



**ACI** NSW Agency  
for Clinical  
Innovation

# Nutrition Standards **FOR CONSUMERS OF INPATIENT MENTAL HEALTH SERVICES IN NSW**



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# FOREWORD

The ACI Nutrition in Hospitals Committee, under the auspices of the Nutrition and Food Committee of NSW Health, has developed a suite of nutrition standards and therapeutic diet specifications for adult and paediatric inpatients in NSW hospitals. These standards form part of a framework for improving nutrition and food in hospitals and include:

1. *Nutrition standards for adult inpatients in NSW hospitals*
2. *Nutrition standards for paediatric inpatients in NSW hospitals*
3. *Therapeutic diet specifications for adult inpatients*
4. *Therapeutic diet specifications for paediatric inpatients*

In November 2011, the ACI established the Nutrition and Mental Health Working Group after clinicians working in mental health facilities and longer stay units identified a number of challenges when attempting to implement the adult inpatient nutrition standards. This was largely due to the unique clinical and social needs of people admitted to mental health facilities or long stay units. The working group includes dietitians, nurses, speech pathologists, occupational therapists, pharmacists, academics, food service professionals, Official Visitors and consumer advocates. The working group recognised the need for specific nutrition standards for people admitted to mental health facilities and commenced work on this document.

In February 2013, the ACI commissioned Peter Williams, Professor of Nutrition and Dietetics, University of Canberra, to complete the *Nutrition Standards for Consumers of Inpatient Mental Health Services in NSW*. These Standards aim to ensure that menus in inpatient mental health facilities provide the opportunity for people to select food that satisfies their nutrient requirements and supports their recovery. They provide a sound nutritional basis for the development of the standard menu and include overarching principles that support a person-centred food and nutrition service.

The *Nutrition Standards for Consumers of Inpatient Mental Health Services in NSW* were informed by a qualitative review conducted by members of the Official Visitors Program that obtained the views of consumers and staff from inpatient mental health facilities across NSW.

Some of the most significant new features of these Standards, which differ from the general standards for adult inpatients, are:

- Inclusion of a referenced summary of the major nutrition issues of particular relevance to people with mental illness
- New standards to define the minimum variety to be offered on menus
- A standard for the maximum time between supper and the breakfast meal service
- Additional goals for the magnesium and long chain n-3 fatty acids content of menus
- Requirements to provide more high fibre bread and breakfast cereal options and foods with a low glycaemic index at each meal
- Limits to the energy content of main menu items and mid-meal snacks
- Advice on the availability of caffeinated beverages in mental health facilities.

The *Nutrition Standards for Consumers of Inpatient Mental Health Services in NSW* provide an important reference for the multidisciplinary teams providing food and nutrition services in mental health facilities across the state. It is expected that this will support quality of care, along with efficiency in delivering nutrition and food services. The document will provide a valuable benchmark for other services.

On behalf of the ACI, I thank Peter Williams, the members of the ACI Nutrition and Mental Health Working Group led by Jan Plain and Meg Vickery and the Nutrition in Hospitals Committee, co-chaired by Helen Jackson, for their dedication and expertise in developing these Nutrition Standards.



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# PART A

## INTRODUCTION

### 1. Introduction to the Nutrition Standards for Consumers of Inpatient Mental Health Services in NSW

Food served to people in hospital is an important factor that influences both their clinical outcomes and satisfaction with their hospital stay.<sup>1-3</sup> Good quality food and fluids are basic requirements in effectively meeting the nutrition needs of people in hospital. Consumers expect hospitals to serve food that is good for them.<sup>4</sup>

These Standards have been developed in response to the recognition that consumers of inpatient mental health services are a unique and varied group with needs that may be different from the general hospital population. The physical health status of people with mental illness is recognised as being poor.<sup>5</sup> Those with mental illnesses are dying up to 32 years earlier than the rest of the population due to preventable physical health/lifestyle related issues.<sup>6-8</sup> The National Mental Health Commission has recommended that all governments work together to reduce early death and improve the physical health of people with mental illness. In particular it recommends that *“the initial focus must be on rapidly reducing cardiovascular risk factors such as smoking and poor diet, and by increasing physical activity”*.<sup>6</sup>

The NSW Policy Directive on Physical Care Within Mental Health Services states that *“Mental health consumers are entitled to quality, evidence based care and treatment in all aspects of their health, including their physical health”*.<sup>5</sup> These Nutrition Standards are designed to ensure that the food provided in mental health facilities supports good physical and mental health. They also support the philosophy of the Essentials of Care evaluation framework, which focuses on the “essential” components of person-centred care and seeks to promote the participation of clinicians at ward/unit level.<sup>9</sup>

The *Nutrition Standards for Consumers of Inpatient Mental Health Services in NSW* complements and should be used in conjunction with the following documents:

- Nutrition Standards for Adult Inpatients in NSW Hospitals<sup>10</sup>
- Nutrition Standards for Paediatric Inpatients in NSW Hospitals<sup>11</sup>
- Therapeutic Diet Specifications for Adult Inpatients<sup>12</sup>
- Therapeutic Diet Specifications for Paediatric Inpatients.<sup>13</sup>

#### 1.1 Who these Standards are for

Throughout this document, the term “facilities” is meant to include dedicated mental health facilities as well as mental health units or wards within general acute and sub-acute hospitals.

The term “consumer” is used throughout these Standards in recognition of the importance of recovery-promoting language.<sup>14</sup> However in some places the term “inpatient” is still used to distinguish services provided to consumers within facilities, as opposed to those in “outpatient” services.

The standards in this document are designed to be used by food service, dietetic and nursing staff, and contract managers in mental health facilities. The Standards are appropriate for most adults and older adolescents in mental health facilities, including those who are overweight/obese or nutritionally at-risk, due to over- or under-nutrition. They may also be relevant for people in other long-stay settings such as those with spinal injuries and or with brain damage. They are not designed for use with children or young adolescents, for whom the *Nutrition Standards for Paediatric Inpatients in NSW Hospitals* will be more appropriate.<sup>11</sup>

Many of the standards will also not be appropriate for people with anorexia nervosa and other types of eating disorders (See Part C).

NSW Health accepts its responsibility to provide excellent nutritional care and support to all inpatients and to meet their individual nutritional requirements. These Standards, which deal only with the menu and food choices, form part of a range of policies to ensure individuals' nutritional needs are met while they are in hospital. An overarching nutrition care policy has been developed for NSW Health facilities (Nutrition Care Policy PD 2011\_078).<sup>15</sup> All aspects of this policy apply to the mental health setting including: nutrition risk screening; nutrition assessment; nutritional care planning; planning and delivery of foods and fluids; the mealtime environment; assistance to eat and drink; staff training and education; and patient monitoring.<sup>5</sup>

## 1.2 Overarching principles

These Standards apply to all situations where food is provided to people who are admitted to mental health facilities. This includes not only main meals and midmeals but also special occasions such as barbeques, rehabilitation cooking programs, food prepared in activity of daily living kitchens, lunch packs for those on day leave, and independent living situations. The following principles underpin a person-centred menu and meal service. While the specific nutrient goals outlined in these Standards may not apply to some therapeutic diets, most of the overarching principles will still apply.

1. NSW Health acknowledges a duty of care to ensure access to safe, appropriate and adequate food and fluid as an essential component of care and treatment. This is particularly important for people who are admitted involuntarily and whose mental health issues mean that they may require assistance to make sound nutritional decisions.
2. The menu will offer food choices that are appetising, appealing and enjoyable. This will assist individuals to meet their nutritional requirements and accommodate psychosocial, cultural and religious preferences.
3. Menu design will be based on the needs of the consumers of the inpatient mental health facility, and will apply best-practice principles in menu planning, taking into account the length of stay and the priority goal of normalising eating, whilst also being consistent with current nutrition and health promotion guidelines.

4. Variety with respect to food colour, texture, taste, aroma and appearance will be offered within a meal, over each day and throughout the full menu cycle.
5. The menu design and choices offered will maximise opportunities for consumers to choose at least the minimum number of serves from each of the main food groups recommended in the Australian Dietary Guidelines (ADG).<sup>16</sup>
6. The National Health and Medical Research Council's (NHMRC) *Nutrient Reference Values (NRV) for Australia and New Zealand* will be the basis for developing menu standards that are adequate in nourishment and hydration.<sup>17</sup> Menus should provide sufficient food and beverages to enable all consumers to at least meet their Recommended Dietary Intake (RDI) targets.
7. The meal service will enable access to adequate quantities of appropriate foods and fluids to meet the individuals' nutritional needs and to ensure satiety. Adequate food needs to be available 24 hours a day.
8. Where possible, a person's nutritional requirements should be provided from food. Oral supplements should not substitute for, or be relied on to ensure, the provision of adequate food and fluid unless there are clear clinical indicators.
9. The effectiveness and usefulness of these Standards will be reviewed and evaluated on a regular basis as part of a commitment to continuous service improvement and will include consumer consultation.

## 1.3 Overall goal

People in NSW mental health facilities and in mental health units/wards within general hospitals will be provided with safe, nutritious and appetising high-quality meals of sufficient variety to meet their needs and expectations, and which offer a model of best nutritional practice.

## 1.4 Aim and expected outcomes

These Standards aim to ensure that hospital menus allow people admitted to mental health facilities or their carers to select food that meets the person's nutrient requirements and enhances their experience in hospital, thus meeting psychosocial requirements in respect to food. They do this by:

1. providing a sound nutritional basis for the standard hospital menu, and
2. establishing overarching principles that ensure a person-centred food and nutrition service.

Person-centred care is recognised as an important dimension of high quality health care, which treats each person respectfully as an individual, not as a condition to be treated. It involves not just the person, but also their families, carers and supporters.<sup>18</sup>

It is expected that each public mental health facility in NSW will offer:

- a menu that meets these Standards and takes into account the opinions of consumers in relation to food presentation, appearance and taste
- a food service system that meets the needs of people with mental illness, with respect to:
  - a person-centred recovery based model that aims to normalise eating experiences
  - the individual physical, nutritional and psychosocial needs of people with a mental illness
- food choices and variety that are similar to those provided to general adult patients within the same facility.

## 1.5 Profile of people admitted to inpatient mental health facilities

There is a broad range of people in NSW public acute, sub-acute and rehabilitation mental health facilities. This includes children and adolescents, adults, and older people. Some people admitted to mental health facilities have a long length of stay (LOS) and come from diverse

cultural backgrounds which need to be considered when planning menus.

In 2009-10:<sup>19</sup>

- There were 2636 mental health beds in public hospitals in NSW
- There were 31352 overnight separations – two-thirds in mental health units within general hospitals and one-third in stand-alone psychiatric facilities
- The majority of people were aged between 25 and 54 years old (63%), with 18% over 55 years old
- The gender split was almost equal (48% female; 52% male)
- The Aboriginal and Torres Strait Islander population were represented at a higher rate in mental health beds: 7% as compared with 2% in general hospital beds
- The LOS in mental health facilities was longer than for general hospital admissions. The average for adult acute admissions in mental health facilities was 14 days (2-74), with adult non-acute stays averaging 126 days (26-507).

