disability services, minimise the impact of malnutrition on falls and impaired health status in older people, and renders Tasmanians vulnerable to wide-spread and sometimes unscrupulous misinformation in relation to nutrition. Service gaps exist but vary between each region.

Dietitians provide a complex mix of high level and discrete, functions across the health system with clear focus and intended outcome (see Figure 1).



## Recommendations

**1. More acknowledgement of the specific role of nutrition and dietetic services are needed in the role delineation framework**

*Related consultation question: How well does the proposed framework align with practice in your discipline?*

Dietitians provide specialist nutrition management and support both to individuals and as part of multi-disciplinary teams across a range of acute care settings to support the health status and better outcomes for the Tasmanian community. A summary of the evidence of the cost effectiveness of dietitians in the acute care sector is summarised as an example of the effectiveness of dietitians in Appendix 1.

Dietetic professional practice is well aligned to the proposed framework, but is dependent on resource allocation.

The Green paper does not explain how allied health service requirements have been identified within the role delineation framework and there are inconsistencies across the specialities. For example, dietitians are correctly identified in level 3 for maternity services. They should also be recognised for their essential contribution to multidisciplinary care in endocrinology services (diabetes) for level 3 or upwards. Other examples that have been inconsistently specified in the Green Paper include a specific role for dietetic intervention in the areas of cancer services, and renal for which there are well developed evidenced-based practice guidelines (Bauer, J., et al, 2006; Isenring, E., et al, 2008; Ash, S., et al, 2006).

Acknowledging the contribution of dietitians, as well as other allied health professionals, in acute care settings in the role delineations framework enables a more robust and accurate description for opportunities to strengthen and streamline future service provision. To progress the planning process DAA supports consultation with service providers who are well versed in evidenced-based practice.

Food service provision is not mentioned in the role delineation framework. Food is integral to patient care and the development of standards related to hospital inpatient menus by some states and territories gives scope for improving food service provision to better meet patient needs and improve food service effectiveness. As trained nutrition experts with working knowledge of acute care nutrition needs, Dietitians are ideally placed to provide effective food service nutrition advice and guidance but current structures and resources limit the capacity to do this. Adequate resourcing for Dietitians to be involved in food service nutritional management, in conjunction with an appropriate information technology infrastructure, would enable hospital menu standards to be applied consistently across the state to manage menus to meet patients' needs. It is recommended that the role delineation framework include scope for enabling a consistent approach to ensuring adequate food service input by dietitians in Tasmania.

In relation to food services the Garling inquiry into acute care services in New South Wales public hospitals in 2008, heard that patients were 'starving' and the final report concluded:

*instead of treating food as part of the clinical aspect of a patient's stay; hospital administrators have treated it as an ancillary service (Garling, 2008)*

Six years on, throughout Australia these issues remain largely unresolved and

*patient nutrition is often an 'afterthought' in the hospital environment and greater recognition of nutrition issues among doctors is needed (MacKee, 2014)*

## **2. Enhance investment in dietetic clinical governance and leadership in the primary care sector.**

*Related consultation questions: Where are the gaps?; How do we promote and maintain safe primary and community care to consumers such that they seek out these services rather than attend Emergency Departments when their conditions are more advanced?*

The lack of primary care dietetic services in Tasmania is a long identified gap.

The only public dietetic services in Tasmania funded through the State Government include 1.8 FTE provided through the Diabetes Association of Tasmania COACH program through a funding agreement with the Department of Health and Human Services and 0.7 FTE provided through THO south. Additional limited dietetic services are funded by the Australian Government through programs such as the Medical Specialist Outreach Assistance Program (now TASreach) and Rural Primary Health Services.

An increasing body of evidence suggests that nutrition counselling, whether for weight loss, cancer prevention, or other health promotion purposes, is clinically effective and may be cost-effective as well. (Tsai AD, 2011). Services of this nature are more efficiently provided in the primary care setting rather than the acute care setting.

