Food, Nutrition and Hydration Policy

For Adult Patients in Acute Hospitals

November 2018

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Food, Nutrition and Hydration Policy
For Adult Patients in Acute Hospitals

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Part B

FOOD, NUTRITION AND HYDRATION POLICY DEVELOPMENT CYCLE

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Part A

Policy Sections

1.0 Initiation

1.1 Purpose

1.1.2 The purpose of this Policy is to provide a national framework for food, nutritional care and hydration provision for adult patients in acute hospitals.

1.2 Scope

1.2.1 The Policy will apply to all staff involved in the provision and delivery of food, fluids and nutritional care for patients. All staff involved in the provision of nutritional care should use the Policy recommendations to review and develop services.

1.2.2 Staff refers to clinical (medical, nursing, health care assistants, health and social care professionals) and non- clinical staff including catering services, catering support services and hospital managers.

1.2.3 All locations in acute hospitals are included, Inpatients, Emergency Department and Day Procedures Units.

1.2.4 Exclusion criteria

The policy does NOT provide a framework for the following aspects of food, hydration and nutritional care provision:

1. Development of food specifications for HSE Food Procurement tenders
2. Recommendations on infrastructure
3. Needs assessment for resources
4. Production of standardized recipes and or menu cycles
5. Development of strategies to address food rating
6. Patients with eating disorders
7. Maternity and paediatric services*
8. Under 16 years of age
9. Specific recommendations on Nutrition Screening**
10. Nutritional support with oral nutritional supplements**, enteral tube feeding or parenteral nutrition
11. IV hydration
12. Catering for staff and visitors***

*Many of the recommendations may be directly applicable to co- located maternity services but will need to be reviewed and adapted as deemed appropriate by health care professionals with expertise in this clinical area.

**Specific recommendations pertaining to Nutrition Screening and oral nutritional supplements will be provided in the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting (expected publication date, 2019).

***It is recommended that acute hospitals implement the HSE Nutrition Standards for food and beverage provision for staff and visitors in Healthcare Settings (expected publication 2019).

1.3 Objectives(s)

The objectives of this Policy are to:

1.31 Improve the quality and safety of food and nutritional care in acute hospitals.

1.32 Ensure that key areas of improvement recommended by the Health Information and Quality Authority are addressed.

1.33 To improve patient experience.

1.34 To support recommendations from the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting.

1.4 Outcome(s)

The Policy provides a framework for a standardised approach to food and nutritional care provision by all staff. It encompasses recommendations on screening and the use of oral nutritional support related to food from the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting. It promotes a patient centred approach to delivery of services. It aims to improve the patient's experience of food and nutritional care in hospital.

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Section 2.0

Nutritional Care for Adult Patients in Acute Hospitals

2.1 Evidence Statement/ Summary

"Food is your medicine-hence let your medicine be your food"

Hippocrates, circa 400 BC

Hospital malnutrition is a well-documented clinical issue and is associated with adverse clinical outcomes, including increased morbidity and mortality (NICE, 2006, Mills *et al*. 2018). Malnutrition often results from both consequences of disease and an altered food intake (Scheutz *et al*. 2014). If a patient is unable to provide themselves with adequate nutrition and become malnourished, they are more susceptible to disease. This can cause further deterioration, impairing their recovery. This vicious circle is demonstrated by the 'Malnutrition Carousel' (BAPEN, 2016) (Figure 1). It is highly prevalent with one in four patients admitted to Irish hospitals identified at risk of malnutrition (BAPEN, 2012). Research shows that there is higher risk of malnutrition in some hospital patient cohorts including older patients, patients with cancer, patients having surgery and patients with gastrointestinal disease (Corish and Kennedy, 2000, McWhirter and Pennington, 1994, Konturek *et al*. 2015, Kondrup *et al*. 2001).

In addition, even patients who are identified as nutritionally well (not at nutritional risk) on admission tend to eat and drink less when they are acutely unwell or injured. If poor oral intake persists the patient is at risk of becoming malnourished. It is also well established that the nutritional status of patients can deteriorate the longer their stay in hospital and that approximately two thirds of patients lose weight during their hospital stay (McWhirter and Pennington, 1994). Malnutrition categories and diagnostic criteria have been defined in two consensus reports (White *et al.* 2012 and Jenson *et al.* 2018); see the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting (expected publication date 2019).

The main causes of malnutrition include the following:

- **Suboptimal intake**
- **Impaired digestion and or malabsorption**
- **Impaired swallow**
- **Altered metabolism affecting nutrient requirements and**
- **Excess nutrient losses**

Staying longer in hospital has also been linked to an increased risk of developing malnutrition due to

- Dissatisfaction with food (Tappenden *et al*. 2013)
- Extended periods of fasting for medical tests or procedures (Lim *et al*. 2012)
- Exposure to hospital acquired infections (Mocanu *et al*. 2015)
- Loss of significant lean body mass which reduces mobility and function (Zisberg *et al*. 2015)

It is not easy to eat in hospital for a number of reasons as outlined below:

- Propensity for reduced intake
- GI symptoms
- Reduced ability to chew and or swallow
- Prolonged fasting for investigations
- Interruptions at mealtime
- Lack of flexibility with food service times
- Limited access to snacks
- Dislike of dietary restrictions
- Limited choice of food available
- Dislike of food appearance and taste
- Dislike of food choice available
- Food not meeting individual expectation
- Unfamiliar eating utensils

Malnutrition can affect every system in the body. It negatively impacts on physical, psychosocial wellbeing and disease outcomes (NICE 2006). It has been implicated in the development of complications, including pressure ulcers, delayed wound healing, healthcare associated infections and death (HSE Wound Management Guidelines 2018, Schneider *et al*. 2004, Pauillard *et al*. 2005, Hiesmayr *et al*. 2009). Malnutrition is also associated with increased hospital length of stay, slower recovery time, increased readmission rates and decreased quality of life (Stratton *et al*. 2003, Elia and Stratton, 2009, Stratton *et al*. 2006, Hudson *et al*. 2018, Mills *et al*. 2018). In addition to the clinical consequences, there are also economic consequences; the annual Irish public health and social care cost associated with malnutrition in adults is estimated at over €1.4 billion, representing 10% of the healthcare budget (Rice and Normand, 2012).

2.1.2 Nutrition Screening

Nutrition screening is the first step that all health care professionals can perform to identify patients who may be at nutrition risk (malnourished) or potentially at risk (of malnutrition) and who may benefit from appropriate nutrition intervention led by a dietitian (BAPEN, 2003). Specific recommendations for nutrition screening can be found in the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting (expected publication date 2019).

2.1.3 Nutrition Assessment

Nutritional assessment should be performed by a dietitian on all patients identified as being at risk of malnutrition following screening. Refer to local policy for referral criteria to the dietitian if a risk grading tool is used. Dietitians perform a comprehensive nutrition assessment which is step 1 in the Nutrition Care Process and Model (NCPM), a systematic approach to providing high quality nutritional care as outlined below (AND, 2003).

- **Nutrition Assessment:** The dietitian collects and documents information such as food or nutrition-related history; biochemical data, medical tests and procedures, anthropometric measurements, nutrition-focused physical findings and patient history.
- **Diagnosis:** Data collected during the nutrition assessment guides the dietitian in selection of the appropriate nutrition diagnosis (that is, naming the specific problem).
- **Intervention:** The dietitian then selects the nutrition intervention that will be directed to the root cause (or aetiology) of the nutrition problem and aimed at alleviating the signs and symptoms of the diagnosis.
- **Monitoring/Evaluation:** The final step of the process is monitoring and evaluation, which the dietitian uses to determine if the patient has achieved, or is making progress toward, the planned goals.

Note: This is a continuous process for many patients who may require multiple interventions, on-going monitoring and evaluation due to changes in medical condition.

2.1.4 Identification of Refeeding Syndrome Risk

Refeeding Syndrome (RFS) can be defined as the severe fluid and electrolyte shifts associated with recommencement of feeding, both oral and artificial nutrition via the enteral and parenteral route, in malnourished patients and the resulting metabolic complications (NICE, 2006, IrSPEN 2013, Freidli *et al*. 2018). This condition typically occurs in the first few days of receiving nutrition support and is potentially fatal if not identified and managed promptly. It occurs commonly with all types of nutrition support but most of the studies to date have reported on risk with enteral and parenteral nutrition. A recent audit in a Model 4 Dublin hospital assessed refeeding risk in all patients referred to the dietitian (including medical, surgical and critical care specialities). Twenty-seven per cent of patients were identified at risk of RFS. Presence of malnutrition was the most predominant risk factor and interestingly 57% of patients were prescribed oral nutrition support post dietitian review (Gillman *et al*. 2017). More research is required to assess RFS risk in patients prescribed oral nutrition support. It is therefore essential that risk of RFS is considered in all patients identified at risk of malnutrition post nutrition screening.

The most severe consequences of RFS are largely preventable and can be successfully managed if those at risk are identified prior to initiation of feeding and that monitoring procedures are in place (as per local guidelines).

Patients at particular risk of RFS include the following:

- Current or recent history of cancer
- Eating disorders
- Chronic debilitating disease
- Patients post gastrointestinal or head-and-neck surgery
- Alcohol Dependence Syndrome
- Elderly patients living alone
- Chronic gastrointestinal symptoms
- Chronic dieting (IrSPEN, 2013)

Table 1

Criteria for determining people at high risk of developing refeeding syndrome (NICE, 2006)

Patient has one or more of the following:

- BMI less than 16kg/m^2
- Unintentional weight loss greater than 15% within the last 3-6 months
- Little or no nutritional intake for more than 10 days
- Low levels of potassium, phosphate or magnesium prior to feeding

Or the patient has two or more of the following:

- BMI less than 18.5kg/m^2
- Unintentional weight loss greater than 10% within the last 3-6 months
- Little or no nutritional intake for more than 5 days
- A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics

In addition other criteria such as older age, low baseline magnesium concentrations (Rio *et al*. 2013), high malnutrition risk scores (i.e. Nutrition Risk Score 2002>3points), or overcoming severe catabolic disease together with aggressive administration of enteral or parenteral nutrition may be considered as other risk factors for the development of RFS (Friedli *et al.* 2018).

Guidance on developing local protocols and policies for RFS can be found within the NICE, 2006 Guidelines, the IrSPEN 2013 guidelines and in the recently published evidence-based and consensus-supported algorithm for the management and prevention of refeeding syndrome in medical inpatients by Friedli *et al*. 2018.

2.1.5 Identification of Fasting Requirements

Patients in hospital may be required to fast prior to certain tests, procedures or surgery. Delays with tests and or requirements for multiple procedures can result in prolonged periods of time without food or fluids. In general patients are required to fast overnight before surgery. Fasting is advised for patients having anaesthesia to reduce the risk of aspiration and associated pulmonary complications. The Royal College of Surgeons in Ireland (RCSI), the Irish College of Anaesthetists and the HSE have published fasting guidelines for perioperative fasting for elective surgery in the Elective Surgery Programme (2011) as outlined in Table 2.

Table 2

Preoperative Fasting

Before Surgery:

In general, fasting should be undertaken to include:

- 6 hours for solid food, milk
- 2 hours for clear fluids (clear fluids should be non-particulate and non-carbonated e.g. water)

Unless otherwise specified by the anaesthetist fasting times are recommended:

Patients fasting for morning theatre list: starting at 08:00hrs should have

- Food until midnight
- Clear fluids until 04:00hrs

Patients fasting for afternoon theatre list : starting at 13:00hrs should have:

- Food until 07:00hrs
- Clear fluids until 11:00hrs

The European Society of Anaesthesiology, 2011 perioperative fasting guidelines for adults and children also provide specific guidance on fasting times for both food and fluid and also describe what types are permitted (Smith *et al*. 2011). Recommendations are also given on the use of carbohydrate rich fluids before elective surgery: Drinking carbohydrate - rich fluids before elective surgery improves subjective wellbeing, reduces thirst and hunger and reduces post-operative insulin resistance (evidence level 1++, recommendation grade A).

In addition, many patients post operatively will not be permitted to eat or drink or may have an inadequate intake for several days (Maessen *et al*. 2009). Light diet is often instigated as first line oral intake however as this is not nutritionally complete it should only be used for a short period of time (see section 4.0). Studies have demonstrated that early nutrition can help to improve intake of energy and protein and decreases the negative side effects of the metabolic response to surgery. Avoidance of post -operative fasting and re-establishment of early oral feeding are key elements of the Enhanced Recovery after Surgery (ERAS) Programme. The European Society for Parenteral and Enteral Nutrition (ESPEN) guideline: Clinical nutrition in surgery (Weimann *et al*. 2017) details the nutritional aspects of the ERAS concept. ERAS programmes have become a standard in perioperative management in many countries across several surgical specialties. The programmes were developed in colonic operations and are now being applied to a wide range of major operations. ERAS programmes aid optimisation of nutritional intake postoperatively which contributes to enhanced patient recovery. Maessen *et al*., 2009, showed that in an elective colonic surgical cohort that patients treated according to the ERAS programme were eating 3 days earlier than patients traditionally treated (P<0.000).

This study also demonstrated that 2 days post surgery that 65% of the ERAS cohort were eating normal food versus 7% of the conventional treatment group.

2.1.6 Food, Nutrition and Hydration Requirements

Catering for inpatients requires food provision to a varied group with different dietary needs which can be broadly categorised into 4 groups as shown in Figure 2.

Patient types in hospital can be broadly described as below in Table 3 (ACI, 2011a, BDA 2017, NHS, Scotland, 2016):

Table 3

Patient Types

Patient Type*	Description
"Nutritionally well"	Post nutrition screening these patients have not been identified at risk of malnutrition. These patients have similar dietary needs to the general population and have a normal appetite, for example, patients admitted for an elective procedure. However, nutritionally well patients may also be acutely unwell. Ability to eat may be compromised as a result of acute illness and /or investigations and procedures required.
"Nutritionally at risk (of malnutrition)"	Post nutritional screening these patients have been identified at risk of malnutrition and may have: › a poor appetite or › have a poor appetite and higher nutritional requirements due to their clinical condition for example a patient with a stage 3 pressure ulcer post surgery › unintentional weight loss.
"Higher energy requirements"	Patients not identified at risk of malnutrition on admission but have higher energy requirements due to: › age profile, for example, a young male 18-30 years old and/or › as a result of acute illness/injury (see Section 3.2).
Require a therapeutic or texture modified diet	Therapeutic or texture modified dietary requirement needs to be identified on assessment. These patients may also be subdivided into: › nutritionally well › at risk of malnutrition and/or › higher energy requirements Patients requiring a therapeutic diet and/or a texture modified diet and/or thickened drinks are at a higher risk of malnutrition due to dietary restrictions and require close monitoring of intake.

*Patients may also have cultural, ethnic or religious dietary requirements.