### 1.5.1 The health of people in mental health facilities

People admitted to mental health facilities represent a diverse population. Diagnoses may include: psychotic disorders, major affective disorders, other mental health issues, substance misuse, eating disorders, mood disorders, physical health problems and behavioural disturbances. Additionally some people may have other coexisting physical health problems and/or an intellectual disability. Moreover, trauma is a major factor affecting many people who are admitted to mental health facilities.

In Australia, people with diagnosed mental illness have been found to have significant problems with concomitant physical illnesses and disability.<sup>20, 21</sup> The need to improve their physical health, including their nutritional wellbeing, is recognised in the professional literature<sup>22-27</sup> and government policies.<sup>5, 15</sup>

People with mental illness are more likely to have serious physical co-morbidities than the general population.<sup>28</sup>

The incidence of all the following conditions is higher in people with mental illness, and more detail on each of these nutrition-related conditions is provided in Appendix 1:

- Obesity
- Malnutrition
- Metabolic Syndrome
- Pre-diabetes and Diabetes Mellitus
- Disordered eating
- Cardiovascular disease (CVD)
- Constipation
- Dysphagia
- Fast eating syndrome
- Osteoporosis
- Psychogenic polydipsia
- Dental disease
- Coeliac disease.

## 1.5.2 Factors which impact on nutritional status

These problems are more prevalent in people with mental health issues due to an intricate interaction between a variety of causes: the mental illness itself, food choices, medications, lifestyle behaviours, alteration in cognitive function, behavioural problems and poor social determinants.

### Effects of common psychotropic medications

- The appetite stimulating effects of some psychotropic medications is well documented<sup>29, 30</sup> and several studies have demonstrated the effect in Australians taking these medications<sup>31, 32</sup> including significant and enduring weight gain.
- Hyperlipidemia is often an early metabolic response to some antipsychotic medications and the rates of metabolic disorder and general cardiovascular risks are high in those taking antipsychotics.<sup>7, 29</sup> Choice of psychotropic medication and regular monitoring may help reduce some of this risk.<sup>33</sup>

- Psychotropic medications can increase the risk of developing diabetes,<sup>7</sup> usually within the first six months of treatment.<sup>34, 35</sup> However, the observation of relatively high rates of insulin resistance and diabetes in people with schizophrenia predates the discovery and widespread use of antipsychotics, and therefore medication effects are not the only cause.
- Constipation is a common side effect of many psychotropic medications.<sup>25</sup>
- As many as 80% of people on clozapine (and other psychotropics) experience sialorrhoea (hypersalivation),<sup>36</sup> and this may impact normal eating, increase fluid requirements, and can be a risk for choking.
- Lethargy and amotivation are also common side effects.<sup>33</sup>

### Food choices/food habits

People with mental illness often demonstrate unhealthy eating patterns compared to the general population, which can predispose them to poor nutritional status before admission.<sup>21, 37-40</sup>

Some of the identified behaviours include:

- Consuming only one meal per day
- Consuming high fat & high saturated fat diets
- Consuming high sucrose & sweetened drinks
- Consuming low fibre diets
- More likely to add salt to food
- More likely to report never eating fruit & vegetables
- More likely to report eating fast food, salty snacks and sweets everyday
- Food hoarding
- Older people may also have difficulty eating and or feeding themselves
- People with depression may have limited interest in food, be easily distracted, have decreased appetite, poor concentration, psychomotor retardation, limited communication ability, and experience the anorexic effects of anti-depressants
- People diagnosed with schizophrenia have altered hedonic judgment about food, which can affect food preferences and enjoyment
- People with eating disorders may typically restrict, refuse, binge or purge food.

## Health care behaviours

Physical inactivity is extremely common in people with psychosis and depression.<sup>29</sup> Lower levels of physical activity in hospital are due to reduced opportunities for exercise<sup>41</sup> and a number of other factors: sedation, neuroleptic-induced cognitive deficits, social withdrawal, boredom and inadequate social stimuli.<sup>29</sup> Environmental restrictions in some mental health units, which effect exercise and energy expenditure, can also be exacerbated by secure ward environments and limited leave allowance.

## Trauma

The effects of trauma, such as sensory issues, hyper-arousal, being easily startled and feelings of numbness can effect and alter appetite and eating.<sup>42</sup> Among people with eating disorders, those who have a history of sexual abuse (up to 50%) report more severe psychiatric disturbances of an obsessive and phobic nature.<sup>43</sup>

## High-risk behaviours

People with a mental illness are more likely to engage in the following high-risk behaviours:

- **Drug and alcohol misuse:** People with mental illness are more likely to have drug and alcohol issues.<sup>44</sup> Misuse of drugs accelerates nutritional needs beyond normal, so that even a well-balanced diet may be inadequate.<sup>45</sup> Eating disorders are particularly common in women with chemical dependency.<sup>46</sup>
- **Smoking:** There is a higher prevalence of smoking in those with mental illness.<sup>41, 47</sup> People with schizophrenia are two to three times more likely to smoke<sup>7</sup> and rates of up to 62% have been reported.<sup>48</sup> Smokers tend to have poorer quality diets than non-smokers.<sup>49</sup> In addition to the direct effect of tobacco on nutritional intake, it can have the effect of directing money away from the purchase of food.
- **Caffeine overconsumption:** Consumers of mental health services have a higher intake of caffeine, on average, than the general population.<sup>50, 51</sup> People with schizophrenia are twice as likely as controls to consume more than 200 mg caffeine/day.<sup>33</sup> People with eating disorders often misuse caffeine.<sup>52</sup> See Appendix 2 for more details on management of caffeine in mental health facilities.

## Psychosocial and behavioural issues

- Motivational anhedonia or amotivation is commonly observed. People with serious mental illness often have symptoms of depression and emotional withdrawal, which contributes to their limited motivation for positive health behaviours and attend to health problems.<sup>41</sup>
- Depression can also lead to overeating and comfort eating.<sup>53</sup>
- Other examples include behavioural issues related to mood/aggression and addictive behaviours, Behavioural and Psychological Symptoms of Dementia (BPSD) and Obsessive and Compulsive Disorder (OCD).

## Cognition

- Cognitive impairment in schizophrenia is considered a core feature of the illness and there is broad literature on cognitive impairment in other mental illnesses.<sup>54</sup>
- Cognitive deficits often include impairments in memory, attention, and executive functions. They relate to difficulties in areas such as orientation to day and time, ability to use a calendar, ability to learn new skills, recall information, be organised, solve problems, understand secondary consequences of actions, ask for help, or anticipate unseen hazards.<sup>55-57</sup> These impairments are relatively stable across the lifespan and are known to contribute to poor functional outcomes.<sup>54, 55</sup>
- In people who are diagnosed with schizophrenia, at some cognitive levels the capacity for abstract thought is also impaired.<sup>57</sup> This accounts for an inability (often misnamed as 'poor insight' or 'non-compliance') to understand diagnoses that are not visible to the eye, such as their own mental health diagnosis, as well as intangible diagnoses such as Diabetes Mellitus, high cholesterol, or cardiac disease. Consequently, people with mental illness may not follow weight management or dietary requirements. This may not be because they don't want to, but because their cognitive difficulties impact on their ability to follow such recommendations.
- General communication difficulties can impact on a number of areas of daily life, which may include food intake and choices.

## Social determinants

- Low income and greater social deprivation experienced by those with ongoing mental illness may contribute further to poor physical health.<sup>37</sup> People with mental illness are more likely to be unemployed, socially isolated, have lower socioeconomic status and be less educated than the general population.<sup>44</sup>
- Food insecurity is a major issue for people with mental illness. Some studies show that nearly half of those individuals in psychiatric emergency units lacked food security. Food insecurity is associated with higher levels of stress, social isolation, eating disorders, social exclusion, distress, depression and suicidal tendencies. Those who experience food insecurity are more likely to have multiple ongoing conditions (heart disease, diabetes, obesity, hypertension and impaired ability to work and learn).<sup>42</sup>
- Poor knowledge and skills related to shopping, food preparation and budgeting.

## Environmental factors

Studies have shown that in mental health facilities there are a number of factors that contribute to the high prevalence of obesity and obesity-related diseases. These include: increased energy intake, easy access to high-energy snacks and beverages (e.g., through the presence of highly visible vending machines), lack of access to drinking fountains, and reduced energy expenditure from restricted opportunities for physical activity.<sup>58</sup> Buffet-style food services may also facilitate over consumption of high energy foods.<sup>59</sup>

## 1.6 Food services

Food service systems within mental health facilities include bulk order, cook-chill, centralised, and consumer-based preparation. Food services are provided by a variety of public and/or private providers. Unlike other hospital units, people in mental health units may not have food served to them in bed, but often have communal eating in shared dining rooms. In addition, mental health facilities may limit the use of portion control packaging to provide a more home-like environment, but this can provide challenges in managing the amount of food that people are served and consume.

Usual preferences may not be easily catered for and the requirement to comply with national food standards of *'Food Safety for Vulnerable Population – Standard 3.3.1'*<sup>60</sup>

restrict food options available to all hospital inpatients. This can lead to reliance on outside food. Unlike acute hospital settings, it is common for people in mental health facilities to be occasionally supported to obtain food from sources additional to that provided by the facility, in an effort to provide them with a less institutional living environment. People in mental health facilities often have access to food from vending machines, local shops and restaurant food ordered for delivery (e.g. pizzas).

Many of these 'discretionary choices' are not an essential or necessary part of a healthy dietary pattern. 'Discretionary foods' can be high in kilojoules, saturated fat, added sugars or added salt. Ideally, they should only be eaten sometimes and in small amounts.<sup>16</sup> Facilities need to develop policies and procedures to ensure the occasional consumption of less healthy food from outside sources is balanced by the person's usual meals, so that the duty of care to provide appropriate nutrition is not compromised.

People in mental health facilities may also receive food prepared by their family, especially when the usual menu selection does not offer culturally familiar food choices. These foods can provide comfort and help to encourage people to eat when they otherwise may be reluctant to.

Hospital routines may also affect a person's food intake. Issues such as a lack of flexibility with meal times and lack of appropriate food and snack choices can impact on nutritional status. People may also require access to food at non-meal times. Some hospitals admit patients 24 hours a day and they need to have access to appropriate food that complies with food safety standards at all times.

The menu should aim to ensure that the environment is as normalised as possible. Meals should be appetising and culturally appropriate, with variety and flexibility to reflect the characteristics and demographics of the people admitted to the mental health facility as well as their length of stay. In addition, people in mental health facilities frequently have irregular eating patterns, so nourishing snacks and finger foods can help to allow adequate food intake.

The nutritional needs of people admitted to mental health facilities will often be met by a contract between the hospital and an external food service supplier. In such cases there should be sufficient flexibility in the contract to meet the varying needs of individuals as well as the general requirements in these Standards.

## 1.7 Implementation and evaluation of these Standards

### Implementation

Implementation of these Standards requires input from all key stakeholders including facility managers, clinicians (dietitians, speech pathology, occupational therapy, nursing, medical staff), people with lived experience of admission to mental health facilities, their families and carers and food service providers.