The Dietitians Association of Australia recommends the Tasmanian Health Service invest in a senior a clinical lead dietetics role in the primary care sector This purpose of this role would be to:

- to develop and maintain networks with nutrition service providers regardless of whether they be public/private or NGO sector
- to promote a high level of standards consistent with safe and efficient practices
- to ensure service gaps are well recognised and advise on where and how dietetic services are provided so services are timely and responsive to patient needs eg following diagnosis with diabetes or heart disease

- to communicate nutrition and dietetic service development needs to Tasmanian Health Service management
- to foster professional development of service providers including, up-skilling, research, collaboration between dietitians working in different settings and coordination of clinical placements for student dietitians.

**3. Existing dietetic services in the acute sector, community nutrition and public health nutrition should be protected from budget cuts given the already limited services and the evidence that clearly supports the importance of nutrition in health care provision and in improving health and wellbeing.**

Nutrition is fundamental to health and wellbeing and the prevention of a wide range of chronic diseases. Nutrition is critical to support healthy growth and development in children. Poor nutrition is a significant risk factor for chronic diseases including cardiovascular disease, diabetes as well as for a number of cancers.

The prevalence of overweight and obesity and related disorders is high and increasing (ABS, 2013) which has made them a national health priority area (NHMRC, 2013).

Malnutrition is common among older people living in the community and in aged care. This contributes to increased hospital admissions, increased length of stay during admissions, reduced wound healing, increased incidence of falls and many other chronic health conditions common in older age.

The Dietitians Association of Australia believes that current staffing levels in acute and community nutrition services fall short of requirements. Shifting staff to address the service gap the primary care sector would simply create service shortfalls in existing services.

Recruitment and retention of dietetic staff to Tasmania has been complicated by the lack of training for dietitians in Tasmania. Whilst recruiting to entry level positions has not been a problem in recent years the retention of more experienced staff can be challenging if establishment levels, particularly for more senior positions, are reduced.

In 2014 the Australian Government terminated the National Partnership Agreement on Preventive Health this has resulted in significant cuts (around 20%) to community dietetic services that focus on preventive health programs and upskilling other health professionals in nutrition (for example: practice nurses, general practitioners, child health nurses).

Of note is the recent cessation of a program directed to training practice nurses *Strengthening Nutrition in General Practice* and its associated resource manual *It takes more than an Apple a Day*. This cut is short-sighted and inconsistent with the intent of the Green paper which states there is a need for consideration of the education and training programs

that prepare and support (the health workforce). This cut is likely lead to an increased demand for dietetic services rather than building sustainable workforce models.

In 2013 the American Academy of dietetics reviewed the role of primary prevention in prevention of chronic conditions and came to the conclusion:

*that primary prevention is the most effective and affordable method to prevent chronic disease, and that dietary intervention positively impacts health outcomes across the life span. Registered dietitians and dietetic technicians are critical members of health care teams and are essential to delivering nutrition-focused preventive services in clinical and community settings, advocating for policy and programmatic initiatives, and leading research in disease prevention and health promotion. (J Acad Nutr Diet. 2013;113:972-979).*

### **About the Dietitians Association of Australia**

The Dietitians Association of Australia (DAA) represents the dietetic profession with over 5800 members constituting approximately 80 percent of the dietetic workforce in Australia.

Dietitians have been nationally organised since 1976. The organisation has a national office in Canberra, and branches in each state and territory.

DAA is responsible for the accreditation of training courses for dietitians in Australia. DAA has been specified by the Minister for Immigration and Citizenship as the assessing authority for the recognition of the education and skills of overseas trained dietitians. DAA has achieved mutual recognition with New Zealand and Canada.

Dietitians apply their skills and knowledge of nutrition and dietetics in diverse settings including hospitals, private practice, public health, community health, food service, food industry, research and teaching.



**Attachment 1: Evidence for effectiveness of dietetic services in the acute care setting as an example of evidence-based practice for dietitians.**

In the acute care setting there is significant evidence emerging on the effectiveness of nutrition support through dietetic services and evidence of potential cost savings.

The following evidence highlights the importance of having sufficient acute dietetic services.