Food, nutrition and hydration intake are fundamental for good health and resistance to infection and disease. Poor food intake is also now recognised as an independent risk factor for hospital mortality (Hiesmayr *et al*. 2009). Provision of adequate food and hydration is therefore fundamental to quality and safety in healthcare.

The Council of Europe forum on food and nutritional care in hospitals published Resolution ResAP (CoE, 2003), which recommends that governments implement national recommendations on food and nutritional care in hospitals.

These recommendations are based on nutritional assessment and treatment by nutritional care providers, food service practices, and hospital food and health economics costs. Of the 100 recommendations,10 key characteristics are relevant to acute hospitals (see Part A: Appendix I).

In the majority of cases an adequate dietary intake can be achieved by:

- Providing patients with a choice of nutritious, safe food
- Providing support and assistance to eat and drink with meals if required
- Ensuring that meals are not missed and that, restrictions on eating, that is, fasting, related to investigations and surgical procedures are minimised.

For patients identified at risk of malnutrition, oral nutrition support is required to ensure adequate intake. The following methods alone or in combination can be used to provide oral nutrition support:

- Modification of food and fluids by food fortification with additional protein, carbohydrate and/or fat and/or minerals/ micronutrients (vitamins and trace elements)
- Provision of snacks and/or oral nutritional supplements in addition to regular meals
- Changing of meal patterns
- The provision of dietary advice to patients on ways to increase their overall nutritional intake by above (Refer to the NCG).

Note: The provision of proprietary oral nutritional supplements is included in the NCG

2.1.7 Catering for Patients with Chronic Disease

Chronic disease accounts for 55% of hospital expenditure, 40% admissions, 75% of bed days and 76% of deaths (Department of Health, Healthy Ireland, 2016). It is essential that existing therapeutic dietary requirements are identified on admission and that the appropriate therapeutic diet is ordered.

2.1.8 Management of the Overweight/ Obese Patient

Following nutrition screening, patients identified as being overweight or obese and **nutritionally well** should be provided with a diet based on healthy eating guidelines (See section 4.2) whilst inpatients. In addition, where possible and appropriate, brief intervention should be provided as per the Making Every Contact Count (MECC) Pathway by staff with MECC training. MECC encourages patients to make healthier lifestyle choices during routine contacts. Management of obesity requires a multifaceted approach which should be co-ordinated in Primary Care. Details of the patient's nutritional status (BMI) should be included in the medical discharge letter to the GP.

2.1.9 Communication

The HIQA Report of the review of nutrition and hydration care in public hospitals 2016, recommended that there should be a safe and consistent process of communication between all ward staff to ensure that the patients always receive the correct diet, nutritional care and adequate hydration. The National Clinical Guideline No: 11 Communication (Clinical Handover) in Acute and Children's Hospitals (2015) outlines the requirements for clear and focused communication of information relating to the patient's condition, both urgent and routine. Patients should be given information about their food, nutrition and hydration care and also the opportunity to discuss and give

feedback on care provided (NHS, 2014). Patients and /or carers receiving individualised nutritional care should have information provided, tailored by the dietitian with specific information and targets relating to individual nutrition care goals.

2.1.10 Monitoring Nutritional Care

Malnutrition can develop quickly in hospital, so it is important that there is on-going monitoring of both weight and food intake (Canadian Malnutrition Taskforce, 2017). Nutritional needs can change depending on medical condition and therefore monitoring is necessary to inform measures that need to be put in place to optimise food and fluid intake. Weight should be checked on admission and weekly thereafter. Nutrition screening should be repeated weekly. Refer to the NCG for details. Poor food and fluid intake even in a nutritionally well patient can extend their length of stay. Inadequate fluid intake can cause serious consequences such as delirium. All patients identified at risk of malnutrition and/or receiving oral nutrition support should have their food and fluid intake recorded daily initially, reducing to twice weekly when stable (NICE, 2006) or as per local guidance.

2.1.11 Discharge Planning

Patients who have been identified at risk of malnutrition and who do not recover their nutritional status before end of the hospital admission and/or have on-going requirements for a therapeutic or a texture modified diet should be provided with a discharge plan for on-going nutritional care (Canadian Malnutrition Taskforce, 2017). Health Care Professionals need to provide patients and/or their carer's with resources that will support their continued recovery on discharge. Discharge planning was identified as a key improvement area for all hospitals in the National Patient Experience Survey (NPES), 2017.

2.2 Key Recommendations for Provision of Nutritional Care for Adult Patients in Acute Hospitals

On Admission

1. On admission to hospital a food, nutrition and hydration needs assessment should be undertaken to identify and to document the individual patient requirements by nursing or appropriately trained healthcare staff.
2. The food, nutrition and hydration needs assessment should include nutrition screening for risk of malnutrition using a validated tool as recommended by the NCG.
3. All inpatients on admission should be screened. Screening should be repeated weekly for inpatients. Refer to the NCG for details.
4. In addition, the food, nutrition and hydration needs assessment should accurately identify and record the following:
   - Weight and height
   - Body Mass Index
   - Existing therapeutic or texture modified dietary requirements
   - Existing requirements for nutrition support (oral nutritional supplements, enteral tube feeding, parenteral nutrition)
   - Physical difficulties with eating and drinking, including swallowing difficulties
   - Appetite
   - Requirements for assistance with eating and drinking including level of support required (for example requirement for total assistance from another person to eat food provided)
   - Presence of medically diagnosed food allergies or intolerances
   - Cultural, ethnic or religious dietary requirements
   - Food and fluid preferences
   - Oral health status
   - Conditions that require a dietitian referral (see Appendix 2).
5. Based on findings from the needs assessment, referrals should be sent to Health Care Professionals (HCP's) as appropriate, for example, dietitian, speech and language and/or occupational therapist.
6. Diet orders should be clearly and efficiently communicated to catering services/ catering support services.
7. Information about the patient's food, nutritional and hydration needs should be clearly communicated and documented in the healthcare record for all ward staff.

Key Recommendations for Provision of Nutritional Care for Adult Patients in Acute Hospitals continued

8. A summary of nutritional care should be provided if the patient is being transferred to another ward, service, or hospital as appropriate.

The Food, Nutrition and Hydration needs assessment will enable early identification of patients at risk of malnutrition, facilitate initial diet order and identify those who require assistance with eating and drinking. It will also enable early referral to HCPs as required (Refer to Figure 3).

Patients identified at Risk of Malnutrition

9. All patients identified at risk of malnutrition should be referred to the dietitian for nutrition assessment. Refer to the local hospital policy for referral criteria to the dietitian if a risk grading tool is used.

10. A patient centred care plan should be developed, initiated and reviewed with the patient and/or carer including the following:

- Diet ordered
- Referral to the dietitian
- Food record charts initiated to monitor intake
- Assistance with meals if required
- Commencement of oral nutritional supplements (as per local guidelines)
- Date for next screening.

Patients with Dysphagia

11. Patients who present with any obvious or less obvious indicators of dysphagia should be referred to the speech and language therapist.

Refer to the NCG for additional information on this patient cohort.

Screening for Refeeding Syndrome (RFS) Risk

12. People at risk of developing refeeding syndrome problems should be cared for by HCP's who are appropriately skilled and trained and have expert knowledge of nutritional requirements and nutritional support (NICE 2006).

13. All patients identified at risk of malnutrition should be screened for RFS risk.

14. Feeding should be initiated slowly with gradual increase in energy prescription daily, having regard to the local hospitals' Policy, Procedure, Protocol or Guideline (PPPG).

15. Thiamine and multi vitamin supplementation should be commenced.

16. Electrolytes should be supplemented as required in accordance with local guidance.

17. ECG monitoring may be required, for example, for those patients at very high risk (Friedli *et al.* 2018).

18. Monitoring of intake, electrolytes and fluid balance should be done daily until the patient's condition has stabilised, as per local PPPG.

19. Local hospital policies and procedures for RFS syndrome should be developed using guidance from NICE, 2006, IrSPEN, 2013 and Friedli *et al.* 2018 and in accordance with other relevant local policies and procedures.

Key Recommendations for Provision of Nutritional Care for Adult Patients in Acute Hospitals continued

Management of Patients Identified as Overweight or Obese, identified as Nutritionally Well without Therapeutic or Texture Modified Dietary Requirements

20. A healthy eating menu should be offered.

21. Brief Intervention should be provided by trained staff in Making Every Contact Count (MECC).

22. Patients should be provided with the Healthy Food for Life Leaflet www.hse.ie/healthyeating.

23. Management of obesity should be co-ordinated in Primary Care. Details of the patient's nutritional status (BMI) should be included in the medical discharge letter to the GP.

Optimising Intake

24. Healthcare professionals should consider oral nutrition support to improve nutritional intake for people who can swallow safely and are malnourished or at risk of malnutrition (NICE 2006). Refer to the NCG for additional recommendations and evidence base for the use of oral nutrition support.

25. Healthcare professionals should ensure that care provides:

- Food and fluid of adequate quantity and quality in an environment conducive to eating
- Appropriate support, for example, modified eating aids for people who can potentially chew and swallow but are unable to feed themselves (NICE 2006).

Fasting

26. Efforts should be employed to minimise fasting restrictions on eating and drinking, i.e. fasting related to investigations and surgical procedures.

27. Intake of carbohydrate-rich fluids before elective surgery should be considered.

28. Health care professionals should consider giving post abdominal surgery patients who can swallow safely, and in whom there are no specific concerns about gut function or integrity, some oral intake within 24 hours of surgery. The patient should be monitored carefully for any signs of nausea or vomiting. (NICE 2006). Refer to the NCG.

Provision of Food and Hydration for Patients

Formalised structures and processes are required to produce and serve food and fluids in hospitals. To meet the nutritional needs of all patients it is recommended:

29. All diets provided are produced in accordance with the nutrition standards outlined in section 3.0, 4.0 and 5.0.

30. Menu planning should be undertaken by staff with experience in food service and therapeutic diets. Consultation with patients on menu planning is essential.

Key Recommendations for Provision of Nutritional Care for Adult Patients in Acute Hospitals continued

31. All foods provided must be analysed for nutritional content to ensure that nutrition standards are achieved.

32. Effective multidisciplinary communication is essential to ensure efficient and effective food service is provided and to minimise food waste.

See Section 6.0, and 7.0.

Communication

33. Patients and/or carers should be provided with information about their food, nutrition and hydration care and afforded the opportunity to discuss their nutritional care.

34. Patients should be encouraged to give feedback on their food, nutrition and hydration care experiences.

35. Diet orders need to be clearly communicated to all staff involved in provision of food and hydration.

Monitoring

36. All patients identified at risk of malnutrition should have their food and fluid intake recorded daily and/or in accordance with the hospital's PPPGs.

37. Weight should be checked on admission and weekly thereafter

Refer to the NCG for recommendations on monitoring patients identified at risk of malnutrition and/or on oral nutrition support.

Discharge Planning

38. The discharge plan should be developed with the patient and where appropriate the carer and include the following information:

- Nutritional status
- Dietary requirements
- Assistance with feeding
- Requirements for oral nutrition supplements and/or thickening agents including type, amount and duration required post discharge
- Arrangements for follow up.

39. A summary of the patient's nutritional status (include nutrition screening result/s or BMI (if appropriate) and individualised nutrition care plan (if appropriate) should be included in the medical discharge letter to the GP.

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Section 3.0

Nutrition Standards for Catering for Adult Patients in Acute Hospitals

3.1 Evidence Statement/Summary

Development of the Standards

The nutrition standards were developed using an evidence and agreed best practice approach to ensure applicability in all acute hospitals. Specific focus was also placed on ease of interpretation and to provide flexibility to enable local implementation. A toolkit with practical suggestions has been devised for each diet standard to aid implementation.

To inform the development of these standards, existing policies and recently published international documents on food provision for inpatients were reviewed:

- The current Department of Health Food and Nutritional Care in Hospitals Guidelines for Preventing Under-Nutrition in Acute Hospitals (2009)
- The British Dietetic Association. The Nutrition and Hydration Digest Improving Outcomes Through Food and Beverage Services (2017)
- The National Services Scotland: Food in Hospitals National Catering and Nutrition Specifications for food and fluid provision in hospitals in Scotland (2016)
- The Australian Menu Planning Guidance and Standards documents (ACI 2011 (a) and (b), and ACI, 2014)
- The comprehensive review of the literature on the role of oral nutritional support including provision of snacks and fortified food conducted as part of the national clinical guideline development National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting (due for publication in 2019).

Application of the Standards

The standards should be applied to all adult patients admitted to acute hospitals. Following the identification of a patient's food, nutrition and hydration needs on admission, an appropriate diet should be ordered that meets the recommended nutrition standards (Figure 3).

Nutrition Standards for Energy and Protein Intake for Adult Patients in Acute Hospitals

The nutrition standards for energy and protein are a combination of nutrient and food-based standards. The standards are underpinned by the nationally recognised Department of Health Healthy Eating Guidelines (HEG) and Food Pyramid (2016). The HEG provide recommendations on the number of portions each day required from the four main food groups. In total, this contributes to a balanced dietary intake of macro and micronutrients which is required for good health. In addition the HEG contributes to an overall healthy eating plan by combining healthy choices from across all food groups (limiting intake of foods high in sugar, fat and salt), while paying attention to calorie limits and physical activity daily targets also. However, when planning the hospital menus, limiting fat, sugar and salt intake will not be appropriate for a large number of patients in times of acute illness when appetite may be reduced and when the priority is to ensure that adequate energy (calorie) and protein intake is consumed. Foods that are high in fat and sugar can provide an important source of energy and therefore make a useful contribution to ensuring that nutritional requirements are achieved. The provision of higher energy and/or healthier choices should be tailored to the needs of the patient population, length of stay and degree of acute illness/injury.

Following this rationale and the portion sizes recommended by the food pyramid will ensure that both macronutrients and micronutrient targets are also achieved. Test menus have been produced for diets to provide assurance that patients will be able to meet the standards set below for macro and micro nutrients (refer to supporting toolkit). Further information on development of targets for energy, protein and micronutrients can be found in Appendices III and IV.

3.2 Key Recommendations for Catering for Adult Patients in Acute Hospitals

1. Nutrition Standards for Energy and Protein Provision

Nutrient requirements per day	Nutritionally well/ Nutritionally at risk (of malnutrition)	Higher Energy Requirements*	Provided
Energy	2,100-2,400kcals	2,800kcals	Daily
Protein	90g	90g	Daily

*A young male aged 18-30yrs will require 2,800kcals per day to meet estimated energy requirements (See Appendix III and IV). Some patients as a result of acute illness will also require additional energy intake.

2. The Regular hospital diet (3 meals and 2 snacks each day) should provide an energy range between 2,100 kcal and 2,400kcals per day depending on food options chosen by the patient (See section 3.4 Regular Diet and Appendix III and IV).
3. The Regular hospital diet should provide 2,800 kcals per day by offering snacks with higher energy content (See Section 3.4 Regular Diet).
4. All other diets provided for patients in acute hospitals must meet the lower target for energy provision of 2,100kcal per day (it is difficult to achieve intakes above 2,100 kcals for most therapeutic, texture modified, or energy dense menus due to limitations on food types allowed in the diets, as well as the volume of food required to meet the requirements).
5. Identification of patients who may require less energy intake than the recommended standard should be addressed at local level based on a review of patient population needs by a dietitian.