The Standards provide a common framework in which individual facilities can plan their menus, based on the needs of their consumers, individual preferences, food service systems and food supplies. They can also be useful in setting specifications and monitoring the performance of contract suppliers. However there are many important issues relating to meal service that can only be determined at a local facility level, taking account of local consumer opinions.

In addition to implementing these Standards, it is essential that each facility develops its own policies or guidance documents to support implementation and help address other concerns related to food provision. These may include:

- Systems for meal selection
- Length of menu cycle and number of choices to be provided
- Meal service times
- Service of meals to people who arrive late for meals
- Provision of extra helpings
- Ways to support people on energy-restricted diets who are hungry
- Access to food in vending machines, and the types of food available in them
- Food provided at barbecues and activity of daily living kitchens
- Delivery of meals bought from external sources, e.g., local shops and restaurants
- Provision of food by relatives and friends
- Nutrition screening and referrals to dietitians.

### Evaluation

Evaluation of the Nutrition Standards will determine if their overall goals have been achieved. Evaluation will involve a number of strategies including stakeholder satisfaction and the impact of the Nutrition Standards on service provision. Obtaining feedback from clinicians, consumers/ carers, food service providers and managers is essential.

The ACI Nutrition Standards and Therapeutic Diet Specifications Reference Group was established to ensure the suite of documents remain evidenced-based and reflect best practice in food service and clinical nutrition care. This group will oversee the review process for the *Nutrition Standards for Consumers of Inpatient Mental Health Services in NSW*.

## 2. Nutrition care requirements

People with mental health issues are a varied and diverse group and as such have a range of nutritional needs. Some people are generally physically well, with good appetites, but are at risk of nutritional decline due to a number of factors.

### 2.1 Over-nutrition

This is generated by excessive hunger and sedentary behaviours which are key drivers for over-nutrition leading to rapid weight gain and obesity. The nature of the inpatient mental health setting can make it difficult for people to maintain a healthy weight,<sup>58</sup> and increased appetite can be common for consumers who are supported to cease smoking during their stay.

Nutritional interventions to reduce the energy content of meals served in inpatient mental health facilities can be successful.<sup>61, 62</sup> Targeted menu standards to avoid sugar-sweetened beverages, increase fruit and vegetable intakes, and limit fat intake and energy density generally are appropriate for most facilities. One successful trial changed meal service from buffet style meals to individual trays, eliminated juices from meals, and had sugar, butter, margarine, bread and condiments kept separately with monitored access.<sup>59</sup>

Opportunities for, and the encouragement of exercise, is also important.<sup>63</sup> A comprehensive approach that supports provision of healthy food, education about good eating habits, as well as adequate physical activity is needed to improve the health of people with mental illness, rather than relying on diet changes alone.

### 2.2 Under-nutrition

A number of people with mental illnesses are at risk of poor nutrition because they have:

- acute or ongoing illness requiring medical treatments
- physical difficulty eating and/or drinking
- cognitive and communication difficulties, or dementia
- eating behaviours, e.g. fast eating and gulping food
- eating disorders including anorexia nervosa and bulimia nervosa

- malnutrition due to inadequate food intake, which may be a result of poor appetites, lack of interest in food and/or food insecurity
- preceding unexplained or unintentional weight loss
- increased nutritional requirements e.g. due to substance misuse (alcoholism), cachexia, trauma, burns to the alimentary tract
- increased requirements due to elevated mood and associated hyperactivity, increased pacing, restlessness or repetitive physical activity.

For further information please refer to the *Nutrition Standards for Adult Inpatients in NSW Hospitals*.<sup>10</sup>

Consideration should also be given to people with particular needs, including:

- people requiring therapeutic diets, including texture-modified food and fluids
- people with delusions ('fixated' beliefs), e.g. restrictive eating, selective eating
- people requesting alternative diets by choice (e.g. vegetarians)
- people with cultural or religious dietary needs and practices (such as Halal and Kosher meals)
- children – (refer to the *Nutrition Standards for Paediatric Inpatients in NSW Hospitals*)<sup>11</sup>
- ante- and post-natal women
- people with established caffeine overuse (gradual reduction is preferable to abrupt cessation, see Appendix 2).

### 2.3 Therapeutic diets

Many of the physical health problems experienced by people in mental health facilities require special therapeutic diets for appropriate management. In addition, certain antidepressant medication may also require a therapeutic diet (e.g. low tyramine diet). The *Therapeutic Diet Specifications for Adult Inpatients and Paediatric Inpatients* will be suitable in most cases.<sup>12, 13</sup> However, it is recognised that compliance with and the effectiveness of such diets can be less in the mental health inpatient setting.<sup>64</sup> People with intellectual disabilities and advanced stages of dementia may require additional assistance and specialist feeding support to ensure appropriate and adequate nutritional care.<sup>65-67</sup>

## 2.4 Nutritional therapy for mental health conditions

In Australia there have been very few studies in the field of nutrition and mental health research.<sup>68</sup> However, there are an increasing number of nutrition-based interventions that have been used to assist in the treatment of depressive symptoms:

### ***Omega-3 fats***

Case-control studies have shown people with depression have significantly lower levels of omega-3 fats and clinical trials have indicated the effectiveness of omega-3 supplementation for unipolar depression.<sup>69-73</sup>

### ***Folate***

Low folate intake has been associated with depression,<sup>74</sup> and evidence exists to support the use of folate in the treatment of depression.<sup>75, 76</sup>

### ***Magnesium***

Magnesium deficiencies have been linked to depression<sup>77</sup> and some case studies suggest improvements with magnesium supplements within normal dietary intake ranges.<sup>78</sup>

# PART B

## THE STANDARDS

### 3. Structure of the Standards

Two sets of standards are set out in Part B of this document:

- 1. Nutrient goals:** the target amount of each key nutrient that the standard menu needs to provide to enable the majority of people admitted to inpatient mental health facilities to meet their individual nutrient requirements.
- 2. Minimum menu choice standard:** the minimum number of food choices and minimum serve size for each type of menu item provided at main meals and mid-meals.

These together can be used to plan and assess the menus in standard adult inpatient mental health facilities. They do not prescribe the format of menus – they allow facilities to tailor individual food choices to meet the specific preferences and needs of their local populations. Some special food and nutrition issues to be considered for particular groups are set out in Part C of this document.

People who are inpatients in mental health facilities are often hungry and present with poor nutritional status at admission. For many of these people, the tendency to over-consume food, with resulting excess weight gain, is a major issue of concern. Under-nutrition is more prevalent among older people within mental health facilities. People with a poor nutritional status should be referred to a dietitian and other health professionals as required.

#### 3.1 People with higher needs

People with higher needs and who have a good appetite may be able to meet their requirements from the standard menu by having large serves and additional choices at mealtimes (e.g. soup and extra sandwiches). However, those who are found by screening to be at risk of deteriorating nutritional status should have access to a full assessment by a dietitian and be provided with an individualised nutrition care plan.

As identified with clients in the *Nutrition Standards for Adult Inpatients in NSW Hospitals*, patients with high nutritional needs may require additional energy, protein and other nutrients to those specified in the nutrient goals. Energy recommendations for physically unwell patients are 1.3–1.5 times resting energy expenditure, which equates to about 9500–11000kJ for the Reference Person.<sup>79, 80</sup>

People with higher needs may typically have variable appetites. For many people, simply providing more food at main meals is not an effective way to meet their requirements. The use of fortified meals and supplements, and nutrient-dense snacks is another practical option.<sup>81-84</sup> Providing people with an improved meal environment can also improve their intake of food.<sup>85-87</sup>

#### 3.2 People with special nutritional needs

People with special nutritional needs are a varied group. Many will have similar nutrient goals to those set in this document but will require different food choices to those on the standard menu to achieve them. Some people, such as those with renal disease who need potassium restriction, will require modified nutrient goals for their therapeutic dietary needs, and assessment and management by a dietitian. Texture-modified diets may not always fit with these Standards.<sup>12, 88</sup>

#### 3.3 Nutrient goal design

The nutrient goals in this document are not designed for adolescents or older women who have higher energy or calcium requirements.<sup>17</sup> The nutrient goals are also different to those for adult inpatients in short-stay settings, who often need intensive nutritional support, although many of the menu-planning principles will still apply.

## 4. Nutrient goals

Tables 1 and 2 set out the nutritional goals for a range of key macro- and micro-nutrients that the standard menu should provide. This will enable most people with mental illness to meet their individual nutrient requirements.

These Standards only include RDIs for nutrients likely to be important to people admitted to inpatient mental health facilities. If menus are designed to meet these specified nutrient goals, it is likely the requirements for other essential nutrients (e.g. thiamin, vitamin A, or potassium) will also be met.

In assessing menus against these goals, it is important to test a range of possible choices, assuming each component of the menu is chosen and eaten (e.g. at a main meal: one soup, one main course with vegetables, one dessert, bread and spreads).

The standard hospital menu should be capable of meeting these nutrient goals:

- energy and protein on a daily basis
- micronutrients (vitamins, minerals) and fatty acids averaged on a weekly basis.

### Reference person

For the purposes of developing these Standards, the Reference Person chosen is based on the needs of an adult in an inpatient mental health facility defined as:

Gender	Male
Body weight	76kg
Age	44 years

### Gender

There is usually a fairly even split between the number of men and women admitted to inpatient mental health facilities. However, the male Reference Person was chosen to provide for the greater energy and protein needs associated with this gender group. In facilities with a high proportion of women, different nutritional requirements may be appropriate.

## Body weight

In the absence of data on body weights of people admitted to inpatient mental health facilities in NSW, the body weight nominated for the reference person, 76kg, is consistent with the NRV data for an adult male aged 19 years and older.<sup>17</sup>

This is also about the same as the median weight of adults aged 25-44 years reported in the 1995 National Nutrition Survey, which was 81.2kg.<sup>89</sup>

## Age

Statistics on NSW mental health beds 2009/10 show the following age profile of acute and non-acute admissions to inpatient mental health facilities in NSW:

Age range (years)	% of separations
0-14	1
15-34	42
35-54	40
55-74	13
75+	4

Thus, the median age range of people admitted to inpatient mental health services in NSW is 35-54 years, which is significantly younger than the median range for all hospital inpatients (55-74y). The nearest corresponding age range in the NRV data (31-50y) was therefore chosen to set these nutrient standards for people who are admitted to inpatient mental health facilities.

## Method for developing nutrient goals

In 2003, the United States (US) National Academy of Sciences published a book relating to the applications in dietary planning in relation to their new dietary reference intakes.<sup>90</sup> This publication outlined the use of the various reference intakes to planning diets for individuals and groups. As the approach taken by Australia and New Zealand in setting NRVs was based on the US and Canadian approach, their menu planning approach is relevant to the Australian situation.

A premise of the US approach was that, regardless of whether diets are planned for individuals or groups, the goal is to plan usual diets that are nutritionally adequate, or designed in such a way that the probability of nutrient inadequacy or excess is acceptably low. They state that for individuals, the goal of planning is to achieve usual intakes that are close to the Recommended Dietary Allowance (= RDI in the NRVs) or the Adequate Intake (AI).