- The prevalence of malnutrition in adults in Australian hospitals and sub-acute settings is estimated to be around 30% (Agarwal et al, 2012; Banks, 2007) which is similar to internationally reported data (Kaiser, 2010).
- The only published Australian multisite audit of hospitalised children reported rates of malnutrition -as determined by z-scores  $\leq -2$  for BMI for age- to be 15% with a further 13.8% of children wasted and 11.9% stunted. (White, 2014).
- There is convincing evidence that malnutrition significantly impacts morbidity and mortality. Malnutrition at least doubles the odds of pressure injury and having a more severe pressure injury (higher stage and/or a higher number) (Banks et al, 2010; Fry et al, 2010) and the risk of surgical site infection, catheter-associated urinary tract infections, and hospital-acquired infections (Correia et al, 2014; Tappenden et al, 2013).
- There is convincing evidence that malnutrition increases the odds of mortality both in-hospital and up to three years following discharge (Correia et al, 2014; Lim et al, 2012; Agarwal et al, 2013; Charlton et al, 2012; Charlton et al 2013).
- There is convincing evidence that malnutrition significantly increases length of hospital stay and unplanned readmissions in adults in both acute and sub-acute settings. (Correia et al, 2014; Lim et al, 2012; Agarwal et al, 2013; Charlton et al, 2012).
- Australian data showed that a significantly greater percentage of malnourished and 'at risk' patients were discharged to a higher level of care over 12 months compared with well nourished patients (Charlton et al 2013).
- International studies that assessed the additional health care costs of hospitalisation for patients diagnosed with malnutrition reported 24% higher costs after controlling for Diagnosis Related Grouping (DRG) in Singapore (Lim et al, 2012) and 20% in Portugal.(Amaral, 2007) A Spanish study also found significantly higher costs and length of stay for patients who developed malnutrition during their hospital stay (average length of stay 15.2 vs. 8.0 days,  $p < 0.001$ ) (Alvarez-Hernandez et al., 2012).
- Economic modelling identified that the most costly complication associated with poor nutritional status in acutely ill geriatric inpatients is acute respiratory infection, while the requirement for residential care placement contributes the most to overall long-term costs (Cangelosi et al, 2014).
- Australian data on hospital service utilisation of patients admitted to 45 Victorian public hospitals determined that after controlling for the underlying condition, malnutrition was estimated to add AU \$1,745 per admission based on 2003-4 costs (Rowell and

Jackson, 2011), while economic modelling to determine the cost of pressure injury attributable to malnutrition in Queensland public hospitals in 2003-4, predicted a mean of 16,060 bed days lost and corresponding mean economic cost of almost AU\$13million at the time (Banks et al, 2010).

- In Tasmania, the Home Nutrition Program, supports approximately 400 people in their homes with the aim of preventing emergency presentations and hospital admissions.
- The provision of adequate nutritional support via food service within hospitals and related services potentially saves millions of dollars. There is substantial evidence that malnutrition impacts length of stay, wound care and infection rates and falls risk. Expert dietetic input is inadequate currently in food service provision and contributes to increased costs.