Nutrition Standard for Micronutrients

The recommended daily amounts (RDA's) for Ireland published by the Food Safety Authority of Ireland (FSAI) in 1999 need to be updated. More up to date vitamin and mineral recommendations are available from the European Food Safety Authority (EFSA) and the US Institute of Medicine (IOM). Upper limits for vitamin and mineral intakes have been recommended based on the EFSA and IOM in the report of FSAI Scientific Committee Report: The Safety of Vitamins and Minerals in Food Supplements – Establishing Tolerable Upper Intake Levels and a Risk Assessment Approach for Products Marketed in Ireland (FSAI, 2018). In line with this approach, micronutrient requirements for adult patients in acute hospitals are based on the EFSA recommendations (See Appendix III).

6. All diets/menus for nutritionally well and patients identified at risk of malnutrition must meet the nutrition standard for micronutrients. Intake of micronutrients should be sufficient (see Appendix III) by ensuring that diets/menus are produced:
   - In accordance with nutrition standards for energy and protein provision,
   - That a variety of food choices are available daily for the patients and that,
   - The recommended number of portions from each food group are provided daily.

Key Recommendations for Catering for Adult Patients in Acute Hospitals continued

7. Nutrition Standard for Micronutrients

Micronutrients for Nutritionally Well/ Nutritionally at risk (of Malnutrition)	Amount recommended per day	How can this be provided?
Iron	11-16mg Recommended daily allowance for premenopausal women is 16mg per day	Averaged over a week
Calcium	1,000-1,150mg	Averaged over a week
Vitamin D	15mcg*	Averaged over a week
Folate	330mcg	Averaged over a week
Vitamin C	110mg	Averaged over a week
Vitamin A	750mcg	Averaged over a week

*Adequate Intake for Vitamins. Adequate intake is an estimated value when requirements cannot be determined.

8. It is recommended to ensure that a hospital diet/ menu can meet the nutrient criteria set out that it provides:

- energy on a daily basis
- protein on a daily basis
- salt on daily basis
- fluid on a daily basis
- micronutrients, (vitamins and minerals) on a weekly basis. Recommendations are presented as intakes per person per day but also how this can be provided. It is very difficult to meet the recommendations for vitamins and minerals on a daily basis due to fluctuations in dietary sources (FSAI, 2018) but most can be met on average over a week (NHS, 2016).

9. During acute illness some patients may have higher requirements for some micronutrients that is, for example to support wound healing. This patient type should be referred to a dietitian for nutritional assessment and micronutrient supplementation commenced if required under dietetic/medical supervision.

Amendments to the nutrition standards for energy, protein and micronutrient provision will need to be applied for some therapeutic diets (See Section 4.0).

Key Recommendations for Catering for Adult Patients in Acute Hospitals continued

Food Based Standards

10. To meet the nutrient standards for energy, protein, vitamins and minerals diets / menus provided to patients should provide the following each day:

Food Group	Minimum number of portions per day (see appendix V for standardised portion guidance)
Fruit and Vegetables	5 portions
Bread, rice, potatoes and starchy foods	5 portions
Milk and Dairy Products	3 portions
Meat, poultry, fish and alternatives	2 portions

Amendments will be required for some therapeutic diets and textured modified diets (see Section 4.0 and 5.0)

11. Include plant based protein food sources (i.e. pulses and lentils) where possible and appropriate.

12. Foods that are high in fat, sugar or salt should not be restricted unless there is a therapeutic requirement to do so.

3.3 Nutrition Standard for Hydration

<table>
<tr><td>Patient group suitability</td><td>This standard applies to all patients who do not have any therapeutic requirement for fluid restriction (See Section 5.3 for patients requiring thickened drinks (liquids)).</td></tr>
<tr><td>Rationale and evidence base for the dietary recommendation</td><td>Water is essential to health, but is often overlooked. This can result in vulnerable individuals missing out on the support they need to help maintain an optimal hydration status. Adequate hydration is essential for the health of the patient. The medical evidence for good hydration shows that it can assist in preventing or treating ailments such as:
Constipation
Pressure ulcers
Urinary infections and incontinence
Kidney stones
Heart disease
Low blood pressure
Diabetes (management of)
Cognitive impairment
Dizziness and confusion leading to falls
Poor oral health
Skin conditions (RCN and NHS, 2007, BDA, 2017).</td></tr>
<tr><td>Nutrition standards for Hydration</td><td>Patients should be provided with fluids daily to meet requirements specified (INDI, 2015)<table><tr><td>18-60years</td><td>35ml/kg/day</td></tr><tr><td>>60years</td><td>30ml/kg/day</td></tr></table>At least 8 cups of fluid should be provided daily (DOH, HEG, 2016).
The patient* should have access to chilled water where possible 24 hours of the day.
Patients should be offered drinks with and between meals.
* Patients on a fluid restriction may require an individualised care plan for hydration.</td></tr>
</table>

Nutrition Standard for Hydration continued

Precautions/ additional considerations	› This standard does not apply to patients requiring a fluid restriction. › The provision of beverage choice should reflect the needs of the population served. › High sugar fluids such as sugar sweetened beverages are recommended to be taken in small amounts only (BDA, 2017). › Fruit juices and smoothies, although high in sugar, do provide water and other nutrients. Only one small portion (150ml) of fruit juice or smoothies per day is recommended (PHE, 2017). › All patients must have access to fresh drinking water throughout the day. Drinking water should only be obtained from confirmed suitable sources. Ice should be made from a drinkable water source only. › Water jugs should be replenished twice daily (HIQA, 2016, HCA, 2013). This may not be appropriate for patients on a fluid restricted diet. › Patients should be offered access to chilled water where possible and appropriate. › Fluids should be provided to patients at the correct temperature. › Some patients in a hospital setting may have higher requirements due to illness/condition, accurate fluid balance monitoring is necessary to prevent under or over hydration. › An open regular cup or bowl should be provided to all patients for fluids and or soup. › Lidded beakers should be provided for patients who have difficulty holding regular open cups or glasses. Lidded beakers should be provided on receipt of request by a patient, relative and /or carer unless contraindicated. › It is essential that if a patient has been seen by a speech and language therapist, that staff review the swallow care plan regarding the use of a beaker.

3.4 Nutrition Standard for the Regular Hospital Diet

Patient group suitability	The Regular Hospital diet should be used for the following patient types post nutrition screening including the: › Nutritionally well patient who does not have any therapeutic or texture modified diet requirements › Patients identified at risk of malnutrition who do not have any therapeutic or texture modified dietary requirements. Additional measures also need to be put in place to support and monitor intake in patients identified at risk of malnutrition until assessment by a dietitian (see Section 2.0).
Rationale and evidence base for the dietary recommendation	A regular hospital diet is required to meet the daily nutritional requirements of a patient admitted to hospital. Hospitalised patients are generally acutely ill or suffering from chronic diseases that place their nutritional status at risk. It is important to emphasise that limiting fat, sugar and salt intake are rarely appropriate for the hospitalised patient. The regular hospital menu should not be based on low fat healthy eating guidelines. A choice of menu items of adequate energy density should be available to achieve the recommended daily energy intake. The goal is to ensure the food is eaten in sufficient amounts to support recovery and reduce length of stay.
Nutrition standards for catering for a Regular Hospital diet	**Nutrient Standards*** The Regular Hospital Diet should provide › Energy 2,100kcals – 2,400kcals › Higher energy requirements – 2,800Kcals** › Protein 90g › Micronutrients (vitamins and minerals) should be provided as per section 3.2 › Fat, sugar and salt should not be limited on the regular diet. Foods with a high fat or sugar content may make a useful contribution to the overall requirements. **Food Based Standards** This diet must contain the following types and amounts of foods daily to meet the nutrient standard as above › Fruit and vegetables, at least 5 servings a day › Cereals and breads, potatoes, pasta and rice, 5 servings per day (white or whole meal options) › 3 servings per day of full fat dairy products › 2 servings per day from the meat, poultry, fish, eggs, beans, and nuts group › Provide fish at least twice a week, including oily fish at least once per week. See Appendix V for standardised portion guidance. › A range of snacks must be available twice daily providing – 150kcal and 2g protein per snack – 300kcal per snack for patients with higher energy requirements.**

Nutrition Standard for the Regular Hospital Diet continued

Precautions/ additional considerations	› This menu may not be suitable for patients who are deemed to be at risk of malnutrition. These patients should be assessed by a dietitian to develop an individualised care plan. › In order to meet the higher energy requirements e.g. the younger male patient, higher energy snacks should be offered (snacks containing ≥300kcal twice daily). › Long stay immobile patients who are not acutely unwell, may require the lower end of energy range. The Healthy Eating menu with portion reductions might also be a more appropriate option. Discuss with a dietitian.

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

**Young male (18-30yrs) or patient identified with higher energy requirements

3.5 Catering for Cultural, Ethnic or Religious Diets

There is a growing population of people from different ethnicities and cultures now living in Ireland. Data from the 2017 Irish Census showed that there is a range of ethnicities living in Ireland, including White Irish 82.2%, Irish Traveller 0.7%, Other White 9.5%, Black Irish/ African 1.2%, Other Black 0.1%, Chinese 0.4%, Other Asian 1.7% and other 1.5%. There is also a range of religious practices in Ireland including, Roman Catholic- 78.8%, Church of Ireland, England, Anglican, Episcopalian- 2.6%, Muslim (Islamic)- 1.3%, and Orthodox (Greek, Coptic, Russian)- 1.3%. Therefore, there is a requirement to provide diets that meet cultural or religious needs.

Recognition of the distinct health and care needs of service users from diverse cultures and ethnic backgrounds needs to be considered when planning food services. Ethnic groups possess their own cultural identity, language, customs and practices (some of which impact on food choices). Religious diversity adds another important dimension to many people's ethnic and cultural identities. Dietary practices between and within the different cultural and ethnic groups can be quite diverse. In addition, it is important to acknowledge that a proportion of patients from these populations may not speak or read English (HSE, National Intercultural Health Strategy, 2007-2012). Although the standard range of menus in hospital will be able to meet most of the patient's cultural and religious food needs there may be requirements for alternative food choices and or adaptations. It is essential to understand the patient's specific food needs to ensure that a suitable choice of foods can be offered (NHS, 2016).

3.5.1 Key Recommendations for Catering for Cultural, Ethnic or Religious Diets

1. Diet provision should consider the local ethnic, religious and cultural needs of the patient.
2. Guidance in Appendix VI: Religious food restrictions should be used when planning diet provisions (DOH, 2009).

3.6 Catering for Personal Diets

Personal diets are diets that patients wish to consume based on personal preferences, for example vegetarianism and veganism (NHS, 2016). Whilst many of the Irish population now regularly choose to eat a vegetarian dish, requests for vegan diets in Irish hospitals are still relatively low.

Many of the principles of a vegetarian and a vegan diet follow national goals for healthy eating, that is higher intakes of complex carbohydrates, fibre, pulses and fruit and vegetables which are incorporated into the nutrition standard for a healthy eating diet (See section 4.2). A lacto-ovo vegetarian option is typically included in most hospital menus (BDA, 2017). However, vegetarian dietary practices can vary quite considerably in terms of which foods are eaten or excluded and it can be difficult to meet the nutrition standards for energy and protein. The extent to which foods are excluded needs to be determined with the individual patient taking into account clinical requirements when they are unwell. Exclusion of certain foods or food group items requires careful planning of meal options between caterers and dietitians, to ensure that alternative foods are included in the diet to prevent any nutritional inadequacies (for example, alternative dairy products need to be sourced and provided).

3.6.1 Key Recommendations for Catering for Personal Diets

1. Vegetarian menus should meet the nutrition standards for energy and protein provision.
2. A lacto ovo vegetarian option should be available once daily on the regular and healthy eating menu to provide a menu that offers variety and choice of meals.
3. Provision of vegetarian options on therapeutic and texture modified diets require input from a dietitian with expertise in therapeutic diets and menu planning.

3.7 Test or Investigation Diets

Some tests or investigations require alterations to food intake for short periods such as:

Colonoscopy: A reduction in fibre intake is required before the investigation and typically a "fluid only" diet is required in the 24 hours prior to the procedure (Vanhauwaert *et al*, 2015, Liendenebaum *et al*. 2010).

Videofluoroscopy: Foods and fluids of a specific consistency are required during the procedure (RCSLT, 2013).

PET (Positron Emission Tomography) Scan: A reduction in carbohydrate intake may be required before the investigation (Mater PET/CT centre).

NOTE

Test or investigation diets may not be nutritionally adequate but should only be required for a short period. This is a sample of tests or investigations that require dietary changes in Acute Hospitals.

3.7.1 Key Recommendations for Test or Investigation Diets

1. Dietary restrictions for test or investigations should be done in accordance with local guidance and procedures.

Section 4.0

Nutrition Standards for Catering for Therapeutic Diets

4.1 Evidence Statement/ Summary

The evidence summary is included in each specific diet section.

Background

This section documents the nutrition standards for the provision of therapeutic diets which are commonly prescribed in acute hospitals. An evidence statement is provided at the beginning of each diet followed by the nutrition standards. The nutrition standards for catering for therapeutic diets are a combination of nutrient and food based standards that have been modified from the regular diet (see section 3.4) to meet the specific requirements of the therapeutic diet.

A therapeutic diet is prescribed by a dietitian or by the medical team to meet a specific medical or nutritional need. It can form part of the clinical treatment or in some cases it can be the principle treatment for a condition. Many therapeutic diets will have similar nutrient goals to those requiring a regular diet (see section 3.4) but will require different food choices, and or modified cooking techniques to achieve nutrient goals.

4.1.1 Key Recommendations for the Provision of Therapeutic Diets

1. All therapeutic diets must provide the nutrition standards for energy and protein provision for patients in hospitals, 2,100 kcals and 90g protein per day.
2. It is essential that there is a choice of food and fluid options available on therapeutic diet menus.
3. Standardised recipes must be followed each time a dish/ food is prepared.
4. Menus for therapeutic diets must be developed by the catering department in conjunction with the dietitian.
5. There must be an up to date nutritional analysis of each menu item completed or supervised by a dietitian with expertise in nutritional analysis.
6. Each menu item provided should be assessed by a dietitian with expertise in therapeutic diets to determine suitability for inclusion on specific menus.
7. All catering staff, doctors, nurses and speech and language therapists should be educated on the nutritional composition of therapeutic diets.
8. Hospitals must develop procedures for provision of therapeutic diets that are not required regularly and also for the provision of a la carte/bespoke menus for patients requiring a combination of therapeutic diets.