When planning for heterogeneous groups, such as hospital inpatients, where nutrient and energy requirements are not uniform across the group, the approach can either be to identify the most vulnerable group (those with highest nutrient density needs) or to estimate the nutrient density distributions of each age / gender group and combine the estimates to get an overall nutrient density distribution as a basis for planning.

However, this approach does not consider the distribution of nutrient densities within the group. The National Academy report proposed a new method of planning. Its goal was to develop a target nutrient density distribution for each subgroup, and then choose the highest target median density from these distributions as the nutrient density to be used in planning.

In theory, this approach is more likely to provide an accurate estimate of the appropriate target median intakes for heterogeneous groups but, as the Academy notes, the practicality of its use in planning has not been tested. It also requires data on the usual distribution of intakes of nutrients in the target group, which are not available in the Australian hospital context.

## Summary

For the reasons above, these Standards use the Australian RDI or AI values for the reference person as the default nutrient goals for menu planning.<sup>17</sup> These values provide a high level of assurance that most people admitted to inpatient mental health facilities will be able to meet their individual nutrient needs from the standard menu. The default value has been changed in one case (for iron), taking into account the substantially higher needs of females in some age groups.

The NRVs for Australia and New Zealand also contain an appendix with suggested dietary targets (SDT) to reduce chronic disease risk.<sup>17</sup> These include a recommended acceptable macronutrient distribution range, higher

target intakes of some nutrients (e.g., fibre, long-chain n-3 omega fatty acids, vitamins A, C & E, and potassium) and more stringent restrictions for sodium intake. Many of these targets differ significantly from current Australian intakes and their mandatory adoption in mental health facilities would be likely to result in food choice restrictions that would be unacceptable to many consumers. For this reason, only the suggested macronutrient range and the targets for long chain n-3 fats (EPA and DHA) have been used in these nutrient standards. The other suggested targets may provide aspirational directions for future menu development.

## 4.1 Macronutrient goals

**TABLE 1: Macronutrient goals, strategies and rationale**

NUTRIENT	GOAL	STRATEGIES	RATIONALE
Energy	8000kJ/day	<p>Individuals' requirements will vary and mechanisms are needed for people with varying appetites / intakes to achieve their recommended daily energy requirements.</p> <p>A choice of menu items of appropriate energy density should be available to allow people to achieve their recommended daily energy intake.</p> <p>Strategies can include:</p> <ul style="list-style-type: none"> <li>• People with large appetite/intake and lower energy needs should have access to lower energy dense foods and meals, including lower energy snacks and/or large (or extra) serves to help manage appetite and satisfy hunger.</li> <li>• People with small appetites/intakes and higher energy needs should have access to foods and meals to achieve higher energy intakes and/or access to nourishing mid-meal snacks.</li> </ul>	<p>Excess energy intake is a key factor contributing to weight gain and a poor nutrition status associated with over-nutrition. Conversely insufficient energy intake is a common cause of poor nutritional status and under-nutrition, particularly for older people. Low energy intake reduces the effectiveness of treatment and delays recovery.<sup>81</sup></p> <p>Based on the NRV value for a 76kg male with a Physical Activity Level (PAL) of 1.2,<sup>91</sup> the estimated requirement is 8000kJ per day.<sup>17</sup> This level is also consistent with the recommendation in the Scottish standards for inpatients.<sup>92</sup></p> <p>It should be noted that this level may be too high for people who are overweight and need a restricted energy diet.</p>
Protein	90g/day	<p>The menu must be adequate to allow people with a varying appetites / intake to achieve the recommended daily protein intake.</p> <p>Mechanisms are needed for some people to achieve higher protein intakes:</p> <ul style="list-style-type: none"> <li>• People with excess hunger, a higher protein intake assists in increasing satiety</li> <li>• People with small appetites a higher protein intake may be needed to meet their protein needs.</li> </ul> <p>Strategies can include:</p> <ul style="list-style-type: none"> <li>• Access to large (or extra) serves to increase satiety</li> <li>• Access to nourishing mid-meal snacks</li> <li>• High-protein foods and fluids e.g. nutrient dense soup, desserts.</li> </ul>	<p>Protein provides the body with the appropriate amount and type of amino acids for the synthesis of body proteins needed for maintenance and growth of the individual, and sufficient dietary protein increases satiety, which can help limit excessive energy intake.<sup>93</sup></p> <p>The RDI is 0.75g–1.1g/kg/day.<sup>17</sup> Requirements are increased in the malnourished, those with certain diseases and during treatments. For hospitalised patients, a range of 1.0 to 1.5 g/kg/day has been recommended.<sup>79</sup></p> <p>The level chosen for these Standards (~1.2 g/kg/day) aims to cover the majority of consumers in mental health facilities. It is expected that people requiring higher values of protein (&gt;1.5 g/kg/day) would be identified through effective nutrition screening and prescribed appropriate higher levels.</p>

NUTRIENT	GOAL	STRATEGIES	RATIONALE
Fat	<p>Menu items should aim to be reduced in fat, so that the menu provides 20-35% of energy from fat.</p> <p>Ideally, not more than 10% of energy should be from trans and saturated fat.</p> <p>The menu should provide an average of 430mg of long chain n-3 fats (EPA+DHA)/ day.</p>	<p>The menu should allow people to select lower saturated fat options.</p> <p>Mono- and poly-unsaturated fats are to be used in food preparation, where appropriate.<sup>16</sup></p> <p>A choice of mono-unsaturated or poly-unsaturated spreads is to be available.<sup>16</sup></p> <p>Lean meats and poultry to be used in food preparation. Reduced fat dairy foods to be offered and their use in food preparation is encouraged where possible.</p> <p>Offer fish at least three times per week (in main meals, salads or sandwiches).</p> <p>Oily fish such as tuna, salmon, mullet or sardines should be preferred.</p>	<p>Total fat is no longer recognised as a risk factor for cardiovascular disease,<sup>94</sup> but low fat cooking methods and ingredients will assist in reducing the energy density of the meals, which can help people maintain a healthy weight. Therefore the levels in the acceptable macronutrient range recommended by the NHMRC SDTs, and the upper limit of 10% energy from saturated fat in the NRVs, are considered appropriate.<sup>17</sup> Slightly higher levels of saturated fat (up to 11%E) are unlikely to be of nutritional concern for most inpatients.<sup>92</sup></p> <p>There is some emerging evidence of the value of higher levels of intake of LC n-3 fatty acids to support good mental health.<sup>70-73</sup> The NHMRC SDT for women has been adopted,<sup>17</sup> recognising that the target for men (610mg/d) would require menu changes which are unlikely to be acceptable to the majority of people and that those with higher needs are often prescribed fish oil supplements.</p>
Carbohydrate	At least one low GI food choice should be available per meal.	Most wholegrain cereals, pasta, new potatoes, sweet potato, some varieties of rice (e.g. Basmati and Doongara), legumes, nuts and dairy foods are all low glycaemic index foods.	There is a high proportion of people with diabetes in mental health facilities. Low GI foods increase the satiety value of meals and may help consumers maintain a healthy weight and good glycaemic control. <sup>95-97</sup>
Fibre	30g/day	<p>The menu should allow people to achieve a fibre intake of 30g/day by offering high fibre foods from a range of sources including:</p> <ul style="list-style-type: none"> <li>• Cold breakfast cereals: at least 50% provide at least 3g fibre per serve and at least one option should provide &gt;5g/serve</li> <li>• Wholemeal/multi grain and/or high fibre white bread at all meals as an alternative to standard white bread</li> <li>• Fruit and vegetables (fresh, canned or dried).</li> </ul>	<p>The NRVs have set an AI for fibre at 30g/day for adult men.<sup>17</sup></p> <p>Adequate dietary fibre is essential for the normal functioning of the digestive tract.<sup>98</sup> Due to inactivity, medications, poor fluid intake and limited food choices, people with mental illness who are in hospital frequently experience constipation. Constipation leads to discomfort, can decrease appetite, and increases expenditure on laxatives - adequate fibre can reduce the need for interventions.<sup>99</sup> The action of fibre in preventing constipation depends on an adequate fluid intake.</p>

NUTRIENT	GOAL	STRATEGIES	RATIONALE
Fluid	2.1–2.6L/day	<p>Water should be available at all times for people whom it is clinically suitable - as bottled water, at drinking fountains, or from dedicated taps separate from hand-washing facilities</p> <p>A selection of low joule beverages based on local preferences is to be available at mid-meals.</p>	<p>The NRVs have set an AI for water of 2.1–2.6L/day, which includes plain drinking water, milk, coffee, tea and other drinks.<sup>17</sup></p> <p>The effects of poor fluid intake and dehydration include diminished physical and mental performance and constipation. In the Australian climate older adults are at particular risk of dehydration.</p> <p>Use of low joule beverages can assist in reducing overall energy intakes.<sup>100</sup></p>

## 4.2 Micronutrient goals

**TABLE 2: Micronutrient goals, strategies and rationale**

NUTRIENT	GOAL	STRATEGIES	RATIONALE
Vitamin C	45mg/day	Include specific sources of vitamin C (fruit, juices and salads) in the standard menu.	<p>The RDI for the reference person is 45mg/d.<sup>17</sup> Several studies have identified hospital inpatients deficient in vitamin C<sup>79, 101</sup> and people with a diagnosis of schizophrenia may have higher than normal requirements.<sup>102</sup></p> <p>As there are large losses of vitamin C in food service handling, processing and cooking, specific uncooked sources of vitamin C should be available.<sup>79</sup></p>
Folate	400µg/day	Use fortified breakfast cereal and include at least 5 serves of vegetables and 2 serves of fruit per day.	<p>The RDI for the reference person is 400µg/day.<sup>17</sup> People with poor food intake are at risk of inadequate folate intake and there is some evidence of the value of higher folate intakes in those with depressive disorders.<sup>76</sup></p> <p>There are large losses of folate in cooking and processing.<sup>103</sup></p>