**Table 1: Evidence of the cost effectiveness of dietitians in the acute care setting**

<i>Patient safety</i>	<ul style="list-style-type: none"> <li>• Dietitians help to avoid adverse events in situations like refeeding syndrome where metabolic and biochemical changes can lead to death after reintroduction of feeding after a period of starvation or high metabolic turnover. (Khan et al 2011)</li> <li>• Patients with allergies rely on accurate information about meals and snacks to prevent anaphylaxis. Many times we have discovered that Food Service have made changes to recipes and meals and the result is inadvertent presentation of allergen-containing foods to patients with allergies. Monitoring and analysis of meals and ingredients is ongoing to try to prevent this.</li> <li>• Dietitians are trained in microbiology and food safety and can support Food Service efforts to reduce risk of food safety. <i>Listeria sp.</i> is one of several serious pathogens that are a greater risk in cook-chill food production systems.</li> <li>• Choking risk is reduced by ensuring patients with swallowing difficulties are provided with the appropriate texture of food and fluids. Dietitians work with Food Service staff and Speech Pathologists to manage choking and aspiration risk.</li> </ul>
<i>Better response to treatment and better outcomes</i>	<ul style="list-style-type: none"> <li>• Poor nutrition undermines patient recovery and can reduce immune function, cardiac and pulmonary function, muscle strength and ability to mobilise. Nutrition support aims to reverse these effects.</li> <li>• Dietary manipulation can reduce discomfort that results from biochemical and physiologic changes in conditions like renal disease, gastrointestinal disorders and diabetes. Diet-responsive symptoms include nausea, vomiting, intestinal pain and bloating, itchiness, potassium-related tachycardia, irritability and faecal urgency.</li> <li>• Nutritional care of patients sets up a physiological foundation on which medical, surgical, pharmaceutical and therapeutic treatment can be more effective (AHRCC 2007).</li> <li>• Access to nutrition support improves ADL scores (Schurch et al 1998, Tidermark et al 2004).</li> <li>• Nutrition intervention enhances surgical recovery and outcomes of surgery by promoting tissue repair, enhancing immune response and reducing risk of postoperative complications. In one study preoperative immunonutrition reduced total hospitalisation costs by approximately 50% in surgical patients (Braga and Gianotti, 2005).</li> <li>▪ Poor nutrition results in reduced cardiac and pulmonary function, reduce muscle strength and ability to mobilize, reduced immune function</li> <li>▪ Clear association between malnutrition and falls risk</li> </ul>
<i>Reduced length of stay</i>	<ul style="list-style-type: none"> <li>• LOS is increased by 30%-100% in pts who are malnourished compared to well-nourished patients (2008 BAPEN)</li> <li>• At RHH 40% of patients are malnourished (audits 2002, 2010, 2014)</li> <li>• Charlton et al (2010) report that malnourished and nutritionally at risk patients remain in hospital an average 18.5 days compared to 12.4 days for well-nourished matched patients.</li> <li>• Recognising the negative impact of malnutrition, casemix funding assigns additional complexity weightings to 40% of patients identified as malnourished.</li> </ul>
<i>Successful discharge</i>	<ul style="list-style-type: none"> <li>• Malnourished patients are more likely to be discharged to residential care rather than home.</li> <li>• Dietitians in THOS facilitate rapid discharge by setting patients up with home nutrition support and when risk of nutritional deterioration is identified.</li> </ul>
<i>Reduced Re-</i>	<ul style="list-style-type: none"> <li>• Malnourished patients are almost twice as likely to be re-admitted within 15 days of discharge (Lim et al 2012).</li> </ul>

<i>admission rates</i>	<ul style="list-style-type: none"> <li>Norman et al (2008) report a significant reduction in readmission rates from 48% to 26% when nutrition support is initiated at discharge, and sustained.</li> <li>Poor nutrition increases risk of falls.</li> <li>Based on this evidence, the Home Nutrition Program aims to prevent readmission by supporting at risk people to maintain adequate nutrition at home. There are currently 262 patients being supported in their homes.</li> </ul>
<i>Reduced complications</i>	<ul style="list-style-type: none"> <li>At RHH 40% of occupied bed days (OBD) are attributed to patients whose admissions are &gt;14 days. Nutritional deterioration and unintentional loss of weight are associated with increasing length of hospitalisation.</li> <li>25% of older hospital patients become malnourished during admission</li> <li>Pressure ulcers are twice as likely to develop when patients are malnourished. They increase LOS by an average 4.3 days but nutrition support has been shown to reduce the incidence in at-risk patients by 25% (Crowe and Brockbank 2009).</li> <li>Nutrition support is a key arm in management of wound breakdown, pressure ulcers, and blood glucose control.</li> </ul>
<i>Reduced cost of care</i>	<ul style="list-style-type: none"> <li>Malnourished patients show increased costs during admission and reducing malnutrition shows a 16% reduction in costs linked to DALY (disability adjusted life years) (Corraiea &amp; Waitzberg 2003)</li> <li>Nutritional intervention in malnourished patients results in approximately \$8300 cost savings per bed per year (Tucker 1996) through reduced complications and LOS.</li> <li>270 patients at RHH were identified as malnourished in five months in 2014. Based on the evidence, adequate dietetic intervention in these patients would have resulted in considerable cost savings to the hospital.</li> <li>Food based prevention of constipation in hospital saves costs of medications and reduces nursing time spent dealing with constipation.</li> </ul>
<i>Improved quality of life</i>	<ul style="list-style-type: none"> <li>Nutrition support improves quality of life, independence and overall health, particularly in older adults (Armarantos, 2001, Krondl et al 1999, Gabriballa &amp; Forster 2007).</li> </ul>
<i>Legal risk</i>	<ul style="list-style-type: none"> <li>In the UK nutritional negligence in hospitals now has status equal to medication incidents</li> <li>The Garling Report (2008) criticised NSW hospitals for not managing patient meals as a clinical service</li> <li>Hospitals are at risk of litigation relating to allergy, choking, food poisoning and incorrect diets. Dietitians help to manage these risks.</li> </ul>