4.2 Nutrition Standard for a Healthy Eating Diet (suitable for patients with diabetes and/or cardiovascular disease)

The Healthy Eating diet is low in fat, sugar and salt and high in fruit and vegetables and fibre. This diet is in line with healthy eating principles for the general population (DOH, HEG and Food Pyramid, 2016) and also the nutrition standards for food and beverage provision for staff and visitors in healthcare settings (pending publication).

Patient group suitability	The Healthy Eating diet should be provided: › To support the clinical management of patients with dyslipidaemia, cardiovascular risk and hypertension (European Guidelines,2016) › To support clinical management of patients with type 1 and type 2 diabetes (ADA, 2018, Diabetes UK, 2018) (refer to Appendix VII: Guidance for diet provision for patient cohorts with specific dietary requirements for further information on diabetes dietary management) › To patients who have been identified as overweight or obese and nutritionally well › To patients who have not been identified at risk of malnutrition and who choose to consume a diet which is high in fibre and low in fat, sugar and salt.
Rationale and evidence base for the dietary recommendation	Therapeutic dietary management of cardiovascular disease, dyslipidaemia, hypertension and diabetes (European Guidelines, 2016, ADA, 2018, Diabetes UK, 2018) are all based on the principles of healthy eating. The Irish Healthy Food for Life – Healthy Eating Guidelines and Food Pyramid (2016) provides practical food based guidance to achieve a balanced diet. A healthy eating diet is also required to support public health messages on eating to protect and promote health and wellbeing.

Nutrition standard for a Healthy Eating Diet (suitable for patients with diabetes and/or cardiovascular disease) Continued

Nutrition standards for catering for a Healthy Eating diet	A Healthy Eating diet should provide the following: **Nutrient Standards*** › Energy 2,100kcals (see section 3.2) › Protein 90g (see section 3.2) › Micronutrients (vitamins and minerals) See Section 3.2 › 20-35% of energy from fat (FSAI, 2011) › < 10% of energy from saturated fat (FSAI, 2011) › < 1% energy from trans fats (DOH HEG, 2016) › < 10% of energy from sugars (non-milk extrinsic sugars, to include table sugar, syrups, fruit juice and sugars added to cakes, biscuits, confectionary, breakfast cereals, sweets, soft drinks, tinned and stewed fruit, jams, preserves, yogurts, and milk puddings.) progressively reducing to 5 % and preferably closer to 5 % (WHO, 2015) › > 25g fibre (FSAI, 2011) › 5-6g salt (DOH, HEG, 2016) › Main meal salt content: should provide < 1.5g salt per portion served (BDA, 2017). **Food Based Standards** This diet must contain the following types and amounts of foods daily to meet the nutrient standard as above: › At least 5 portions of fruit and vegetables per day › 5 servings of wholemeal cereals and breads, potatoes, pasta and rice per day › 3 servings of reduced-fat or low-fat dairy products per day › 2 servings of meat, poultry, fish, eggs, beans or nuts per day › Oily fish should be provided twice weekly (Diabetes UK, 2018) › Processed salty meats such as sausages, bacon and ham should be avoided › All cooking oils and spreads must be based on mono or polyunsaturated fats and should be used sparingly › Fruit juice should be limited to one portion daily (150ml) › Eggs: Should be limited to no more than seven eggs per week (FSAI, 2011). See Appendix V and refer to the Toolkit for standardised portion/ servings guidance.

Nutrition Standard for a Healthy Eating Diet (suitable for patients with diabetes and/or cardiovascular disease) Continued

Precautions/ additional considerations	› This menu is only suitable for patient types identified above who following nutrition screening, are not deemed to be at risk of malnutrition. › The carbohydrate content of all foods and meals will need to be visible on the menu and/or available to facilitate patients with diabetes who are carbohydrate counting (refer to Appendix VII: Guidance for diet provision for patient cohorts with specific dietary requirements for further information on diabetes dietary management).

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

4.3 Nutrition Standard for an Energy Dense Diet

The Energy Dense diet contains smaller portions of food, fortified foods and is high in fat and sugar.

Patient group suitability	An Energy Dense diet should be considered for patients who have: › A reduced appetite and/or › A poor food intake › Physical difficulty with eating and drinking › Early satiety.
Rationale and evidence base for the dietary recommendation	Given the poor appetite and reduced food intake of many patients in hospital, one of the key aims with this diet is to provide food with concentrated energy and nutrients in smaller portions in the form of 3 meals and 2 snacks. A choice of menu items of adequate energy density should be available to allow those with small appetites/intakes to achieve the recommended daily energy and protein intake. Studies have shown that recommended energy and protein targets have been achieved by using smaller portions of increased energy/ protein density foods (fortified foods), a hot breakfast and between meal snacks. Refer to the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting for a full review of the evidence.

Nutrition Standard for an Energy Dense Diet Continued

Nutrition standards for catering for an Energy Dense diet

The Energy Dense diet should provide the following:

Nutrient Standards*

- Energy 2,100kcal (see section 3.2)
- Protein 90g (see section 3.2)
- Fat, salt and sugar, no restrictions
- Micronutrients (vitamins and minerals). See section 3.2
- High energy desserts should contain 300kcal and >5g protein per portion (BDA, 2017).

Suggested Meal Nutrient Targets for Energy and Protein

Meals	Energy and Protein Content
Breakfast	400kcals and 20g protein
Midday Meal including dessert	600kcals and 25g protein
Evening Meal including dessert	600kcals and 25g protein
Snacks x 2 per day	300kcals and 4g protein
High protein milk as a beverage (400mls)	196 kcals and 20g protein

The sum of the meals and snacks should meet the nutrition standards for energy and protein.

Food Based Standards

To meet the nutrient standards for patients with smaller appetites, a menu with tasty nutrient dense options in modest portion sizes is required.

An energy dense diet must contain:

- 3 fortified reduced portion size main meals
- 2 desserts each day (at midday and evening meal); fortified or served with ice-cream, cream or custard
- 2 snacks between meals
- High protein milk to be provided with all meals.

It is essential to:

- Ensure emphasis on flavour, taste and presentation with close attention to the end quality of the food served
- Use enriched/concentrated/fortified soups/meals and desserts
- Fortify foods (add sugar, fats, spreads and oils, protein powders and or fortifying agents) to improve the protein and energy density of the meal components without increasing the portion size. Fortification of foods should not alter the appearance and/or the palatability of the food provided
- Avoid low calorie products.

Precautions/ additional considerations

- This diet is not suitable for patients identified as being nutritionally well with a normal appetite.
- It may not be possible to meet all micronutrient requirements by diet alone and supplementation may be required. Menu adequacy should be assessed by a dietitian.
- This diet would need to be adapted by a dietitian for patients who also require a therapeutic or texture modified diet.

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

4.4 Nutrition Standard for a No Added Salt Diet

A No Added Salt diet requires modification of food choices available on the regular diet to reduce salt intake.

Patient group suitability	A No Added Salt diet may be prescribed to support the medical management of patients with clinical conditions such as: › Chronic kidney disease (CKD) and end stage kidney disease (ESKD) (INDI, RIG, 2006) › Liver Disease with ascites (EASL, 2010) › Congestive Heart Failure (CCF) (Canadian Cardiovascular Society, 2002) › Hypertension (HTN) (AND, 2015) › Acute Kidney Injury (AKI) (NHS, 2015).
Rationale and evidence base for the dietary recommendation	In 2016, the Food Safety Authority of Ireland (FSAI) recommended through its "Salt and Health" report (revision 1) that an achievable salt intake target for the Irish population was 6g salt per day (2.4g sodium) (FSAI, 2005, 2016). Whilst the FSAI considers this an achievable target for the Irish population, it does not regard it as an optimal or ideal level of consumption. The World Health Organisation (WHO) currently recommends a daily intake of 5g salt per day for adults (WHO, 2012). **Specific Chronic Diseases** **CKD and ESKD:** Dietary sodium stimulates thirst and thereby greater fluid intake with excessive fluid gains between dialysis sessions leading to chronic expansion of extracellular volume in the majority of haemodialysis (HD) patients. Dietary sodium restriction is important for the regulation of interdialytic weight gains in HD patients and to improve blood pressure control in both CKD and ESKD. The Irish Nutrition and Dietetic Institute (INDI) Renal Interest Group (RIG) Guidelines (2006), for the treatment of adults with CKD and ESKD recommends a sodium restriction of 80-100mmol (5-6g salt per day). **Acute Kidney Injury (AKI):** In oliguric and fluid overloaded patients, fluid intake may be restricted. Limiting sodium intake will help control thirst and aid adherence with fluid restriction (NHS, 2015). **Liver Disease:** A no added salt diet (80-120mmol sodium or 4.6-6.9g salt per day) is appropriate in patients with ascites who require a fluid restriction (EASL, 2010).There is no evidence to restrict sodium or salt below this level (EASL, 2010). **CCF:** Excess salt or fluid in the diet may cause fluid retention in susceptible patients. All patients with symptomatic heart failure should restrict their dietary salt intake to a no-added-salt diet (AND, 2015). It is recommended to avoid excessive salt intake that is, >6g per day (Canadian Cardiovascular Society, 2002). **HTN:** The dietitian should counsel on reducing sodium intake for blood pressure reduction in adults with hypertension. Research indicates that lowering dietary sodium intake to 65mmol to 87mmol per day reduced systolic blood pressure and diastolic blood pressure up to 12 mmHg and 6 mmHg, respectively (AND, 2015).

Nutrition Standard for a No Added Salt Diet continued

Nutrition standards for catering for a No Added Salt diet	No added salt (NAS) **Nutrient Standards*** › A no added salt diet should limit total sodium intake to 80 - 100mmol (5-6g salt) per day › Main meal salt content should contain < 1.5g salt (BDA, 2017) › The nutrition standards for energy, protein and micronutrients (vitamins and minerals) should also be provided to ensure nutritional adequacy: – 2,100kcals and 90g protein (see section 3.2) – Micronutrients (vitamins and minerals). See Section 3.2.* **Food Based Standards** › Salty foods and fluids must be avoided › Salt sachets must not be placed on trays.
Precautions/ additional considerations	› It is essential that patients with clinical conditions such as liver disease or CCF are referred to a dietitian if reduced dietary intake is observed in order to assess the overall nutritional adequacy of the diet and or to relax dietary salt restrictions under supervision. › Protein energy malnutrition is common in patients with liver disease and dietary intakes can be severely limited due to early satiety and ascites volume (Akerman *et al.*1993). › On assessment of dietary intake, it can become apparent that dietary intakes are well below 80mmol of sodium and restriction is not necessary. Dietary restrictions may even further hinder the patient's intake and worsen protein energy malnutrition and outcome (PENG, 2011). › The healthy eating menu may be suitable for some patients with HTN.

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

4.5 Nutrition Standard for a Fluid Restricted Diet

A fluid restricted diet limits the amounts of fluid that can be consumed per day.

Patient group Suitability	A fluid restriction may be required as part of the medical management of the following conditions: › End stage kidney disease (ESKD) requiring haemodialysis or any stage of Chronic Kidney Disease (CKD) requiring volume management › Decompensated Liver Disease (DLD) › Congestive Cardiac failure (CCF). May be used for other patient groups at medical discretion.
Rationale and evidence base for the dietary recommendations	**ESKD:** A high intra dialytic weight gain (IDWG) in ESKD is associated with hypertension, pleural effusion, left ventricular failure, ascites, and peripheral oedema (INDI RIG, 2006, Maduell and Navarro, 2000). Higher ultrafiltration rates in haemodialysis are associated with a greater risk of all cause and cardiovascular death (Flythe *et al.* 2011; Assimon *et al*. 2016). EDTNA, 2002 recommend a fluid intake of 500ml plus previous days urinary output and maximum IDWG of 1.5-2kg or 4% of dry weight. **Liver Disease:** Oral fluid restriction may be recommended by the medical team if the patient is hyponatraemic or drinking excessive amounts with rapidly accumulating ascites (PENG 2011). Individual assessment is necessary. There is no evidence to fluid restrict in ascites except when there is severe hyponatraemia (serum sodium < 120 - 125mmol/L). Fluid intake may be restricted to 750 -1,500ml/day (EASL, 2010, Runyon, 2009). **CCF:** Fluid restriction may be considered in patients with severe heart failure to relieve symptoms and congestion (ESC, 2016). It is advised that patients with CCF should avoid excessive fluid intake and that individualised information on fluid intake should be provided. Fluid restrictions may need revision during periods of high heat and humidity, nausea and vomiting, acute decompensation and towards end of life. A fluid restriction of 1.5 – 2L per day may be considered in patients with severe heart failure to relieve symptoms and congestion (ESC, 2016).
Nutrition standards for a Fluid Restricted diet	**Food Based Standards** › The number of drinks provided to patients requiring a fluid restriction should be limited to the amount specified by the medical team, for example, 1000ml per day. **Nutrient Standards*** › The nutrition standards for energy, protein and micronutrients (vitamins and minerals) should also be provided to ensure nutritional adequacy › 2,100kcals and 90g protein (see section 3.2) › Micronutrients (vitamins and minerals). See section 3.2.*

Nutrition Standard for a Fluid Restricted Diet continued

Precautions/ additional considerations	› Ward catering staff should be informed if the patient is on a fluid restriction. › Provision of a water jug or bottled water by the bedside should be individualised. Refer to local guidance on the management of fluid restrictions. › Measurement and recording of fluid intake on the fluid balance sheet should be done by nursing staff. › Depending on the patient's medical condition, diet prescription and or degree of fluid restriction required, patient's may require education, that in addition to obvious fluids such as water, juices, tea, coffee, milk, nutritional supplements or fizzy drinks, other food items may also contribute to fluid intake e.g. ice cubes, ice cream, sauces, gravies, jelly, and milk on cereal. › Soup is generally not encouraged for patients requiring a fluid restriction due to its salt content. › Fluids for oral medication should be minimised; limit to 200ml per day where possible. Fluids given with medications should be included in the fluid restriction and recorded on the fluid balance sheet.

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

4.6 Nutrition Standard for a Gluten Free Diet

A Gluten Free diet is a diet that is required for patients who have intolerance to gluten.