NUTRIENT	GOAL	STRATEGIES	RATIONALE
Calcium	1000mg/day	<p>Reduced fat dairy foods are the preferred food source of calcium and provide the most readily utilised form.<sup>104</sup></p> <p>Milk-based soups and desserts, as well as milk beverages, can make a valuable contribution in terms of energy, protein and calcium.</p>	<p>The RDI for the reference person is 1000mg/d.<sup>17</sup> Adolescents aged 12-18 years, women over 50 years and men over 70 years have higher requirements for calcium (1300mg/d).</p>
Iron	11mg/day	<p>The menu should offer red meat (a good source of haem iron) in at least one main dish per day.</p> <p>Iron-fortified meat substitutes may be an important inclusion to ensure vegetarian meal plans meet the goal intake.</p> <p>Serving food that is a source of vitamin C at the same meal assists in maximising iron absorption.</p>	<p>The RDI for the reference male person is 8mg/d but for younger women (19-50 years) the RDI is 18mg/d.<sup>17</sup> Iron is recognised as one of the at-risk nutrients in the Australian food supply,<sup>105</sup> so a goal of 11mg/d has been chosen (recognising that about 25% of the hospital population would have the higher requirements). This level is also the WHO recommended intake.<sup>106</sup></p>
Zinc	14mg/day	<p>Ensuring energy and iron intake is sufficient in the menu will assist in meeting the zinc requirement.</p>	<p>The RDI for the reference person is 14mg/d.<sup>17</sup> Zinc is a significant mineral with respect to wound healing and immune function and zinc depletion is associated with decreased taste acuity.<sup>107</sup></p>
Magnesium	420mg/day	<p>Including a wide selection of vegetables, legumes, nuts and wholegrain cereals will assist in meeting the magnesium requirement.</p>	<p>The RDI for the reference person is 420mg/d.<sup>17</sup> There is a possible relationship between depressive symptoms and inadequate magnesium intake.<sup>78</sup></p>
Sodium	Upper intake limit 2300 mg/day	<p>The menu should provide for a choice of foods that does not exceed the NRV upper intake limit of 2300 mg/day<sup>17</sup> while allowing some highly salted foods (such as cheese and ham), which are nutritionally dense and well accepted.</p> <p>It is recommended that highly salted foods (providing &gt;575mg sodium per serve) should make up no more than 10% of main hot menu choices.<sup>108, 109</sup> Salt sachets may still be available on request, but people should be able to make food selections within the daily sodium limit.</p> <p>Herbs, spices and lemon can be used to enhance the taste of foods without extra salt.</p>	<p>In Australia the average sodium intake has been estimated to be about 3335 mg/d, significantly above the NRV recommendations.<sup>110</sup></p> <p>There is a risk that reduced-salt foods will be less appealing to consumers who may not be eating well. Given the need to optimise food intakes, these Standards have nominated the NRV upper intake limit value of 2300mg/day as the maximum sodium intake/day, rather than aiming for the lower AI target of 460-920mg/d.</p>

## 5. Minimum menu choice standards

Studies show that choice is a key factor affecting food intake and satisfaction,<sup>111, 112</sup> and this is supported by a recent qualitative review of NSW mental health inpatient facilities conducted by members of the NSW Official Visitors Program.<sup>113</sup>

A minimum standard for menu choice helps to ensure people in mental health facilities are provided with a range of foods consistent with dietary guideline recommendations, consistency of service provision across the State, and equity of access.

The minimum menu choice standard outlined in the following tables specifies the minimum number of choices, serving size and comments appropriate for people in mental health facilities. It is divided into foods provided at main meals and those at mid-meals.

The actual number of main meals and menu patterns are not specified, to allow flexibility in menu planning and implementation.

The traditional meal pattern in hospitals has been: breakfast, main meal and other lighter meal, plus three mid-meals. However, it is recognised that other models could also be used to meet the nutrient goals and the minimum menu choice standard; for example, four or five smaller meals a day.<sup>114, 115</sup> In Section 6, test menu 2 gives one example of an alternative menu plan.

For each menu item, this minimum menu choice standard specifies:

- minimum number of choices
- minimum serve sizes
- menu design comments
- nutritional standards.

Alternative products are specified as Band 1 (high nutrient density) or Band 2 or 3 (lower nutrient density) as defined in the modified version of the Victorian Nutrition Standards,<sup>116</sup> which is set out in Appendix 3.

This menu choice standard is to be considered a minimum. Facilities are encouraged to extend the meal service and offer additional choices.

## 5.1 Minimum menu choice standards – main meals

MENU ITEM	MINIMUM NUMBER OF CHOICES	MINIMUM SERVE	MENU DESIGN COMMENTS	NUTRITIONAL STANDARDS
<b>Fruit</b> Fresh or Canned or stewed or Dried fruit	3/day	1 medium piece (e.g. apple, pear, small banana) 120g 30g (e.g. 4 prunes)	Provide a variety of fruit to avoid monotony in the diet. Include seasonal fruit where possible. Cut-up fruit is easier for consumers to eat than whole pieces.	In natural fruit juice or water.
<b>Juice</b>	1/day	100mL	For those who require energy restriction, limiting to one serve a day may be appropriate.	100% juice; no added sugar. At least 20mg vitamin C per 100mL.
<b>Cereal – hot</b> e.g. porridge, semolina	1/breakfast meal	180g cooked weight		
<b>Cereal – cold</b>	4/breakfast meal	Portion packs where available or 30g		Cereals to contain less than 30g sugar/100g. Offer at least 2 varieties of cold cereal with a fibre content of at least 3g total fibre/serve and one providing >5g/serve.
<b>Protein source at breakfast</b> Continental breakfast or Traditional cooked	1 /breakfast meal	125g yoghurt, or 1 egg, or 20g cheese, or 110g baked beans	As the breakfast meal is often well consumed, offering a protein source at this meal can be strategic for nutritionally at-risk inpatients. <sup>117</sup> Low-protein food, such as spaghetti, tomato and mushrooms, can be offered in addition to enhance variety and reduce monotony.	At least 5g protein per portion (protein equivalent of 1 egg).
<b>Bread</b> Toast, bread or bread roll	Offered at each main meal. Consumers should be able to select up to 2 slices per meal.	1 slice 1 roll (30g)	Choice of fibre-increased white and at least one of wholemeal, wholegrain or multigrain to be available.	<400mg sodium per 100g.

MENU ITEM	MINIMUM NUMBER OF CHOICES	MINIMUM SERVE	MENU DESIGN COMMENTS	NUTRITIONAL STANDARDS
<b>Margarine</b>	1/main meal	1 portion (10g) per 2 slices of bread	Poly- or mono-unsaturated margarine always available.	
<b>Spreads</b>	3/breakfast meal	Portion control packs where available	Minimum of 3 choices. Spreads should include a selection of jams, marmalade, honey and vegemite. Other items such as peanut butter are optional, with consideration given to the presence of consumers with allergies to nuts.	Low-joule jam is not necessary for people with diabetes.
<b>Cold beverage - milk</b>	1/meal and at each mid-meal	150mL	Consumption of water should be encouraged. Reduced fat milk available at each meal and mid-meal. Reduced fat soy milk to be available on request. Low joule cordial optional at mid-meals.	Soy milk to contain at least 100mg calcium/100mL.
<b>Hot beverages</b>	Offered at least 4 times per day at meals or mid-meals.	150mL 15mL milk for hot beverage	Tea and coffee, herbal teas, low fat milk drinks. Access to tea and coffee may be limited for some people or at some times to avoid over-consumption of caffeine (see Appendix 2).  Decaffeinated tea and coffee should be available.  Sweetened drinks like Milo® should be limited to only once a day.	

MENU ITEM	MINIMUM NUMBER OF CHOICES	MINIMUM SERVE	MENU DESIGN COMMENTS	NUTRITIONAL STANDARDS
<b>Sugar and sugar substitute</b>	1 of each per meal when hot beverage served.	Portion control pack of sugar or substitute, unless contraindicated.	Offer 2 if an individual selects cereal and hot beverage at breakfast.	
<b>Soup</b>	One Band 1 or 2 soup to be offered at least once per day in Winter.	180mL	<p>Variety at consecutive meals.</p> <p>Soup can be useful for older people who are not eating well and help re-engaging them with oral intake.</p>	See Appendix 3 for definition of Bands.
<b>Hot dish</b> (lunch and dinner)	<p>Offer hot dishes on at least two meal occasions per day.</p> <p>At each of these meal occasions provide a minimum of 2 hot dishes.</p> <p>At least one hot dish per meal must meet the standard for Band 1 or Band 2 for Main dishes.</p> <p>All other dishes should meet at least Band 3 standards.</p>	<p>Over the whole menu cycle, at least 42 different main hot dish items should be used on the menu.</p> <p>This could be met by offering 3 choices per day on a 14 day cycle menu, or 2 choices per day on a 28 day cycle menu, with half of the choices repeated once over the cycle.</p> <p>The menu cycle length should be planned taking the average length of stay into account.</p>	<p>At least 1 main dish per day must be red meat. A variety of meats to be provided for consecutive meals.</p> <p>Fish choices should be offered at least three times per week (as hot main dish, or in salads and sandwiches).</p> <p>There may be facilities or units where it is appropriate to serve hot dishes at only one meal occasion per day.</p> <p>Vegetarian choices should not be repeated more than twice a week.</p>	<p>See Appendix 3 for definition of Bands.</p> <p>Use unsaturated fat in the making of main meals where appropriate.</p> <p>Less than 20% of hot main menu items to have more than 15 g fat per serve.</p> <p>Less than 10% of main menu items to have more than 575mg sodium per serve.</p> <p>Lean meats and poultry to be used.</p>
<b>Potato, rice, pasta</b>	<p>1-2 choices at each meal offering main hot choices.</p> <p>An alternative to potato is offered at least once per day.</p> <p>Rice or pasta should be offered when it would be a typical accompaniment with a meal.</p>	90g	Consider use of lower GI varieties of rice (e.g., Basmati or Doongara).	<p>Cook with minimal salt.</p> <p>Use unsaturated fat in all potato recipes.</p>

MENU ITEM	MINIMUM NUMBER OF CHOICES	MINIMUM SERVE	MENU DESIGN COMMENTS	NUTRITIONAL STANDARDS
<b>Vegetables</b>	2 varieties at each meal offering main hot choices (except breakfast).	70g per vegetable portion.	<p>Serve at least one red / orange, and one dark green or leafy vegetable per day.</p> <p>Band 3 side salads may be offered as an alternative.</p> <p>Soups can contribute to vegetable requirements if they contain a significant amount of vegetable / serve.</p>	<p>See Appendix 3 for definition of Bands.</p> <p>Cook without added salt.</p> <p>Use unsaturated fat in vegetable recipes.</p>
<b>Sandwich</b>	One Band 1 sandwich offered once per day, but sandwiches should be available when needed for particular consumers at other times.		<p>Offer sandwiches made with high-fibre white and at least one of wholemeal, wholegrain or multigrain breads.</p> <p>Fish choices should be offered at least three times per week (as hot main dish, or in salads and sandwiches).</p>	<p>See Appendix 3 for definition of Bands.</p> <p>Poly- or mono-unsaturated margarine to be used.</p> <p>Lean meats and poultry to be used.</p>
<b>Salad as a main meal</b>	One Band 1 or Band 2 salad offered at least once per day.	Minimum of 5 different vegetables with minimum total of 90g.	<p>Portion control salad dressings should be offered as an optional choice item.</p> <p>Fish choices should be offered at least three times per week (as hot main dish, or in salads and sandwiches).</p>	<p>See Appendix 3 for definition of Bands.</p> <p>Lean meats and poultry to be used.</p>
<b>Desserts</b>	Offer desserts at least once per day, including at least one Band 1 dessert per day based on reduced fat dairy.		<p>Repetition of prepared dessert items should be limited to once per week, with the exceptions of custard and yoghurt.</p>	<p>See Appendix 3 for definition of Bands.</p> <p>Use unsaturated fat in the making of desserts, where appropriate.</p>

## 5.2 Minimum menu choice standards – mid-meal food items

MENU ITEM	MINIMUM NUMBER OF CHOICES / MID-MEAL	STANDARD SERVE	MENU DESIGN COMMENTS	NUTRITIONAL STANDARDS
Mid-meal snacks	3 per day	<p>20g biscuits or one portion control pack containing 2 plain biscuits (served no more than once per day)</p> <p>Some examples of alternatives to biscuits:</p> <ul style="list-style-type: none"> <li>• 1 piece fresh fruit</li> <li>• Canned fruit portion control pack</li> <li>• Low fat yoghurt</li> <li>• Vegetable sticks and dips</li> <li>• Crackers and salsa or cheese</li> <li>• Half a sandwich</li> <li>• Fruit toast/bread</li> <li>• Pikelets</li> <li>• Fruit cake</li> </ul>	<p>Supper should be served at a time that limits the gap overnight from supper to breakfast to be less than 12 hours.</p> <p>Most mid-meal items should provide &lt;500kJ per serve, but occasional offering of higher energy options is acceptable.</p>	<p>High-fibre biscuit choices should be preferred.</p> <p>Poly- or mono-unsaturated margarine to be used on sandwiches.</p>

## 6. Test Menus

To assess the practicality of these Standards and their ability to meet nutritional targets, two test menus were developed as examples of an individual's selection from a menu meeting these Standards, and analysed to compare them with the nutrient requirements of the reference person. Two different menu patterns were designed: a traditional menu with three meals plus three mid-meals, and an alternative plan with four main meals and two mid-meals.