## References

- Agarwal, E., et al., Malnutrition and poor food intake are associated with prolonged hospital stay, frequent readmissions, and greater in-hospital mortality: results from the Nutrition Care Day Survey 2010. Clin Nutr, 2013. 32(5): p. 737-45.
- Agarwal, E., et al., Nutritional status and dietary intake of acute care patients: results from the Nutrition Care Day Survey 2010. Clin Nutr, 2012. 31(1): p. 41-7.
- Allied Health in Rehabilitation Consultative Committee. Guidelines for Allied Health – Resources required for the provision of Quality Rehabilitation Services. 2007; Version 10
- Alvarez-Hernandez, J., et al., Prevalence and costs of malnutrition in hospitalized patients; the PREDyCES Study. Nutr Hosp, 2012. 27(4): p. 1049-59.
- Amaral, T.F., et al., The economic impact of disease-related malnutrition at hospital admission. Clin Nutr, 2007. 26(6): p. 778-84.
- Amarantos E, Martinez A, Dwyer J. Nutrition and quality of life in older adults. The Journals of Gerontology: Series A: Biological Sciences and Medical Sciences; 2001; 56(A):54-64
- Ash, S., et al., Evidence Based Practice Guidelines for Nutritional Management of Chronic Kidney Disease. Nutrition & Dietetics, 2006. 63:p. S33-S45.
- Australian Bureau of Statistics, 4338.0 - Profiles of Health, Australia, 2011-13. 2013
- Banks, M., et al., Malnutrition and pressure ulcer risk in adults in Australian health care facilities. Nutrition, 2010. 26(9): p. 896-901.
- Banks, M., et al., Prevalence of malnutrition in adults in Queensland public hospitals and residential aged care facilities. Nutrition & Dietetics, 2007. 64(3): p. 172-178.