Patient group suitability	› Patients with coeliac disease › Patients with dermatitis herpetiformis.
Rationale and evidence base for the dietary recommendation	Coeliac disease is an autoimmune condition in which the affected individual reacts abnormally to the ingestion of gluten and other cereal protein. Dermatitis herpetiformis is an itchy skin rash. There is a strong link between Dermatitis Herpetiformis and Coeliac Disease. For both Coeliac disease and Dermatitis Herpetiformis, the gluten free diet should be followed for life (Coeliac Society of Ireland).
Nutrition standards for catering for a Gluten Free diet	**Nutrient Standards*** › Meals should have no more than 20 parts per million (ppm) or 20mg / kg or less of gluten (BDA, 2017, FSA, 2012) › "Gluten-free" means that the food contains less than 20mg/kg gluten (www.coeliac.ie) › Calcium intake of ≥ 1,000mg/day (Ludvigsson, 2014) › The nutrition standards for energy, protein and micronutrients (vitamins and minerals) should also be provided to ensure nutritional adequacy (see section 3.2). **Food Based Standards** › All foods containing wheat, barley and rye should be avoided › Although some people with coeliac disease can include oats in their diet, oat products are at high risk of contamination from other gluten-containing cereals including wheat and barley, therefore they should not be offered as part of a hospital gluten free diet (NHS, Scotland, 2016).
Precautions/ additional considerations	› Cross contamination: It is essential that non gluten containing ingredients are protected from the risk of contamination with gluten during their storage, preparation, transportation or during serving. Ingredients that are non-gluten containing must be prepared using separate utensils, boards and containers. A risk assessment should be carried out to look at the feasibility of producing gluten-free meals on site and if not possible then pre-packed meals can be used as an alternative (FSA, 2012). › Care must be taken with any change to ingredients in relation to gluten free menu items, to ensure they remain gluten free.

Nutrition Standard for a Gluten Free Diet continued

Precautions/ additional considerations	› The Coeliac Society of Ireland produce a List of Gluten-Free Manufactured Products", also referred to as the "Food List" periodically. The Food List is compiled in accordance with current EC legislation. The booklet also features "own brand" products that are "gluten-free" from some of the main supermarket chains. The Food List is intended for use as a guide, in addition to checking food labels/food specification sheets. Updates are available in the Members Area of the Coeliac Society of Ireland's website www.coeliac.ie › Standard Communion wafers are not gluten free. If a patient wishes to receive communion a gluten free communion wafer should be provided.

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

4.7 Nutrition Standard for a Low Fibre Diet

A low fibre diet is low in fruit and vegetables. Wholemeal breads, paste, rice or cereals are not permitted on this diet as these foods are too high in fibre.

Patient group suitability	A low fibre diet is part of the recommended treatment plan for patients with acute relapses in bowel diseases such as crohns disease, ulcerative colitis, irritable bowel disease or diverticulitis. It is also recommended for a short period following some bowel and abdominal surgeries (Vanhauwaet *et al*. 2015, ACI, 2011 (b)).
Rationale and evidence base for the dietary recommendation	Fibre is the part of food that is not digested (broken down), but passes through the gut adding bulk to our diets. Fibre is found in fruit, vegetables, pulses, wholemeal, wholegrain and cereal products. Low fibre diets are prescribed: › to limit the amount of food waste that has to move into the large intestine › to minimise the risk of blockages in both the small and large intestine › to avoid excessive gas production and › to help manage diarrhoea (BDA, 2017). In most studies, low residue and low fibre are terms that have been used interchangeably and refer to the amount of fibre as opposed to the types of fibre (soluble and insoluble). The American Academy of Nutrition and Dietetics in 2011 removed the low residue diet from its nutrition care manual (Vanhauwaet *et al.* 2015) as there is no scientifically acceptable definition for the term and there is no available method to estimate the amount of food residues produced. Although several studies describe the importance of low fibre diets, there is a paucity of studies which quantitatively define a low fibre diet. Low fibre diets have been described as <10g per day (Lijoi *et al*. 2009) and this level of fibre restriction has been shown to be effective in the treatment of flare ups of irritable bowel syndrome (IBS) (Woolner and Kirby, 2000). However, increasingly, a fermentable oligosaccharide, disaccharide, monosaccharide, and polyol (FODMAP) diet is been recommended as first line therapy for IBS (Tuck *et al.* 2014). Dietary fibre restriction in the case of a relapse or flare- up of gastrointestinal diseases such as crohns and ulcerative colitis can reduce the frequency and volume of stools and induce a primary remission in disease (Vanhauwaet *et al.* 2015). Low fibre diets have been shown to reduce symptoms in patients with symptomatic diverticular disease (Wick, 2012). Once remission is achieved, the amount of fibre needs to be gradually increased until recommendations for fibre intake in a healthy balanced diet is achieved (≥25g per day).

Nutrition Standard for a Low Fibre Diet continued

Nutrition standards for catering for a Low Fibre diet	**Nutrient Standards*** › The low fibre diet should contain ≤ 10g fibre/day (Vanhauwaet, 2015, ACI(b), 2011) › The nutrition standards for energy, protein and micronutrients* (vitamins and minerals) should also be provided to ensure nutritional adequacy › 2,100kcals and 90g protein (see section 3.2). **Food Based Standards** › Wholemeal bread, rice pasta and cereal are not permitted › Fruit and vegetables are restricted.
Precautions/ additional considerations	› This is not a nutritionally adequate diet as food sources of vitamins and minerals are restricted. › A vitamin and mineral supplement may be required depending on the nutrition care plan and duration of dietary therapy.

*Nutrient standards should be provided daily for energy and protein intake

4.8 Nutrition Standard for a Renal Diet

A renal diet is a diet that is low in salt, potassium and phosphate, with adequate energy and protein. It is used for patients with kidney disease.

Patient group suitability	The Renal diet should meet the needs of: › Nutritionally well and nutritionally at risk Chronic Kidney Disease (CKD) patients › Patients with End Stage Kidney Disease (ESKD) who are receiving dialysis (Haemodialysis or Peritoneal Dialysis) › Patients with CKD Stages 3-5 who are not on dialysis › Patients with high blood potassium levels › Patients with high blood phosphate levels › Patients with CKD/ESKD who also have Diabetes.
Rationale and evidence base for the dietary recommendations	Patients with CKD display a variety of metabolic and nutritional abnormalities. Depending on their medical condition it may be necessary to modify any or all of the following aspects in their diet: Protein, Potassium, Phosphate, Salt, Energy and Fluid. The renal diet is one of the cornerstones of the treatment of CKD and reduces the generation of nitrogenous wastes and inorganic ions, which may cause many of the clinical and metabolic disturbances characteristic of uraemia (AND, 2010). The renal diet also aids in the management of hyperkalaemia, hyperphosphataemia, metabolic acidosis, and other electrolyte disorders (AND, 2010) experienced by patients with CKD. Specific nutritional requirements should be utilised for energy and protein prescription for patients with CKD and ESKD: › 0.8 - 1g protein/kg Ideal Body Weight (IBW) for patients with CKD not on dialysis › 1 - 1.2g protein/kg IBW for those requiring haemodialysis › 1.2 - 1.3g protein/kg IBW for those requiring peritoneal dialysis as per the INDI RIG Guidelines, 2006.

Nutrition Standard for a Renal Diet continued

Nutrition standards for catering for a Renal diet	**Nutrient Standards** A Renal diet should provide the following nutrient composition per day: › Energy: 2,100kcals (see section 3.2) › Protein: 70-90g* › Salt: 5 – 6g (80-100mmol) (INDI RIG, 2006, NHS, Scotland, 2016, BDA, 2017) › Potassium: <60 – 70 mmol › Phosphate: <15mg/g protein (INDI RIG, 2006) › Fluid: Individualised. Refer to Section 4.5 Fluid restricted diet. **Food Based Standards** › See toolkit for guidance. **Background information on nutrition standard for catering for the renal diet** **Energy:** The energy recommendation is based on the nutrition standard for energy provision (Refer to section 3.2). To meet this energy target from food alone, two dairy portions are recommended per day. This may need to be individualised for patients with hyperphosphataemia. ***Protein:** The protein requirement of 70 - 90g has been determined utilising the test patient (female of 60kg and male of 70kg) and the recommended nutritional requirements of 0.8 - 1g protein/kg Ideal Body Weight (IBW) for patients with CKD not on dialysis and 1 - 1.2g protein/kg IBW for those requiring haemodialysis and 1.2 - 1.3g protein/kg IBW for those requiring peritoneal dialysis as per the INDI RIG Guidelines (2006). The menus should be capable of providing the lower and upper protein requirement. Patients with a low body weight <50kg will require referral to a dietitian. (Refer to Special Consideration section below). **Potassium:** The potassium target was determined using expert clinical opinion, practical application as outlined in the meal plans (See Toolkit) and utilisation of the test patient (female of 60kg and male of 70kg) with reference nutritional requirements of <1mmol/kg IBW for patients with CKD not on dialysis and/or those requiring haemodialysis as per the INDI RIG Guidelines (2006). **Phosphate:** As the phosphate content of diet is intrinsically linked to the protein content, expert opinion was utilised and determined that a mg/g protein target should be recommended rather than a mg only target. As per the INDI RIG (2006), the target of <15mg/g protein is recommended. **Special consideration: patients with a dry body weight of less than 50kg** The renal menu nutrition standard outlined above is based around a test patient with a body weight of between 60kg (female) and 70kg (male). Special consideration is required when the menu is utilised in patients with a body weight below 50kg, especially those who are not on dialysis. Adaptation may be required where portion size is reduced or snack options are individualised. It is recommended that this individualisation is planned in conjunction with a dietitian (ideally one with renal expertise).

Nutrition Standard for a Renal Diet continued

Precautions/ additional considerations	› The renal menu must also meet the needs of patients with both CKD and Diabetes as it is estimated that the prevalence of CKD in patients with diabetes (Type 2) is as high as 43.5% (Bailey *et al.* 2014). › Many patients with kidney disease will be identified at risk of malnutrition due to the nature of their illness and compounded by the specific dietary restrictions they require. As kidney disease progresses, the risk of malnutrition also increases. Therefore, the renal menu is often required to ensure a nutritionally complete diet is available for both the ***nutritionally well*** and ***the CKD/ESKD patient identified at risk of malnutrition.*** Additional snacks may be required to meet energy and protein needs (NHS, Scotland, 2016). › Malnourished haemodialysis patients should receive nutritional counselling. In hospitalised patients counselling should be started within 3 days of referral. A daily follow – up should be performed when patients are at high nutritional risk and weekly then when at low nutritional risk (EBPG, 2007).

*Nutrient standards should be provided daily for energy and protein intake.

4.9 Nutrition Standard for Food Provision during Haemodialysis

Patients with End Stage Kidney Disease typically attend as day cases for haemodialysis (HD) 3 days per week. A dialysis session usually takes 4 hours; therefore patients are likely to miss one of their main meals on dialysis days.

Patient group suitability	› Patients attending outpatient haemodialysis units.
Rationale and evidence base for the dietary recommendation	Protein energy wasting (PEW) is common in HD patients and is a powerful predictor of morbidity and mortality. Multiple factors have been identified which contribute to this malnutrition including dialysis related nutritional losses, the catabolic effect of dialysis and reduced intake on dialysis days (INDI RIG, 2013, Kistler *et al*. 2018). While eating on dialysis has been shown to reduce blood pressure, this seems to be clinically significant in only a minority of patients. On the positive side it has been shown that the provision of nutrition during dialysis induces a positive whole body protein balance and improves patient outcomes, including mortality. In view of the adverse effects of PEW on the lives of dialysis patients, it is recommended that all efforts are made to avoid this outcome (INDI RIG, 2013, Kistler *et al*. 2018). Eating during dialysis should be considered as part of the standard practice for haemodynamically stable patients who have no contraindications and no history of intolerance to consuming food during the treatment (Kistler *et al.*2018).
Nutrition standards for catering for patients on haemodialysis	**Nutrient and Food Based Standards:** › Dialysis units should provide a protein containing snack, for example, a sandwich during the dialysis treatment › The snack should provide 20g protein and <1.5g salt per sandwich › For patients unable to tolerate eating during dialysis a protein containing snack should be provided before or after the procedure (INDI, RIG, 2016) › An alternative protein containing snack must be provided if the patient is unable to consume a sandwich due to specific dietary needs (for example swallowing disorder or a food allergy) (Kistler *et al*. 2018) › Fluid intake should be restricted to 150-200mls per dialysis session (INDI RIG, 2016) › Patients should be encouraged to take phosphate binders with their snack (INDI RIG, 2016, Kistler *et al.* 2018).
Precautions/ Additional considerations	› Efforts to identify and manage patients at risk of interdialytic symptoms should continue (INDI RIG, 2013). › If an alternative protein containing snack is required due to specific dietary needs, the patient should be referred to the dietitian for an individualised snack plan.

4.10 Nutrition Standard for a Neutropenic Diet

A neutropenic diet is a diet that is lower in potential sources of bacteria and is used in patient groups at increased risk of foodborne illness due to clinical condition.

Patient group suitability	**This diet may be required in the following patients types:** › Some cancer patients › Haematology patients undergoing chemotherapy › Bone marrow transplant (haematopoietic stem cell transplantation*) patients for example treatment of leukaemia, lymphomas, some solid tumours, other haematological conditions such as severe aplastic anaemia or autoimmune or hereditary immune disorders › Those with Acquired Immunodeficiency Syndrome (AIDS). *Haematopoietic stem cell transplantation, sometimes phrased as 'bone marrow transplant', is a complex procedure involving high dose chemotherapy conditioning which in some cases may include total body irradiation (TBI). This is then followed by the administration of stem cells. Following transplantation patients will experience a period of neutropenia (low neutrophil count) and will be advised to follow a neutropenic (clean/low microbial) diet (BDA, 2017).
Rational and evidence base for the dietary recommendations	After chemotherapy and stem cell transplantation, haematology patients are at a greater risk of infection from bacteria or fungus in food. This is for the following reasons: › The white blood cells (neutrophils) that would usually fight food poisoning bacteria are at a low level. This is called neutropenia. The gut lining which acts as a barrier between bacteria and the bloodstream is damaged by chemotherapy and radiotherapy. This makes it easier for bacteria to cross into the blood stream (BDA, 2016). A Neutropenic diet is sometimes referred to as a 'low microbial diet' or a "clean diet" (BDA, 2014). Variations of a neutropenic diet are commonly used for patients who are immuno-suppressed, for example, solid organ transplants, and therefore at increased risk of infection from ingested micro-organisms such as campylobacter, listeria and salmonella (BDA, 2016) Refer to section on solid organ transplant patients (Appendix VII Guidance for diet provision for patient cohorts with specific dietary requirements).

Nutrition Standard for a Neutropenic Diet continued

Nutrition standards for catering for a Neutropenic diet	**Food Based Standards** based on specific food safety measures that are required when: › Neutrophil counts < 2.0 x 10^9/litre (BDA, 2016) and › Neutrophil counts < 0.5 x 10^9/litre (BDA, 2016) (See Toolkit). **Nutrient Standards*** The nutrition standards for energy, protein and micronutrients (vitamins and minerals) should also be provided to ensure nutritional adequacy › 2,100kcals and 90g protein (see section 3.2) › Micronutrients (vitamins and minerals). See Section 3.2.
Precautions/ additional considerations	› Dietary restrictions to reduce the risk of infection need to be balanced against ensuring patients' nutritional needs can be met (BDA, 2016). This will be important to ensure that patients can benefit from the treatment they are receiving (NHS, Scotland, 2016). › These patient groups are frequently in-patients for prolonged periods and may have regular readmissions for treatment so menu fatigue can occur. Where possible these patients should be offered the widest choice with a variety of menus and food service styles to combat menu fatigue and altered taste perception (BDA, 2017).