### **Menu 1: Traditional menu pattern (three meals plus three mid-meals)**

Breakfast	110mL orange juice 2 biscuits Weet-Bix™ 4 prunes 150mL reduced-fat milk 1 boiled egg 1 slice wholemeal reduced-salt toast 1 portion reduced salt canola margarine 1 portion jam 150mL coffee + 1 portion sugar
Lunch	180mL minestrone soup Sandwich (2 slices wholemeal bread, 60g tuna, 20g lettuce, mayonnaise) 1 medium banana
Dinner	90g lean roast beef 60mL tomato-based sauce 90g boiled potato 70g peas 70g carrots 50g stewed apricots + 60mL reduced fat custard 1 slice wholemeal reduced-salt bread + 1 portion reduced-salt canola margarine 150mL tea + 1 portion milk + 1 portion sugar
3 mid-meals	2 cups tea (150mL tea + 1 portion milk + 1 portion sugar) 150mL reduced fat milk 1 Granita™ biscuit 1 small fresh apple 2 Vita-wheat™ biscuits + 20g reduced-fat cheddar

## Menu 2: Alternative menu pattern (four meals plus two mid-meals)

Breakfast	<p>110mL orange juice</p> <p>2 biscuits Weet-Bix™</p> <p>4 prunes</p> <p>150mL reduced-fat milk</p> <p>2 slices fruit toast</p> <p>2 portions reduced-salt canola margarine</p> <p>150mL coffee + 1 portion sugar</p>
Brunch	<p>170g beef lasagne</p> <p>90g side salad + 30mL dressing</p> <p>1 slice wholemeal reduced-salt bread + 1 portion reduced-salt canola margarine</p>
Main meal	<p>90g lean roast chicken</p> <p>60mL reduced-salt gravy</p> <p>90g boiled potato</p> <p>70g broccoli</p> <p>70g carrots</p> <p>50g stewed apricots + 60mL reduced-fat custard</p> <p>1 slice wholemeal reduced salt bread + 1 portion reduced-salt canola margarine</p> <p>150mL coffee + 1 portion milk + 1 portion sugar</p>
Supper	<p>180mL minestrone soup</p> <p>1 slice wholemeal reduced salt bread + 1 portion canola margarine</p> <p>2 Vita-wheat™ biscuits + 20g reduced-fat cheddar</p>
2 mid-meals	<p>150mL tea + 1 portion milk + 1 portion sugar</p> <p>150mL reduced-fat flavoured milk</p> <p>1 Granita™ biscuit</p> <p>1 small fresh apple</p>

## 6.1 Comparison of analysis of test menus to nutrient standards

The results below show it is possible to meet nutrient standards with choices from two menu formats. However, this is only possible if nourishing food choices are included at mid-meals. Without this, the calcium goal in particular, is difficult to meet. It can also be difficult to meet zinc requirements every day, and these should be assessed on a weekly basis. In the last National Nutrition Survey, the median daily zinc intake in people in the community was only 10.8mg for those aged 25-44 years and 8.8mg for those aged 65 years and over.<sup>89</sup>

Nutrient	Nutrient goal	Menu 1	% Goal	Menu 2	% Goal
Energy kJ	<b>8000</b>	8182	102	9324	116
Protein g	<b>90</b>	108	120	97	108
Fat %E	<b>&lt;35%</b>	30	86	33	94
Saturated fat %E	<b>&lt;10</b>	9.8	98	9.6	96
Fibre g	<b>30</b>	39	130	39	130
Vitamin C mg	<b>45</b>	126	279	163	362
Folate µg <sup>†</sup>	<b>400</b>	513	128	583	145
Calcium mg	<b>1000</b>	1097	110	1251	125
Iron mg	<b>11</b>	16.5	150	15.0	136
Zinc mg	<b>14</b>	14.1	101	10.6	76
Magnesium mg	<b>420</b>	653	156	601	143
Sodium mg	<b>&lt;2300</b>	2021	88	2308	100

† Includes folate from fortification of bread

Provision of three serves of fish and four serves of lean red meat per week can provide sufficient LC-n-3 fatty acids to meet the average SDT of 430mg/d:

Food	Serve size	LC-n-3 fatty acid content (mg) <sup>118</sup>
Grilled mullet	110g	680
Salmon Salad	90g	1894
Tuna sandwich	60g	350
Grilled steak	90g	71
Beef curry	90g	55
Roast lamb	90g	116
Lamb stir fry	90g	81
Total weekly		3247
<b>Average daily</b>		<b>464</b>

# PART C

## NUTRITION ISSUES FOR PARTICULAR GROUPS

As explained in Section 1.1, these Standards should form the basis of menu planning for most people admitted to mental health inpatient services. Many therapeutic diets could be based on the general standard menu offerings, using the same menu planning principles. However, these Standards do not attempt to describe the nutritional requirements of specialised therapeutic diets, which are set out in the *Therapeutic Diet Specifications for Adult Inpatients*.<sup>12</sup>

A few general comments on the needs of particular groups follow. They provide some background for menu planners and foodservice providers but do not attempt to be comprehensive guidelines.

### Older people

Older people can be in hospital for extended periods with complex medical problems and/or waiting for placement in aged-care facilities. Older people often don't eat enough to meet their nutritional requirements.<sup>119, 120</sup> Food needs to be tasty and familiar to tempt them. Large meals can be off-putting so more frequent smaller meals and fortified food may be better strategies.<sup>121, 122</sup>

### People with cognitive impairment and physical disability

The presence of disability<sup>123</sup> and other physical and mental health issues, along with the common effects of multiple medications on appetite, digestion and bowel function, means that the food service needs to be very flexible to meet the needs of these people. Maintaining adequate hydration is also a particular issue of concern.<sup>124</sup> Reduced oral intake is expected in consumers with dementia and providing appropriate feeding options

can provide difficult ethical challenges.<sup>125</sup> Some people 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,<sup>38, 126</sup> but this is only one possible strategy.

### Acute illness

People in hospital with a physical illness often eat small amounts of food and subsequently are challenged to meet their nutrient requirements. They are frequently prescribed an oral supplement to boost their energy/protein intake. There are some occasions when no cutlery is used, for safety reasons. These people will usually be ordered finger food (see *Therapeutic Diet Specifications for Adult Inpatients*<sup>12</sup>) and closely supervised by nursing staff.

People who require modified diets and are in hospital for longer than five days are also at nutritional risk. It can be difficult to accommodate their needs with a standard menu. As their specific nutrient needs vary and their appetites are unpredictable, adequate choice and ordering flexibility is important for this group.

### People who are admitted to mental health facilities for extended periods

Many people in mental health facilities can have very long lengths of stay and some may be in facilities for many years. Menus must meet the goals for all nutrients and provide a range of dishes that are popular and likely to be eaten. An appropriate menu cycle must be in place to prevent menu fatigue. Additional opportunities for more normal eating occasions – e.g. barbecues and cooking classes – can assist.

## Pregnant and lactating women

- Lactating women have significantly higher daily RDI requirements for energy (2.0-2.1MJ) and several nutrients, including Folate (500µg) and vitamin C (85mg).
- Menus must meet nutrient goals and provide a range of dishes that are popular and likely to be eaten, incorporating contemporary menu choices.
- These women may require more frequent meals/snacks. High-energy/nutrient-dense snacks are particularly important for this group.
- Flexible meal timing and service arrangements are required to complement breastfeeding demands. Meals that can be eaten cold or heated on demand can improve flexibility.
- Lactating women need access to fluids to meet their increased fluid requirements.
- Consider the risks associated with Listeria infection for antenatal inpatients.<sup>94</sup>

## Vegetarian and vegan diets

- Menus must offer suitable options to meet the goals for all nutrients and provide a choice of suitable options that are popular and likely to be eaten. In particular, appropriate meat and dairy substitutes should be included. Nutrients at risk in this group include vitamin B12, calcium, iron, zinc and long-chain n-3 fatty acids.<sup>127</sup>
- To improve iron absorption, vegetarian menus should offer a good source of vitamin C at each meal, e.g. fruit juice or salad.
- To ensure adequate calcium, some people will need a cow's milk alternative, such as calcium-fortified soy milk.
- Every effort should be made to maximise the variety of dishes offered to people who choose vegetarian diets.
- Detailed guidelines on the provision of vegetarian and vegan diets are given in the *Therapeutic Diet Specifications for Adult Inpatients*.<sup>12</sup>

## Eating disorders

- Diagnoses of anorexia nervosa, bulimia nervosa, binge eating disorder, and eating disorders not otherwise specified are prevalent in people who use mental health services. Many of the restrictions in these menu Standards (which have an emphasis on reducing the risk of unwanted weight gain) may not be suitable for these inpatients, especially for those with anorexia nervosa.
- People diagnosed with an eating disorder are usually encouraged to eat a wide variety of foods within regular meal and snack times and to normalise their fluid intake. Low-joule drinks and sugar substitutes are inappropriate, but otherwise eating from the standard menu should be encouraged.<sup>128</sup>
- They will often be prescribed a high energy/high protein diet, with supplementary fortified drinks, and will require a more controlled and supervised eating environment that monitors for risks of re-feeding syndrome, and controls for eating disordered behaviours between meals.

# APPENDIX 1

## NUTRITION-RELATED CONDITIONS AND MENTAL ILLNESS

People with mental illness are more likely to have serious coexisting physical health problems than the general population.<sup>28</sup> The incidence of the following conditions is higher in people with mental illness:

### Obesity

People with ongoing mental illness are more likely to be overweight at twice the rate of the general population,<sup>7, 129-131</sup> and weight gain during psychiatric hospitalisation affects not only adults but also children and adolescents.<sup>132</sup> Forty to 80% of individuals on second-generation antipsychotic medications gain up to 20% of their ideal body weight, especially those on clozapine and olanzapine.<sup>133, 134</sup> In the longer term, obesity seems to be less related to specific medications and more to behavioural factors and diet.<sup>135</sup> Audits in NSW mental health units indicate that up to 80% of consumers in some units are obese.<sup>136</sup> Obesity damages psychological well-being and may compound the effects of mental illness.<sup>37</sup> People who are overweight or obese may also be at risk of suboptimal nutrition, disordered eating, poor food choices and poor food security.