- Banks, M.D., et al., The costs arising from pressure ulcers attributable to malnutrition. *Clinical Nutrition*, 2010. 29(2): p. 180-186.
- Bauer, J., et al., Evidence based practice guidelines for the nutritional management of cancer cachexia. *Nutrition & Dietetics*, 2006. 63: pS3-S32.
- Braga M, Gianotti L. Preoperative immunonutrition: cost-benefit analysis. *Journal of Parenteral Nutrition*. 2005; 29: S57-61
- Cangelosi, M.J., et al., Evaluation of the economic burden of diseases associated with poor nutrition status. *JPEN J Parenter Enteral Nutr*, 2014. 38(2 Suppl): p. 35S-41S.
- Charlton KE, Nichols C, Bowden S et al. Older rehabilitation patients at high risk of malnutrition: Evidence from a large Australian database. *Journal of Nutrition and Healthy Aging*. 2010; 14:622-8.
- Charlton, K., et al., Poor nutritional status of older subacute patients predicts clinical outcomes and mortality at 18 months of follow-up. *Eur J Clin Nutr*, 2012. 66(11): p. 1224-8.
- Charlton, K.E., et al., A high prevalence of malnutrition in acute geriatric patients predicts adverse clinical outcomes and mortality within 12 months. *e-SPEN Journal*, 2013. 8(3): p. e120-e125.
- Correia M, Waitzberg DL The impact of malnutrition on morbidity, mortality, length of hospital stay and costs evaluated through a multivariate model analysis *Clin Nutr* 2003
- Correia, M.I., et al., Evidence-based recommendations for addressing malnutrition in health care: an updated strategy from the feedM.E. Global Study Group. *J Am Med Dir Assoc*, 2014. 15(8): p. 544-50.
- Crowe T and Brockbank C. Nutrition therapy in the prevention and treatment of pressure ulcers. *Wound Practice and Research*. 2009; 17:90-99
- Dietitians Association of Australia. DAA Workforce Area Statistics: DAA. 2013
- Fry, D.E., et al., Patient characteristics and the occurrence of never events. *Arch Surg*, 2010. 145(2): p. 148-51.
- Gariballa, S, Forster, S. Dietary supplementation and quality of life of older patients: a randomized, double-blind, placebo-controlled trial. *Journal of American Geriatric Society*. 2007; 55:2030–2034.
- Garling P Final Report of the Special Commission of Inquiry – Acute Care Services in NSW Public Hospitals State of NSW 2008
- Guest, J.F., et al., Health economic impact of managing patients following a community-based diagnosis of malnutrition in the UK. *Clinical Nutrition*, 2011. 30(4): p. 422-429.
- Isenring, E., et al., Evidence based practice guidelines for the nutritional management of patients receiving radiation therapy. *Nutrition & Dietetics*, 2008. 65: p1-20.
- J Acad Nutr Diet*. 2013;113:972-979
- Khan LUR, Ahmed J, Khan S, and MacFie J. Refeeding Syndrome: A literature review. *Gastroenterology Research and Practice* 2011
- Kronl, M, Coleman, PH, Bradley, CL, Lau, D, Ryan, N. Subjectively healthy elderly consuming a liquid nutrition supplement maintained body mass index and improved some nutritional parameters and perceived well-being. *Journal of American Dietetic Association*; 1999; 99: 1542–1548
- Lim SL, Ong KCB, Chan YH, Loke WC, Ferguson M, and Daniels L. Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. *Clinical Nutrition* 2012; 3: 345-350
- MacKee, N., Hospital nutrition still neglected. *MJA Insight*, 2014(10 June, 2014)
- National Health and Medical Research Council, Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia. 2013
- Norman K, Kirchner, H, Freudenreich M, Ockenga J, Lochs H, Pirlich, M. Three months intervention with protein and energy rich supplements improve muscle function and quality of life in malnourished patients with non – neoplastic gastrointestinal disease – a randomized controlled trial. 2008; *Clinical Nutrition*; 27: 48-56.

Powell-Tuck J (Chair) Organisation of Food and Nutritional Support in Hospitals BAPEN 2008

Rowell, D.S. and T.J. Jackson, Additional costs of inpatient malnutrition, Victoria, Australia, 2003-2004. The European Journal Of Health Economics: HEPAC: Health Economics In Prevention And Care, 2011. 12(4): p. 353-361.

Schurch MA, Rizzoli R, Slosman D, Vadas L, Vergnaud P, Bonjour, JP. Protein supplements increase serum insulin-like growth factor-I levels and attenuate proximal femur bone loss in patients with recent hip fracture: a randomized, double-blind, placebo-controlled trial. Annual Internal Medicine. 1998; 128: 801–809.

Tappenden, K.A., et al., Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition. JPEN Journal of Parenteral & Enteral Nutrition, 2013. 37(4): p. 482-497.

Tsai AD. A Quality-Adjusted Life Year of Prevention: The Cost-Effectiveness of Nutrition Counseling. JAMA 2011; 111: 53-55).

Tasmanian Department of Health and Human Services. Allied Health Professional Workforce Planning Project – Dietetics information. 2003

Tidermark J, Ponzer, S, Carlsson, P, Soderqvist, A, Brismar, K, Tengstrand, B, Cederholm Effects of protein-rich supplementation and nandrolone in lean elderly women with femoral neck fractures. Clinical Nutrition. 2004; 23, 587–596

Tucker HN and Miguel SG. Cost containment through nutritional intervention. Nutrition Review 1996; 54: 111-21

White, J.V., et al., Consensus statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: characteristics recommended for the identification and documentation of adult malnutrition (undernutrition). JPEN J Parenter Enteral Nutr, 2012. 36(3): p. 275-83.