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

4.11 Nutrition Standard for a Light Diet

A Light diet typically consists of small amounts of food regularly consumed that is low in fibre and fat for a short period of time.

Patient group suitability	This diet is typically required by the following patients: › Post surgery/medical procedures › When transitioning post operatively from fluids only to regular diet › That cannot tolerate the regular diet and want bland, easily digested food in small quantities due to nausea (ACI, 2011 (b)).
Rationale and evidence base for the dietary recommendation	After abdominal and intestinal surgery, it can take a period of time for normal bowel function to return (Warren *et al.* 2011). A light diet is prescribed by the surgical team post op to allow gradual introduction of foods that leave very little residue in the bowel following digestion. Often the most frequently ordered first postoperative meal is a clear liquid diet (Warren *et al.* 2011). There is limited evidence to support the choice of the initial food offered. Once patients demonstrate tolerance of liquids they are usually advanced to a light diet for a short period of time. The transition to regular diet is typically determined by the surgical team. See Section 2.1.5 for information on the Enhanced Recovery after Surgery (ERAS) Programme. ERAS aids optimisation of nutritional intake postoperatively which contributes to enhanced patient recovery.
Nutrition standards for catering for the light diet	**Food Based Standards** › A light diet is a diet that typically contains foods lower in fat, gas forming foods and spices (ACI, 2011 (b)). It is usually low in fibre and contains easily digested foods. There is no specific nutrition standard for this diet. General characteristics of this diet typically include the following: › food type allowed and to be avoided › quantity of foods to be eaten at each meal time › duration of this diet › composition of this diet is generally agreed at a local level with the surgical team/ admitting medical team. It may differ from patient to patient depending on clinical condition and also if receiving alternative forms of nutritional support.
Precautions/ additional considerations	› Refer to local guidance for this diet. › This diet should only be used for a short period of time as it will not meet the nutrition standards for energy and protein and/or micronutrients. › Patients identified at risk of malnutrition pre operatively should be referred to a dietitian for alternative form of nutritional support (refer to local policy/procedure).

4.12 Nutrition Standard for a Minimal Fat Diet for a Chyle leak

A Minimal Fat Diet is a diet that provides the lowest fat intake possible to aid in the management of a chyle leak.

Patient group Suitability	A minimal fat diet will be required for a patient where a chyle leak has been diagnosed and oral nutritional therapy in the form of a minimal fat diet is required (McCray and Parrish, 2004). Consuming a minimal fat diet can help a chyle leak heal. When you eat less fat, the body produces less chyle which in turn reduces the leakage. This allows the tear to heal more quickly. Patients with a higher risk of occurrence include: **Lymphoma:** approximately 60% of chyle leaks are due to lymphoma (Stewart, Hunter, O'Byrne and Snowden, 2001). **Radical Neck Dissection:** the incidence after radical neck dissection is 1 – 2.5% (McCray and Parrish, 2004). **Cardiothoracic surgery:** the incidence after cardiothoracic surgery is 0.2 – 1% (McCray and Parrish, 2004). List of potential causes (McCray and Parrish, 2004, Bibby and Maskell, 2014): › Pulmonary resection › Penetrating trauma › Lymphangioleiomyomatosis (LAM) › Cirrhosis › Tuberculosis › Sarcoidosis (infiltration) › Idiopathic.
Rationale and evidence base for the dietary recommendations	Chylous leakage from the lymphatic system is a rare, complex problem that usually results from injury or abnormality of the thoracic duct. Leaks are often difficult to manage and correct. Nutritional therapy plays a major role in the conservative treatment of a leak (McCray and Parrish, 2004). As chyle is rich in nutrients, a chyle leak may lead to malnutrition, dehydration, electrolyte imbalance and delayed wound healing (Pan *et al*. 2016). The goals of nutritional therapy for the management of chyle leak include (McCray and Parrish, 2004): **1.** Decreased production of chyle fluid in order to avoid aggravating the effusion, ascites or chest tube drainage **2.** Replace fluid and electrolytes **3.** Maintain or replete nutritional status and prevent malnutrition and **4.** Ensure an adequate protein intake (taking into account losses in external drains/'chylous fluid taps' if present).

Nutrition Standard for a Minimal Fat Diet for a Chyle leak continued

Nutrition standard for catering for a Minimal Fat diet for a chyle leak	**Nutrient and Food Based Standards*** › A minimal fat diet should be provided as follows: – minimal fat content with adequate energy and protein to replace losses from the chyle (McCray and Parrish, 2004) – Practically, 5-10g of fat per day is the lowest that can be achieved with dietary restriction (BDA Manual of Dietetic Practice, 2014) › 2 – 4% of total calories should be from essential fatty acids to avoid essential fatty acid deficiency (McCray and Parrish, 2004). › The nutrition standards for energy, protein and micronutrients (vitamins and minerals) should also be provided to ensure nutritional adequacy – 2,100kcals and 90g protein (see section 3.2) – Micronutrients (vitamins and minerals). See Section 3.2.*
Precautions/ additional considerations	› This diet may not provide adequate energy, and intake of fat soluble vitamins and essential fatty acids may be compromised. Essential fatty acid deficiency (EFAD) can begin to occur within as little as five days without provision of nutrition support (McCray and Parrish, 2004). Assessment by a dietitian should be performed (ACI, 2011b) and individualised advice given. Nutritional status should be monitored closely (McCray and Parrish, 2004). › The use of fat free oral nutritional supplements may be necessary (McCray and Parrish, 2004, ACI, 2011b). Special consideration will be required for patients with Diabetes due to the reliance on foods with a high added sugar content as an energy source.

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

4.13 Guidance for Diet Provision for Patient Cohorts with Specific Dietary Requirements

There are a number of patients cohorts admitted to acute hospitals whose nutritional requirements and food provision will vary from the standards already specified. These include but are not limited to:

- Diabetes
- Steroid Induced Hyperglycaemia in patients without diabetes
- Decompensated liver disease (DLD)
- Dementia
- Inherited Metabolic Disorder
- Patients requiring combination diet therapy
- Taste changes post cancer
- Post bariatric surgery
- Obesity
- Solid Organ Transplant.

Appendix VII provides guidance on additional considerations required when menu planning for these patient cohorts. It is based on dietetic experience with providing dietary management in the acute care setting. It provides an overview of patient characteristics that impact on application of the nutrition standards for diets specified. In addition it highlights the additional considerations that should be taken into account when planning and providing diets for these patients cohorts.

NOTE:

- Individual standard menus will not meet the nutritional/dietary needs of patients who require more than a single diet without modification by a dietitian.
- Patients with multiple co morbidities typically require a combination of therapeutic diets. In addition, they may already have pre-existing chronic disease related malnutrition.
- Many of this patient type will require referral to the dietitian for nutrition assessment and an individualised nutrition care plan.

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4.13.1 Key Recommendations for Diet Provision for Patient Cohorts with Specific Dietary Requirements

1. Guidance in Appendix VII should be considered when catering for patient cohorts outlined above.
2. Local procedures should be put in place based on assessment of local need for food provision for patients with specific nutritional requirements.
3. Operational issues for diet provision should be considered for these patient cohorts.

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Section 5.0

Nutrition Standards for Catering for Texture Modified Diets and Thickened Drinks (Liquids)

5.1 Evidence Statement/Summary

The evidence summary is included in each specific diet section.

Background

This section documents the nutrition standards for the provision of texture modified diets and thickened drinks which are commonly prescribed in acute hospitals. Texture modification of foods and thickening of drinks (liquids) forms a routine part of the assessment and treatment of oropharyngeal dysphagia (swallowing difficulties). Oropharyngeal dysphagia contributes to reduced dietary intake and potentially to malnutrition, choking and aspiration (Cichero and Murdock, 2006). A texture modified diet is prescribed by a speech and language therapist or by the medical staff/trained health care professional for patients with oropharyngeal dysphagia. If this recommendation is not followed or the consistency of drinks/diet is incorrect, the individual may face serious health consequences.

The standard terminology for the management of texture modified diets and thickened drinks in Ireland, is the International Dysphagia Diet Standardisation Initiative (IDDSI) 2015.

The IDDSI is a global standard with terminology and definitions to describe texture modified foods and thickened liquids used for individuals with dysphagia of all ages, in all care settings, and for all cultures. It is important to note that prior to the introduction of the IDDSI, The Irish Consistency Descriptors for Modified Fluids and Food: Consensus Document (Nov 2009) was used to manage modified consistency diet and fluids. Patients requiring a texture modified diet will have similar nutrient goals to those on a regular diet or on a therapeutic diet but require different food choices and texture of foods to achieve goals.

5.1.1 Key Recommendations for the Provision of Texture Modified Diets

1. All texture modified diets must provide the nutrition standards for energy and protein provision for patients in hospitals, 2,100 kcals and 90g protein per day.
2. It is essential that there is a choice of food and fluid options available on texture modified diet menus.
3. Standardised recipes must be followed each time a dish/food is prepared.
4. Menus for texture modified diets must be developed by the catering department in conjunction with the speech and language therapist and the dietitian.
5. Within the IDDSI Framework for texture modified diets and thickened drinks (liquids), food and drinks descriptors are supported by simple measurement methods. These measurement methods must be used to confirm the level a food or drink fits (Refer to http://iddsi.org).
6. There must be an up to date nutritional analysis of each menu item completed or supervised by a dietitian with expertise in nutritional analysis.
7. Each menu item provided should be assessed by a dietitian with expertise in therapeutic diets to determine suitability for inclusion on specific menus.
8. All catering staff, doctors, nurses and speech and language therapists should be educated on the nutritional composition of texture modified diets.
9. Hospitals must develop procedures for provision of texture modified diets that are not required regularly and also for the provision of a la carte menu/ bespoke menus for patients requiring a combination of texture modified and therapeutic diets.

5.2 Nutrition Standards for Texture Modified Diets

Texture Modified diets contain food with altered texture to enable a patient to chew and swallow it safely.

Patient Group Suitability	A texture modified diet will be required in the following patient cohorts: › Patients with oropharyngeal dysphagia › Patients at risk of aspiration. A texture modified diet may also be required in the following patient cohorts on request by a member of the medical team: › Patients with altered oesophageal anatomy as well as gastrointestinal strictures › Post upper gastrointestinal/oral surgery, for example, post jaw wiring. It may also be requested for: › Patients who chose to eat a texture modified diet › Patients with poor dentition/sore mouth or throat.
Rationale and evidence base for the dietary recommendations	Texture modification of foods and thickening of fluids forms a routine part of the assessment and treatment of oropharyngeal dysphagia (swallowing difficulties). Oropharyngeal dysphagia contributes to reduced dietary intake and potentially to malnutrition, choking and aspiration (Cichero and Murdock, 2006). Some patients may require specific modifications. These will be prescribed on an individual basis following assessment by speech and language therapist (SLT). The International Dysphagia Diet Standardisation Initiative (IDDSI) Framework, 2015 consists of a continuum of 8 levels (0-7). It provides a systematic approach to consistent production and easy testing of texture modified foods and thickened drinks. Food and drink levels are identified by text labels, numbers and colour codes to improve patient safety and identification, see Figure 4.
Nutrition standards for catering for Texture Modified diets	Textured modified diets must be provided in accordance with the food based standards within the IDDSI framework. **Food Based Standards:** Within the IDDSI framework, there are 5 levels of food texture (Levels 3-7). There are specific standards for each food texture. A description/characteristic, rationale and precautions for each food texture level are provided below.
	Diet: Level 7 Regular diet **Description/Characteristics:** There are no texture restrictions at this level. Normal, everyday foods of various textures are allowed. Foods may be hard, crunchy or naturally soft. Regular diet includes hard, tough, chewy, fibrous, stringy, dry, crispy, crunchy or crumbly foods. **Precautions:** Nil precautions

Texture Modified Diets continued

Diet: Level 6 Soft and Bite-Sized

Description/Characteristics:

- Can be eaten with a fork/spoon
- Can be mashed/broken down with pressure from fork/spoon.
- A knife is not required to cut these foods, but may be used to help loading a spoon/fork
- Chewing is required before swallowing
- Soft, tender and moist throughout but with no separate thin liquid
- "Bite size" pieces as appropriate - Adults 1.5cm. x 1.5cm.

Rationale:

- Biting is not required
- Chewing is required
- Tongue force and control to move the food for chewing and to keep it in the mouth during chewing
- Tongue force is required to move the bolus for swallowing
- Pain or fatigue on chewing
- Missing teeth/poorly fitting dentures.

Precautions:

- Target particle size no bigger than 1.5cm x 1.5cm
- All sauces and gravies must be thickened to the appropriate level for patients on modified/thickened fluids
- Fibrous parts of fruit are not suitable
- No bread allowed unless assessed as suitable by the speech and language therapist on an individual basis.

Texture Modified Diets continued

	Diet: Level 5 Minced and Moist **Description/Characteristics** Can be eaten with a fork/spoon › Can be scooped and shaped into a ball shape on a plate › Soft and moist with no separate thin liquid › Small viable lumps within the foods - Adults 4mm › Lumps are easy to squash with tongue. **Rationale:** › Biting is not required › Minimal chewing is required › Tongue force alone can be used to break soft particles in this texture › Tongue force is required to move the bolus › Pain or fatigue on chewing › Missing teeth, poorly fitting dentures. **Precautions:** › Target particle size is 2-4mm › All gravies/sauces must be extremely thick, smooth and non - pouring in consistency › No regular, dry bread unless recommended by a speech and language therapist on an individual basis › Rice: Not sticky or glutinous (particularly short grain rice) and should not be particulate or separate into individual grains when cooked and served (particularly long grain rice).
	Diet: Level 4 Pureed **Description/Characteristics:** › Usually can be eaten with a spoon › Does not require chewing › Can be piped, layered or moulded › Shows some very slow movement under gravity but cannot be poured › Falls off a single spoonful when tilted and continues to hold shape on a plate › No lumps › Not sticky › Liquid must not separate from solid.

Texture Modified Diets continued

	Rationale: › If tongue control is significantly reduced, this category may be easiest to manage › Requires less propulsion than Minced & Moist (Level 5), Soft (Level 6) and Regular (Level 7) but more than Liquidised (Level 3) › No biting or chewing is required › Increased residue is a risk if too sticky › Any food that requires chewing, controlled manipulation or bolus formation are not suitable › Pain on chewing or swallowing › Missing teeth, poorly fitted dentures. **Precautions:** › Ensure all sauces/gravy are extremely thick, smooth and non pouring.
	Diet: Level 3 Liquidised **Description/Characteristics:** › Can be drunk from a cup › Cannot be piped, layered or moulded onto a plate › Cannot be eaten with a fork because it drips slowly in dollops through the prongs › Can be eaten with a spoon › No oral processing or chewing required - can be swallowed directly › Smooth texture with no “bits” (lumps, fibers, bits of shell or skin, husk, particles of gristle or bone). **Rationale:** › Needs some tongue propulsion effort › Pain on swallowing. **Precautions:** Due to the liquid nature of this diet, it will not be suitable for those who require Level 4: Extremely Thick Drinks. **Nutrient Standards*** › The nutrition standards for energy, protein and micronutrients (vitamins and minerals) should also be provided in each diet level to ensure nutritionally adequacy › 2,100kcals and 90g protein (see section 3.2) › Micronutrients (vitamins and minerals). See Section 3.2.