### Malnutrition

There is a risk of both over- and under-nutrition in this group that may manifest as malnutrition. Protein–energy malnutrition in mental health facilities is more prevalent in older people, and is frequently undetected and untreated, causing a wide range of adverse consequences.<sup>137</sup> Other micronutrient deficiencies are more likely to be evident in people who are inpatients in mental health facilities due to poor diet quality.<sup>138</sup>

### Metabolic syndrome

Metabolic syndrome is a predictor of cardiovascular disease (CVD) and is more prevalent in people with serious mental illness.<sup>7, 8, 29</sup> In a study in Western Australia, the prevalence of metabolic syndrome in people attending public mental health services was 54%, double the general population rate.<sup>139</sup> Similarly high prevalence rates have been found among non-acute inpatients in a 2008 survey in a Sydney psychiatric rehabilitation hospital (52.4%)<sup>140</sup> and in people with a psychotic disorder attending a psychiatric rehabilitation service in the Hunter region of NSW (59%).<sup>136</sup>

### Pre-diabetes and diabetes

The prevalence of diabetes is four to five times higher in people with schizophrenia than the general population.<sup>8</sup> At the same time, people with ongoing mental illness are likely to receive lower quality diabetes care, with fewer recommended services, less aggressive management of CVD risk factors, and less education about diabetes management.<sup>141, 142</sup>

### Cardiovascular disease (CVD)

People with ongoing mental illness have twice the normal risk of dying from CVD.<sup>8</sup> It has been reported that CVD is five times higher in people with schizophrenia than the general population<sup>7</sup> and that they have a 20% shorter life expectancy as a result.<sup>143</sup>

## Constipation

People who are prescribed or taking antipsychotic medication have a higher risk of developing constipation compared to non-users.<sup>25</sup>

## Disordered eating

A range of different disorders - including anorexia nervosa, bulimia nervosa, binge eating disorder and eating disorders not otherwise specified - are prevalent in people in mental health facilities (with estimates ranging from 2-17%) and are often unrecognised by staff.<sup>144, 145</sup> People diagnosed with schizophrenia are more likely to exhibit disordered eating, which may be related to deregulation of synaptic plasticity and alterations of neurotrophins.<sup>146, 147</sup>

## Dysphagia

The literature suggests that six percent of the general population has an oropharyngeal swallow dysfunction,<sup>148</sup> but this is increased in a long stay mental health setting to rates between 19% and 46%.<sup>149, 150</sup> More seriously, death due to asphyxiation secondary to choking on food occurs far more frequently in people with mental health disorders (up to 43 times more likely).<sup>151</sup>

## Fast eating syndrome

Fast eating is one of the most deep-rooted habits in mental health facilities and can increase the risk of choking while consuming food.<sup>152, 153</sup>

## Osteoporosis

People with mental illness are at a greater risk of osteoporosis. Decreased bone mineral density has consistently been found in people with schizophrenia and other mental illnesses.<sup>154-156</sup> Causes include a calcium-poor diet, poor vitamin D intake, decreased exposure to sunlight, decreased physical activity, increased alcohol

intake and smoking.<sup>154, 155</sup> Disease-specific factors include hypercortisolaemia and psychogenic polydipsia with obligatory hypercalcuria. The most likely mechanism linking antipsychotics with decreased bone mineral density is through hyperprolactinaemia and secondary suppression of sex steroids.<sup>157</sup>

## Psychogenic polydipsia

This is a clinically significant and potentially life-threatening problem for persons with a range of mental illnesses, and is present in at least 20% of people with a long term diagnosis.<sup>158</sup> The pathology is still enigmatic, and water restriction remains the core treatment modality.

## Dental disease

People with mental illness are at high risk of poor oral health.<sup>159</sup> A recent meta-analysis reported that people with ongoing mental illness had 3.4 times the odds of having lost all their teeth compared to the general community and had higher levels of decayed and missing teeth.<sup>160</sup> The reasons are likely to relate to poor dietary practices, but psychotropic medications can also contribute to dental disease since many cause xerostomia through reduced salivary flow.<sup>22, 161</sup>

## Coeliac disease

The relative risk of schizophrenia in people with coeliac disease has been estimated to be more than three times that of the general population. In some people diagnosed with schizophrenia, reducing gluten intake may help reduce symptoms.<sup>162, 163</sup>

# APPENDIX 2

## CAFFEINE

Caffeine (present in coffee, tea, cola- and guarana-based soft drinks, as well as in chocolate at a low dose) is the most widely consumed stimulant drug in the world. It is a central nervous system stimulant, which can increase blood pressure and levels of circulating catecholamines. When consumed regularly, complete tolerance may develop within a few days, but withdrawal symptoms after prolonged consumption include headaches, fatigue and anxiety.<sup>164</sup>

Excessive caffeine intake (>600mg/d, or >6-8 cups of coffee/d) may have several effects:

- Exacerbate or induce some psychiatric conditions such as anxiety, panic attacks, psychosis and mania.<sup>165, 166</sup> Sensitivity to caffeine is increased in people with panic disorder and social phobia, and administration of caffeine can provoke panic attacks in these individuals.<sup>52</sup>
- Antagonise adenosine receptors, which may potentiate dopaminergic activity and exacerbate psychosis.<sup>52</sup>
- Exacerbate emotional and behavioural symptoms, anxiety and sleep.<sup>50, 52</sup>
- Interact with psychotropic drugs. Caffeine can interfere with the effectiveness of drug treatment such as benzodiazepines and increase seizure length during ECT.<sup>33</sup>
- Doses of greater than 600mg/day invariably produce anxiety, insomnia, psychomotor agitation, excitement, rambling speech (and sometimes delirium and psychosis).<sup>33</sup>
- Caffeine can increase plasma clozapine levels.<sup>33</sup>
- Acute states of confusion has been associated with very high levels of consumption, usually more than 1000mg per day.<sup>164</sup>

Some studies have reported no association of caffeine intake with symptoms of schizophrenia<sup>167</sup> and caffeine can have some beneficial effects.<sup>168</sup> Low or normal doses of caffeine:

- Increase alertness, reduce fatigue and can elevate mood. Caffeine can be regarded as a pharmacological tool to increase energy and effortful behaviour in daily activities.<sup>169</sup>
- Improve performance on tasks that require alertness.<sup>52</sup>
- May have a protective effect on risk of depression.<sup>170, 171</sup>

Reductions in excessive caffeine intake can lead to overall improvement in depression and anxiety.<sup>172</sup> In a study of people admitted to an inpatient mental health facility for an extended period, switching to decaffeinated coffee for three weeks led to an improvement in anxiety, irritability and hostility, which was reversed when caffeine was reintroduced. Reintroduction of caffeine also caused an increase in psychotic features.<sup>52</sup>

Assessment of caffeine intake should form part of routine psychiatric assessment, especially for people with anxiety and sleep disorders, eating disorders and substance misuse, but a total prohibition on caffeinated beverages is not appropriate. It is therefore recommended that management of caffeine overuse or misuse should be addressed at an individual treatment level only. If caffeine overuse is established, gradual reduction is preferable to abrupt cessation.

A wholesale ban of caffeine in mental health facilities is not recommended, but decaffeinated beverages should be provided as alternatives at all meals, and some units may choose to limit access to caffeinated beverages in the evening, to reduce overall daily consumption.

Note: The *Therapeutic Diet Specifications for Adult Inpatients* contains information on how to provide a caffeine-free diet.<sup>12</sup>

# APPENDIX 3

## THE BANDS – A MODIFIED VERSION FOR MENTAL HEALTH FACILITIES

**Note:** In consultation over the development of these NSW Standards, some minor modifications have been made to the original Victorian Standards. These are indicated in the following tables in bold.

The *Victorian Nutrition Standards for Menus in Hospitals* use the concept of Bands as a method of classifying menu items with respect to nutritional content and density. These Bands define nutritional profiles within each menu item category – soup, main dishes (meat and vegetarian), salads, sandwiches, vegetables and desserts – providing manufacturers with a measurable nutritional outcome for their products.

As well as grouping dishes by common nutrient profile, the Bands attempt to reflect foods typically used in the Australian diet to ensure a range of menu items are able to be offered to all inpatient groups, including acute, sub-acute residents and those who have frequent admissions.

The Bands have been developed to address:

- energy content
- nutrient density
- consumer expectations.

For further information, see the section *How to use the standards in menu planning* in the full document.<sup>116</sup>

The remainder of this section defines the nutritional standards for each Band for:

- soup
- main dishes – meat
- main dishes – vegetarian
- salads
- sandwiches
- desserts
- vegetables.

These Standards assume a tolerance of +/-10% in both nutrient content and portion size to allow for variations in nutritional analysis and portion size. However, over the whole day, the standard hospital menu is to provide the recommended amount of nutrients defined in these Standards.

Nutrient levels in the following tables are specified for the portion size. All examples cited below refer to a specific recipe. Depending on the recipe, the same menu item (e.g. pumpkin soup) can have a different Band allocation. Each facility needs to analyse their recipes and assess Band compliance.

## Soup

Band	Description	Portion size mL	Nutrients per portion size				Examples of typical menu items
			Energy kJ	Protein g	Fat g	Sodium mmol (mg)	
1	Significant nutrient value Represents a substantial part of the meal/daily intake	180	At least 360	At least 5	Max 9	Max <b>22 (506)</b>	Minestrone, lentil, chicken and sweet corn and pea and ham
2	Accompaniment for flavour and variety Provides moderate energy but little other nutrients of any significant value	180	At least 180	At least 2	Max 9	Max 27 (621)	Pumpkin, tomato and potato and leek

Broth is not considered a nutrient source and has not been included as a Band.

Broth can be offered as a fluid source and should be offered where appropriate for fluid and special diets.

## Main dishes – meat / poultry / fish

Band	Description	Portion size g	Nutrients per portion size				Examples of typical menu items
			Energy kJ	Protein g	Fat g	Sodium mmol (mg)	
1	Predominantly solid / single ingredient	90-110 <sup>1</sup> <b>Fish (min 110g)</b>			Max 10	Max 7 (161) <sup>2</sup>	Roasts, fish
2	Wet dish with high meat content	Total cooked weight of the entire dish at least <b>120g</b>	<b>Max 1500</b>	At least 20	Max 15	Max <b>20 (460)</b>	Beef stroganoff, pork goulash, chicken and vegetable casserole, Moroccan lamb and cottage pie
3	Fairly even mix of meat and vegetables	Total cooked weight of the entire dish at least 150g	<b>Max 1500</b>	At least 10	Max 15	Max 25 (575)	Salmon quiche and tuna mornay, stir-fry and chicken risotto

Main dishes (meat) do not include vegetables or starches (e.g. potato, rice and pasta) accompanying the main meal.

Meat is interpreted to mean "meat flesh" as defined in Standard 2.2.1 of the Food Standards Code <sup>173</sup>

The portion size range above represents the tolerance of +/-10% in portion size noted on the previous page.

Sauces / gravies served with hot main dishes are expected to be not less than 40mL per serve but are not included in the nutrition analysis.

- While the standards specify a portion size of 100g of cooked meat (edible portion), the impact of factors such as cooking technique on cooked yield is recognised. There is an expectation in the industry that 130g raw meat provides 100g cooked meat and therefore 20-25g protein. Where production techniques result in a cooked yield less than 100g per 130g of raw meat, kitchens and production facilities have the option of confirming the protein content of the edible portion of their cooked product by submitting product samples for chemical analysis. The site dietitian should interpret this analysis or method for suitability. At the same time, the impact of a reduction in edible portion size on plate appearance and consumer/resident satisfaction at the site needs to be considered before deciding to reduce the portion sizes.
- Corned beef, turkey<sup>3</sup>, ham and cheese are examples of meat items that will not comply with the sodium level specified for any of the Bands. These items are considered to make a valuable contribution to protein and micronutrient intake as well as menu variety and can continue to be included as a non-compliant menu item at a frequency to be determined by the dietitian and based on the patient / resident needs. These items are, however, expected to meet all the other nutrient criteria, except for sodium, in their relevant category. Some hospitals may offer non-compliant main dishes – meat, such as meat pies or sausage rolls, on their menu at pre-determined frequency. While these items are of poor nutritional quality, facilities may choose to offer these items for popularity and variety.
- At the time of this document being written, turkey was only available as a high sodium product.

## Main dishes – vegetarian\*

Band	Description	Portion size g	Nutrients per portion size				Examples of typical menu items
			Energy kJ	Protein g	Fat g	Sodium mmol (mg)	
1	Higher protein content	<b>120 cooked weight</b>	<b>700-1500</b>	At least 15	Max 25	Max 25 mmol (575mg)	Macaroni and cheese, lentil and tofu curry and spinach and ricotta slice
2	Lower protein content	<b>120 cooked weight</b>	<b>700-1500</b>	At least 8	Max 25	Max 25 mmol (575mg)	Vegetable moussaka, vegetable patty, and ravioli with tomato sauce

\* Not necessarily suitable for vegan diets

Vegetarian dishes do not include vegetables or starches (e.g. potato, rice and pasta) accompanying the main meal.

Portion sizes for vegetarian menu items will vary considerably. As a general guide, an assessment of portion sizes undertaken during the development of this document suggests:

- Portions of vegetarian paella and nasi goreng were acceptable at 160g.
- Portions of flan and vegetable cottage pie were acceptable at 180g.

## Salads

Band	Description	Portion size g	Nutrients per portion size				Examples of typical menu items
			Energy kJ	Protein g	Fat g	Sodium mmol (mg)	
1	Includes meat such as roasts and fish	Meat at least <b>90-110g</b> See below for starch and salad components		<b>At least 20</b>	<b>Max 30</b>		Roast beef salad and tuna salad
2	Moderate protein content	Meat at least 90g See below for starch and salad components	At least 900 including starch component	At least 10	Max 30	Max 25 (575) <sup>1</sup>	Quiche and salad, egg salad
3	Minimal nutrient value. Included for variety	At least 5 vegetables/fruit with a minimum of 90g total weight	At least 100				Side salad and Greek salad

The nutritional analysis for each Band excludes salad dressing (e.g. portion control pack).

The nutritional analysis for each Band does include salad dressing used in composite salads.

Starch component (potato, rice, beans, bread or crackers) must be equivalent to 1 slice of bread (15-30g CHO / serve).

Salad component (excluding the starch) must be a minimum of 5 vegetables/fruit with a minimum of 90g total weight.

1. Corned beef, turkey, ham and cheese are examples of meat items that will not comply with the sodium level specified for any of the Bands. These items are considered to make a valuable contribution to protein and micronutrient intake as well as menu variety and can continue to be included as a non-compliant menu item at a frequency to be determined by the dietitian and based on the consumer/resident needs. These items are, however, expected to meet all the other nutrient criteria, except for sodium, in their relevant category.

## Sandwiches

Band	Description	Portion size Points and g filling	Nutrients per portion size				Examples of typical menu items
			Energy kJ	Protein g	Fat g	Sodium mmol (mg)	
1	Significant nutrient value May represent a substantial part of the meal/daily intake	4 points The lean meat component must be greater than 50g/sandwich, cheese must be greater than 21g/sandwich	At least 800 including starch component	At least 10	<b>Not specified</b>	Max 25 (575) <sup>1</sup>	Egg and lettuce sandwich and roast beef sandwich
2	Minimal protein value Included for a snack or light meal	4 points	At least 500 including starch component	At least 3	Not specified	None specified	Assorted sandwiches and salad sandwich

1. Corned beef, turkey, ham and cheese are examples of meat items that will not comply with the sodium level specified for any of the Bands. These items are considered to make a valuable contribution to protein and micronutrient intake as well as menu variety and can continue to be included as a non-compliant menu item at a frequency to be determined by the dietitian and based on consumer/resident needs. These items are, however, expected to meet all the other nutrient criteria, except for sodium, in their relevant category.

## Desserts

Band	Description	Portion size g*	Nutrients per portion size				Examples of typical menu items
			Energy kJ	Protein g	Fat g	Calcium (mg)	
1	Moderate energy, high protein and calcium content May represent a substantial part of the meal / daily intake	90-120	<b>Max 1200</b>	At least 4	<b>Not specified</b>	At least 100	Baked custard
2	Significant level of energy and protein May represent a substantial part of the meal / daily intake	90-120	<b>Max 1200</b>	At least 4	Not specified	Not specified	Fruit-based desserts
3	Varying nutrient value. Provide moderate energy but few other nutrients of any significant value Included for variety and popularity	At least 80 Excludes mousse and whips which should weigh at least 50g	At least 300	Not specified	<b>Not specified</b>	Not specified	Fruit crumble, mousse, plain ice-cream

\* These are minimum portion sizes if the nutrient requirements are met.

Custards and sauces are additional dessert components and should not be less than 60mL.

## Vegetables

<b>Potato, rice, pasta</b>	Potato OR rice OR pasta not less than 90g cooked weight. No added salt unless a multiple ingredient recipe is involved <sup>1</sup> No added fat unless a multiple ingredient recipe is involved <sup>1</sup>
<b>Vegetables</b>	2 vegetables (total 140g cooked weight) exclusive of vegetables in the main dish No added salt unless a multiple ingredient recipe is involved <sup>2</sup> No added fat unless a multiple ingredient recipe is involved <sup>2</sup> Two contrasting colours.

1. Vegetables include vegetables mixed together, e.g. peas and corn; sweet potato and parsnip.
2. Multiple ingredient vegetables have the potential to contribute to energy, protein and micronutrient levels. Examples of multiple ingredient vegetables include mashed potatoes, ratatouille and potato bake.

# APPENDIX 4

## THE STANDARDS DEVELOPMENT PROCESS

In 2011, the ACI Nutrition and Mental Health Working Group was formed and undertook three pieces of work to inform the development of menu standards for mental health facilities in NSW:

1. A literature review of the nutrition issues of consumers in mental health facilities
2. Collection of data on the profile of consumers of inpatient mental health facilities in NSW.
3. A qualitative review, conducted by members of the Official Visitors Program in mental health facilities within NSW, to gather consumer and staff views on the food and food services.<sup>113</sup>

Based on these findings, a first draft of Part A of these Standards was prepared by dietitians Jan Plain (Macquarie Hospital) and Meg Vickery (Bloomfield Hospital) in 2012, with input from the ACI Nutrition and Mental Health Working Group.

In January 2013, Professor Peter Williams was employed as a consultant by the ACI to continue work on the Standards: specifically to expand and complete Part A and develop Sections B & C.

A first draft of the full document was reviewed by the ACI Nutrition and Mental Health Working Group in March 2013 and amendments were incorporated before a second review in April 2013. The final revised draft was then presented to the ACI Nutrition in Hospitals Committee and the NSW Health Nutrition and Food Committee in May 2013 before wider circulation for consultation.

The approved draft version was circulated to the following groups for comment:

- NSW Ministry of Health
- NSW Health Local Health Districts and Specialty Networks
- HealthShare NSW
- Mental Health Commission of NSW
- Dietitians Association of Australia
- Speech Pathology Australia
- Occupational Therapy Australia
- The Institute of Hospitality in Health Care
- The NSW Consumer Advisory Group – Mental Health Inc.
- The NSW Official Visitors Program.

One hundred and seventy-nine comments were received, with many strongly supporting the need for, and content of, the Standards. All comments and suggestions were carefully considered by the Working Group in July 2013 before agreement on a final revised version, which was then again presented to the NSW Health Nutrition and Food Committee for final endorsement.

The Standards have been developed by building on previous policy documents in NSW, including *Nutrition Standards for Adult Inpatients in NSW Hospitals* and *Therapeutic Diet Specifications for Adult Inpatients*.<sup>10, 12</sup> Documents from other Australian states have been used to promote harmonisation where possible and facilitate the ultimate development of national hospital menu standards.

They also aim to provide consistent guidelines to food manufacturers who may wish to develop food products for hospitals. The goal has been to develop standards that are:

- evidence-based
- nationally consistent where possible
- easy to interpret and implement
- able to allow for flexibility and innovation in local implementation (that is, describing minimum standards without being unnecessarily prescriptive)
- acceptable to consumers, their carers and families.

Some of the key documents considered in this process have been:

- NSW Mental Health Data 2009/10<sup>19</sup>
- Nutrition Standards for Adult Inpatients in NSW hospitals (2011)<sup>10</sup>
- Nutrition Standards for Paediatric Inpatient in NSW hospitals (2011)<sup>11</sup>

- Australian Commission on Safety and Quality in HealthCare- National Safety and Quality Health service Standards (2011)<sup>174</sup> - (Standards 2, 6, 8, 9, 10)
- Australian Council on Healthcare Standards – EQUiP5 and EQUiP National (2013)<sup>175</sup>
- Victorian Nutrition Standards for Menu Items in Victorian Hospitals and Residential Aged Care Facilities (2009)<sup>116</sup>
- Queensland Health Nutrition Standards for Meals/ Menus (2012)<sup>176</sup>
- Nutrition Standards for adult inpatients in WA hospitals (2012)<sup>177</sup>
- DAA Practice Recommendations for the Nutritional Management of Anorexia Nervosa in Adults (2009)<sup>128</sup>
- Royal College of Psychiatrists MARSIPAN: Management of Really Sick Patients with Anorexia Nervosa (2010)<sup>178</sup>
- RANZCP Australian and New Zealand Clinical Practice Guidelines for the Management of Eating Disorders (2004)<sup>179</sup>
- The ACI Nutrition Network and Official Visitors Program Nutrition and Food Project Report (2013).<sup>113</sup>

# ABBREVIATIONS

%E	percentage of energy
AI	adequate intake
DHA	docosahexanoic acid
ECT	electroconvulsive therapy
EPA	eicosapentanoic acid
GI	glycaemic index
KJ	kilojoules
LC n-3	long chain omega-3
LOS	length of stay
MJ	megajoules
NHMRC	National Health and Medical Research Council
NRV	nutrient reference value
PAL	physical activity level
RDI	recommended dietary intake
SDT	suggested dietary target (to reduce chronic disease risk)
WHO	World Health Organisation

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