Precautions/ additional considerations recommendations	› Within the IDDSI Framework, food descriptors are supported by simple measurement methods that must be used by patients with dysphagia or by caregivers, clinicians, food service professionals or industry to confirm the level a food fits into. › If the texture modified diet is produced in house extreme care needs to be taken to ensure the consistency of the diet meets the above specific requirements (BDA, 2017). If the consistency of the diet cannot be guaranteed when produced in house, it may be necessary to purchase texture modified meals from an alternative provider which comply with texture modified guidelines. › Presentation and taste of texture modified diets must be optimised to aid intake. Level 4 Pureed diets can be piped, layered or moulded (IDDSI, 2015). › Oral nutritional supplements and/or vitamin and mineral supplementation may be required due to restrictions on food types allowed.

*Nutrient standards should be provided daily for energy and protein intake and averaged over a week for micronutrients.

5.3 Nutrition Standards for Thickened Drinks (Liquids)

Thickened Drinks (Liquids) are drinks which have their consistency altered (made thicker) to enable a patient to swallow the drink safely.

Patient Suitability	› Patients with oropharyngeal dysphagia › Patients at risk of choking › Patients at risk of aspiration.
Rationale and evidence base for the dietary recommendation	The Rationale and evidence base is the same as for texture modified foods. The standard terminology for the management of modified/ thickened drinks is the IDDSI, 2015 (see Figure 4).
Nutrition standards for provision of Thickened Drinks	Thickened drinks must be provided in accordance with the food based standards within the IDDSI framework. **Food Based Standards:** Within the IDDSI framework, there are 5 levels of drinks (Level 0-4). There are specific standards for each drinks level. A description/ characteristics, and the rationale for each drinks level is provided below.
	Level 0: Thin **Description/Characteristics** › Flows like water › Fast flow › Can drink through any type of cup/straw. **Rationale** › Functional ability to safely manage liquids of all types.
	Level 1: Slightly Thick **Description/Characteristics** › Thicker than water › Requires a little more effort to drink than thin liquids › Flows through a straw/syringe. **Rationale** › To provide thickened fluids of a slightly thick consistency when thinner fluids are unsafe.
	Level 2: Mildly Thick **Description/Characteristics** › Flows off a spoon › Sippable, pours quickly from a spoon, but slower than thin drinks › Effort is required to drink this thickness through standard bore straw (standard bore straw = 0.209 inch or 5.3mm diameter). **Rationale** › If thin drinks flow too fast to be controlled safely, these Mildly Thick liquids will flow at a slightly slower rate › May be suitable if tongue control is slightly reduced.

Thickened Drinks (Liquids) continued

	Level 3: Moderately Thick **Description/Characteristics** › Sippable, pours slowly off a spoon › Difficulty to suck through a standard bore or wide bore straw (wide bore straw = 0.275 inch or 6.9mm). **Rationale** › If tongue control is insufficient to manage Mildly Thick drinks (Level 2), this Moderately Thick level may be suitable › Flows slowly from a spoon or cup: easier to control › Allows more time for oral control › Needs some tongue propulsion effort.
	Level 4 Extremely Thick **Description/Characteristics** › Holds its shape on a spoon › Flows very slowly under gravity › Cannot be sucked through a straw. **Rationale** › If tongue control is significantly reduced, this level may be easiest to manage › Increased residue is a risk.
Precautions	› Within the IDDSI Framework, drinks descriptors are supported by simple measurement methods that must be used by patients with dysphagia or by caregivers, clinicians, food service professionals or industry to confirm the level a drink fits into. › Foods of a fluid texture must be assessed by a speech and language therapist and coded as per level of suitability. For example, soup, milk pudding etc. › Patients may be at increased risk of dehydration and require monitoring of fluid intake and hydration status.

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Section 6.0

Food Production

6.1 Evidence Statement/Summary

Catering for inpatients requires food provision to a varied group of patients with different dietary needs (Figure 2) including many who are already malnourished or at risk of malnutrition. Patients want a choice of food available which is tasty and served at the correct temperature (The Patients Association 2016, National Patient Experience Survey 2017). Close collaboration and effective communication between clinical and catering staff is vital to ensure that patients receive the correct food, in a form that they can eat at the right time. Food provision needs to be monitored and reviewed to ensure optimal intakes (Howard *et al*. 2006).

The nutritional status of the patient depends on a chain of interacting links (Figure 5). Suboptimal performance at any stage of the process leads to a reduction in the amount a patient eats and increases food waste. The priorities for the food production team are to prepare food using ingredients from the HSE food tenders, within allocated budget, and a specific food production and food service system. The majority of hospitals prepare and cook meals in their on - site kitchens. A 'cook –fresh' food is the production method used in most acute hospitals with the majority of other hospitals using either a 'cook –chill' or 'cook-freeze' system (HIQA, 2016). Some hospitals use a variety of production systems, for example, some hospitals purchase frozen meals to cater for specific texture modified and religious diets such as pureed (level 4) and halal meals.

It is important to understand the production method used as it can influence the quality, taste and appearance of the meal served to the patient. Following production, food is generally centrally plated or is served from a mobile buffet trolley on the ward (HIQA, 2016). Food produced must be safe, nutritious and support the management of clinical conditions. Additionally food should taste and look appetising as these are key requisites for a good patient meal experience. Hospital catering must follow stringent food production and food hygiene guidelines to ensure food safety. Food prepared in hospitals must be compliant with all relevant food safety legislation. Additionally, if using Cook Chill as a food production system the hospital must comply with FSAI (2018) Guidance Note No. 15: Cook-chill systems in the food service sector (revision 2). More detailed information on food safety can be found in Section 6.3. Figure 6 provides an overview of food production and food service.

6.1.1 The procurement process

Since 2014 the Government has mandated the Office of Government Procurement (OGP) to manage tendering processes for all common expenditure across Government Departments and Agencies and includes HSE procurement of food and food services. The OGP works with the HSE Food Services Sourcing team as part of the procurement process. The HSE Food Sourcing Team draw up food specifications required to cater for patients in acute hospitals. In addition, this team participates in the qualitative evaluation of tenders against food specifications. These specifications must be in line with European Directives and other standards which clearly define the requirement at tender stage.

Procurement Core Values:

All purchasing of food and food services is governed by the following core values:

- Achieving efficiency, effectiveness and best value for money in terms of overall life-cycle
- Patient and customer focus
- Dealing with quality suppliers, contractors and service providers
- Operating in a fair, open, transparent and non-discriminatory manner in the marketplace
- Risk management
- Compliance with all relevant European and National legislation and government guidelines
- Operating to the highest ethical standard.

6.1.2 Key Recommendations for Procurement

1. It is recommended that membership of the HSE Food Sourcing team would be expanded to include dietetic and chefs representation to ensure that food procured will enable implementation of the nutrition standards.
2. Dietitians must ensure that food specifications are tendered for to meet the nutritional requirements of all patients.
3. All procurement processes including the sourcing, buying and provision or tendering processes must incorporate the nutrition standards for patients.

6.2 Menu Planning

6.2.1 Evidence Statement/Summary

Menu planning should take cognisance of the care setting and patient population it will serve. Menu provision requires regular review. The aim of menu planning should be to maximise the potential for patients to meet their nutritional requirements utilising a food first approach. The Council of Europe Resolution on Food and Nutritional Care in Hospitals (2003) states "Ordinary food by the oral route should be the first choice to correct or prevent under-nutrition in patients. Sip feedings should not be used as a substitute for the adequate provision of ordinary food and should only be used where there are clear clinical indications". Refer to the National Clinical Guideline: Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting (Expected publication date 2019) on clinical indications for oral nutritional supplements and appropriate use.

Types of Menu

Cyclic or Menu Cycles

Menu cycles are most commonly used in acute hospitals with a typical duration of between 1 and 4 weeks. Menu cycles are particularly useful for managing production for large numbers whilst providing food choice and a variety of meals.

Bespoke Diets or a la Carte Menus

Bespoke or a la Carte menus are used for small numbers of in-patients in hospitals. These patients require meals that cannot be accommodated within the standard menu cycles. Reasons for this may be due to the following:

- Religious or cultural dietary preferences
- Specific acute medical condition /disease, for example, metabolic diet
- Requirement for an allergy free diet
- Requirement for combination diet therapy
- Palliative patients.

Development of bespoke/a la carte menus

provides this cohort of patients (usually small numbers) a greater choice of dishes that are more suitable for their specific nutritional needs. It creates greater patient satisfaction and allows the kitchen production to be planned.

Where patients have an extended length of stay in hospital (malnutrition is associated with increased length of stay) (IrSPEN, 2014), menu fatigue may be a limiting factor to optimising intake. Introduction of a supplementary a la carte menu to the cyclic menu can be beneficial in this case.

When planning bespoke or a la carte menus, flexibility should be incorporated for frequent meal patterns, adequate choices and include high energy and healthy eating choices (BDA, 2017, NHS, Scotland, 2016).

Range of Menus and Snacks Required

Once the menu requirements for the patient population have been established, recipes are reviewed and /or created (See section standardised recipes) by the chef and dietitian that meet the nutrition standards for macro and micronutrients. Food texture/ consistency assessment by the speech and language therapist enables coding of foods against the International Dysphagia Diet Standardisation Initiative (IDDSI) framework for inclusion on texture modified diets. Nutritional analysis provides the dietitian with the necessary information to code recipes and foods for therapeutic menus. It also provides guidance for the dietitian to suggest ingredient or cooking method changes to the chef to enable the recipe to be amended for a particular therapeutic requirement. Once all recipes and food stuffs have been coded, individual menu cycles for diet provision can be developed and or updated. Typically the following menus will be required:

- Regular
- Energy Dense
- Healthy Eating
- Texture Modified
- Renal
- Gluten Free
- No added salt
- Low fibre
- Light diet
- Menus may also be required for patients who are neutropenic and /or who require a minimal fat diet for a chyle leak.

Range of Snacks Required

A range of snacks will be required that:

- Provide the nutrition standards for energy and protein
- Are suitable for the individual therapeutic diets
- Are suitable for texture modified diets
- Provide patients with a choice.

Many patients will require multiple therapeutic diets (combination diet) as a result of their comorbidities and /or their acute illness, for example renal diabetic (comorbidities) also requiring a texture modified diet due to recent stroke and resulting swallowing impairment (acute illness). Recipe and food coding will enable suitable choices for this type of menu cycle and suitable snack options to be developed. Local assessment of combination diets required should be conducted to ensure these complicated menu requirements can be adequately catered for, that is, sufficient food choice is available for patients.

Standardised Recipes and Portion Control

Standardised recipes form an important part of a well-managed food production system. Developing and adhering to standardised recipes ensures the end product can be made to the same specification every time, thereby ensuring safe provision of therapeutic and texture modified diets. Portion control measures must be used to ensure that the yield of batch recipes is achieved on a consistent basis, that is, weight of a cooked portion for a dish, for example, lasagne. Standard serving equipment should be used when plating or serving from bulk containers for individual food items so that minimum portions sizes are consistently provided.

Food production for patients must utilise standardised recipes and portion control to address the following:

- Ensure that the highest quality ingredients are sourced through the procurement process
- Enable catering managers to control food costs by minimising fluctuations in food ordering and thereby ensuring that production is within agreed budget
- Assess the nutritional composition of the dish
- Accurate nutritional analysis. Standardised recipes and portion control must be in place before a menu can be nutritionally analysed
- Assess meal suitability for specific therapeutic diets i.e. renal, low fibre
- Assess meal suitability for texture modified diets using the IDDSI framework
- Food provision is safe for specific clinical conditions, that is, the potassium content of a renal dish is at level specified in the nutrition standard for a renal diet
- Food/ meal coding, that is, Beef stew: Suitable for Regular Diet, Healthy Eating Diet, No added Salt Diet, etc.
- Ensure that accurate allergen information is available for all foods and meals provided on a daily basis (Regulation (EU) No1169/2011)
- Aid reduction of un-served food waste (see section 6.5 on food waste) (BDA, 2017, Scotland, 2016).

Meal presentation

The final presentation of the meal needs to be considered in the context of ensuring that all food items on the plate are presented in an appetising and aesthetically appealing way as “we eat with our eyes”. If the food doesn’t look appealing it is unlikely that it will all be eaten. A study by Navarro *et al*. 2016 in France divided 206 newly hospitalised patients into 2 groups; one received the standard lunch provided by the hospital and the second received the same lunch but which was improved in terms of meal presentation. This study demonstrated that improvement of meal presentation resulted in increased food intake, reduced food waste and also significantly reduced readmission rates ($p<0.02$) compared to the group that received the standard lunch meal.

6.2.2 Key Recommendations for Menu Planning

1. Menu planning should be carried out by a team including the catering manager, chef, dietitian and in consultation with patient representation. Menu planning for patients with dysphagia should also be done in conjunction with the speech and language therapist.

2. When planning and designing hospital menus the following should be taken into consideration:

- Assessment of the patient type requiring food provision including:
  - Age Profile
  - Gender
  - Length of stay. Length of stay varies depending on hospital type and needs to be considered at local level. Length of stay is particularly important to consider as it has been shown that food provision becomes more important to the patient the longer the duration of the admission (BDA, 2017, NPES, 2017, The Patients Association, 2016).
  - Nutrition standards (see section 3.0, 4.0 and 5.0)
  - The nutritional profile of the patient cohort (prevalence of malnutrition)
  - Cultural, ethnic and religious beliefs
  - Personal food preferences
  - Clinical requirements
  - Cost and resource requirements (BDA, 2017, NHS Scotland, 2016).

3. The specific requirements of clinical specialities need to be assessed and menus developed to meet requirements of each individual speciality for example:

- Nephrology requires access to a renal and renal diabetic menu
- Gastroenterology requires access to a gluten free and low fibre menu.

4. Menu Core Requirements

4.1 The menu for each diet provided should include 3 main meals and 2 snacks each day

4.1.2. Standardised recipes and portion control must be used to ensure consistent nutritional, quality and cost.

4.1.2(a) A standardised recipe must include the following:

- A title that describes the meal content
- Exact description of the ingredients, that is, brand types
- Weight of raw ingredients
- Preparation and cooking method
- Cooking temperatures and approximate times
- Recipe yield
- Weight or volume of a single cooked portion
- Equipment used to serve a single cooked portion
- Food allergens
- Specific information on holding and serving temperatures can also be included.

Key Recommendations for Menu Planning continued

5. A choice of snacks meeting the nutrition standards (Section 3.0) and suitable for therapeutic (Section 4.0) and texture modified diets (Section 5.0) must be available.
6. Replacement meals produced in accordance with the nutrition standards must be available if meals are missed during food service times (see section 7.1.2 for nutrition standards for replacement meals).
7. All menus should have a full nutritional analysis undertaken or supervised by a dietitian with expertise in nutritional analysis and menu planning for patients. This is essential to ensure appropriate interpretation of food input data, and analysis of results produced by nutritional analysis software programmes (NHS, Scotland, 2016).
8. Menus must provide the nutrition standards for macro and micronutrients for each diet (see section 3.0, 4.0 and 5.0).
9. Each menu must provide a choice of meals and desserts. Studies have shown that choice is a key factor affecting food intake and satisfaction (NPES, 2017, The Patients Association, 2016, Stanga *et al*. 2003 and Watters *et al*. 2003).
10. Each menu must have an adequate rotation cycle that meets the needs of the specific patient population that it is used for.
11. Food must taste good and look aesthetically appealing.
12. Patient involvement should be included at all stages of menu planning including development, monitoring and evaluation.
13. Development of bespoke /a la carte menus should be considered for particular patient cohorts with specific nutritional requirements that cannot be accommodated within the standard menu cycles (see section 4.0).
14. Measures should be put in place to identify and support patients with extended lengths of stay. Addition of a la carte options in addition to cyclic menus should be considered for this patient cohort.

6.3 Food Safety

6.3.1 Evidence Statement /Summary

What is food safety and why is it important?

Good food safety is very important to ensure that a hospital produces food that is safe to eat. Poor food safety practices can put a patient at risk and help to spread germs that cause food poisoning. This can lead to serious illness, even death, especially among the very young, the very old and sick people who are particularly at risk from food poisoning (World Health Organisation, 2017). Good food safety practices during purchase, storage, preparation and serving of food reduce the risk of patients getting sick from the food they eat.

There are many rules for good food safety including:

- Proper cleaning and disinfection of all surfaces, equipment and utensils
- Good personal hygiene practices, especially hand-washing
- Good storage, chilling and cooking practices, especially regarding temperature, the environment and the equipment used
- Good pest control practices
- Proper handling of ready-to-eat food
- Training of food workers to understand food poisoning, food allergies and food intolerance. A helpful guide to the level of training required by different staff members is available from the FSAI: the FSAI Guide to Food Safety Training Level 1 and 2.

Regardless of why you are handling food, whether as part of your job or cooking at home, it is essential to always apply the proper food safety principles.

What is Food Poisoning?

Food poisoning is an illness that is caused by eating contaminated food. It usually results in vomiting and/or diarrhoea. The symptoms can begin between one and 72 hours after eating the contaminated food and can last for days or even weeks.

Sometimes the symptoms of food poisoning can be mixed up with other illnesses, such as the winter vomiting bug. In order to decide whether or not a patient is definitely suffering from food poisoning, a doctor will have to conduct a diagnostic test, such as a blood test, stool culture or an examination for parasites, to identify the cause and confirm the diagnosis.

What are the regulations governing food safety in Ireland?

One of the most important pieces of food safety legislation in Ireland is EC Regulation No 852/2004 on the hygiene of foodstuffs. This regulation applies to all food businesses, including hospitals, care homes, hotels, restaurants, shops, supermarkets, public houses and B&Bs. Everybody involved in food preparation is responsible for ensuring that the production, processing and distribution of food under their control is carried out in a safe manner. In addition, there is a long list of food safety legislation that is revised and updated on a regular basis. The list includes, various Acts, Regulations and Orders made at national level as well as Directives and Regulations made at EU level. An itemised list can be found at: https://www.fsai.ie/legislation/food_legislation.html. The Environmental Health Service is responsible for enforcement of relevant food safety legislation. Regular programmed inspections are carried out by the Environmental Health Service.

Food Safety and Provision of Snacks

A trolley snack service should be provided for patients at least twice daily (mid- morning or mid- afternoon) and in the evening (~7-8pm) so that food is provided when required. In some cases, it may be necessary to deliver this snack at the same time as a meal service in the absence of a dedicated trolley snack service. Snack options may include some cold foods that are vulnerable to bacterial contamination and growth. Bacteria that cause food poisoning grow at temperatures between 5°C and 63°C; above refrigeration temperatures and below hot holding temperatures. Bacteria grow best at warm temperatures, approximately 25° to 40°C.

Therefore if you are serving snacks to patients at the same time as a meal service it is very important to take into account the recommendations outlined below.

6.3.2 Key Recommendations for Food Safety

1. All staff involved in the handling and provision of food should always apply the proper food safety principles.
2. Access to food safety training must be available.
3. Food must be prepared and produced in accordance with food safety legislation.
4. Protocols for snack provision must be developed:
   - Protocols for serving snacks should be developed with your local HSE Environmental Health Officer. The FSAI 'Safe Food to Go' document recommends that vulnerable food should be left at room temperatures for no longer than two hours. A link to the FSAI 'Safe Food to Go' (2017) document may be found here: https://www.fsai.ie/food_businesses/training/food_safety_training_resources.html
   - The protocol should include control measures to ensure the food is eaten or discarded after the safe time period has elapsed. This only applies to snack foods such as yoghurts and wrapped single portion cheeses, etc. It does not apply to the main meal service.

6.4 Food Allergens and EU Legislation

6.4.1 Evidence Statement/Summary

What is a food allergy and why is it important?

A food allergy is the response of the body's immune system that occurs soon after eating a certain food. Examples of food that cause allergies are peanuts, milk and eggs. For most people these substances (allergens) pose no problem, but in allergic individuals eating a tiny amount of the allergen can trigger side effects. These side effects can be mild or can even be life threatening.

For some people, an allergic reaction to a particular food may be uncomfortable but not severe. For other people, an allergic food reaction can be frightening and even life-threatening. Food allergy symptoms usually develop within a few minutes to two hours after eating the offending food.

The most common food allergy signs and symptoms include:

- Tingling or itching in the mouth
- Hives, itching or eczema
- Swelling of the lips, face, tongue and throat or other parts of the body
- Wheezing, nasal congestion or trouble breathing
- Abdominal pain, diarrhoea, nausea or vomiting
- Dizziness, light-headedness or fainting.

(Mayo Clinic, 2018)

Anaphylaxis: In some people, a food allergy can trigger a severe allergic reaction called anaphylaxis. This can be life threatening. To ensure that a patient with a food allergy can make a safe food choice, it's important to inform them if there is a particular allergen in the food offered.

What are the regulations governing declaration of allergens in Ireland?

From December 13th 2014 it became EU law to declare the food allergens contained in non-prepacked food.

The full text of this regulation (Regulation (EU) No 1169/2011 of the European Parliament and of the Council on the provision of food information to consumers) can be found here: https://www.fsai.ie/uploadedFiles/Consol_Reg1169_2011.pdf

A non-prepacked food includes:

- Foods sold in loose form for example foods sold in restaurants, delis, cafés, canteens, takeaways, retail outlets, etc.
- Foods packed on the premises at the request of the consumer, for example a sandwich made and packed into a plastic triangle for the customer
- Foods packed on the premises for direct sale to the consumer or mass caterer, for example lasagne made in a café kitchen and sold packaged from a fridge in the café.

Most of the food provided in the hospital is not prepacked. For example, the breakfast, lunch and dinner provided to patients is not prepacked. Sandwiches made to order (even if they are wrapped in cling film or paper) are not considered to be prepacked.

6.4.2 Key Recommendations

Food Allergens

1. For a hospital to comply with these regulations, allergen ingredients in all non-prepacked food must be identified.

2. Allergen information must be provided to all patients and staff and comply with the following requirements:

- It must be in written form in English or in Irish and English.
- Easily located and accessible before the sale or supply of the food – patients must have the information before buying or choosing and must not have to ask for the information.
- Relate directly to a food or beverage so there is no confusion about which food it relates to. It is not acceptable to say 'Our food contains…'. You must identify the exact food, for example, 'spaghetti bolognaise contains milk, celery, wheat'.
- Legible handwritten or printed format.

Advice on compliance with these regulations may be found on the FSAI website and in the FSAI booklet *Allergen Information for Non-Prepacked Food* a link to which may be found here:

https://www.fsai.ie/legislation/food_legislation/food_information_fic/allergens.html

6.5 Food Waste

6.5.1 Evidence Statement/Summary

Food Waste

Food waste can be defined as:

Food that is purchased, prepared, delivered and intended to be eaten by patients, (also applies to staff and visitors) but that remains un-served or uneaten at the end of the meal service (NHS, 2005). Food waste can be subdivided and further defined as:

- **Un-served food waste** (in main kitchen and at ward level): This is the food provided in bulk or plated that is not served and is left in containers or in the trolley at the end of service. This food waste is usually disposed of from the containers or plates at ward level. Un-served food waste may also be generated in the main kitchen.
- **Untouched Food Waste** (at ward level): This is plated food that was never touched or consumed in any part. This food waste is usually disposed of from the plates at ward level.
- **Uneaten Food Waste** (at ward level): This is the food remaining on plates after a meal is finished.

Monitoring food consumption is essential to ensure that patients are receiving an adequate nutritional intake to promote recovery as the nutritional value of food uneaten for patients is nil (BDA, 2017) and also has cost implications. Understanding reasons for food waste enables measures to be put in place to aid increased food consumption, to reduce waste and associated costs. It is important to distinguish between the term food loss and food waste if food waste is determined by weight at the end of meal service.

Food Loss "is taken to relate to decreases in food quantity or quality rendering it no longer available for human consumption". By contrast food waste "is used to refer to losses due to behavioural issues and often connected to conscious decision to discard, food is thrown away without being eaten" (Lucifero,2016).

Table 1

Potential Reasons for Food Waste are outlined in Table 1 (BDA, 2017)

Un-served Food Waste	Untouched Food Waste	Uneaten Food Waste
Over- production in excess of requirements Poor communication on patient discharges / ward changes/patients fasting Over –ordering of meals Lack of standardised recipe yields and portion control	Patient is unable to eat as is unwell at meal time due to medications, pain, physical or emotional discomfort Patient was asleep Patient is absent from the ward as gone for test or procedure or gone outside with family/carers Not suitable for therapeutic diet choice.	Meal was not ordered by the patient (i.e. new admission) Patient is not hungry or is feeling unwell at meal time Portion size may be too big Lack of assistance with eating Change in meal preference Did not like taste or appearance of meal Ordering too far in advance (can't remember what was ordered and not to preference at meal service time) Oral nutrition supplements given too close to meal times.

Why do we need to address food waste?

Current figures from Green Healthcare food waste surveys (Green Healthcare Programme) have shown that almost half of all food prepared in Irish hospitals ends up being thrown away (Figure 7)

Whilst some food waste is inevitable in the hospital setting, measurement and monitoring of food waste is essential to:

- Ensure adequate food consumption
- To make cost savings
- To contribute to sustainable food for all.

Preventable food waste requires reducing food prepared that is not consumed. Seventy percent of food waste in hospital bins is food waste with value. The remaining thirty percent is without value e.g. tea bags, coffee grinds, peelings, bone etc. Research has shown that an average acute hospital generates approximately 0.73kg food waste per in-patient bed day, while the average community hospital facility generates a similar value of approximately 0.77kg food waste per in-patient bed day (Figure 8) (Green Healthcare Programme).

How can we address food waste?

The way in which food is provided and managed within different areas of a hospital influences the amount, type and presentation of the food waste arising. The Green Healthcare Programme (GHCP) is co funded by the HSE National Health Sustainability Office (NHSO) and the Environmental Protection Agency (EPA) and aims to help healthcare facilities to become more efficient with resources and prevent /reduce waste and overall costs (Green Healthcare programme, HSE, National Health Sustainability Office).

Reference documentation on food waste can be found on the NHSO website www.hse.ie/sustainability. This website provides guidance on how to carry out food waste surveys by local 'green teams' within each hospital led by the catering manager and senior dietitian. Hospitals are encouraged to initiate a food waste reduction programme through the GHCP.

6.5.2 Key Recommendations

Food Waste

1. Each hospital should set up a food waste prevention and improvement programme to measure and monitor food waste.
2. Food waste can be assessed by recording brown bin waste weights from waste contractor bills on a monthly basis.
3. Each hospital should benchmark waste locally; waste generated per patient or inpatient bed day.
4. Each hospital should compare their benchmark with the current GHCP benchmark as shown in Figure 8 (0.73kg food waste per in-patient bed day)
   - If the benchmark is higher than the GHCP benchmark, a review should be undertaken to identify where food waste is occurring.
   - Identify areas with waste reduction issues and develop solutions to reduce waste.
5. It is imperative that all food waste reduction measures that affect portion control, taste or flavour of food are undertaken in consultation with the nutrition and dietetic department as may affect nutritional intakes of patients.

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Section 7.0

Food Service

7.1 Evidence Statement/Summary

It is important that a food service system is in place that is capable of providing for the nutritional needs of all patients served. Food and drink provision for patients is an essential part of their treatment contributing to patient well-being and aiding recovery. Food provision should be seen as integral component of care rather than a separate "hotel service" provided by the hospital (HIQA, 2016, DOH, 2009). Ensuring the nutritional needs of the patients are met is seen as an essential component of care to improve the patients' experience (NICE, 2012).

For food service to be effective it is essential that all ward staff contribute to 'making meal times matter' (see section 8.0) by ensuring the patient receives:

- The correct meal
- High quality food that is nutritious, looks appealing and tastes good
- Adequate level of assistance to ensure that food can be consumed
- Food in an environment that is conducive to eating.

Hospital food service times are often inflexible and designed to meet the needs of staff rather than those of the patients (HIQA 2016). This can often result in meals which are served very close together and not provided evenly over the waking hours. It can also cause a protracted fasting period between evening and breakfast food service (HIQA, 2016). Close communication between catering, catering support services, nursing and the dietitian is crucial to ensure an effective and efficient food service is delivered. There is very little empirical evidence on the factors that influence patients to eat or not to eat whilst in hospital. Studies have shown that choice is a key factor affecting food intake and satisfaction (NPES, 2017, The Patients Association, 2016, Aase, 2011, Ottrey and Porter, 2017).

Patient satisfaction surveys give us an opportunity to explore and examine patient preferences and priorities for food provision (NPES, 2017, The Patients Association, 2016). There are many challenges with food service including:

- Ensuring the patient gets the food they ordered as there can be multiple bed moves depending on length of admission
- Patient has often forgotten what they ordered (orders are typically taken a day in advance) or has changed their mind at point of service
- Patient requests food items not permitted on therapeutic diet/texture modified diet
- Lack of joined up communication systems between patient diet orders, requirements for assistance and planned patients' activities which will impact on ability to eat
- Lack of communication with catering staff regarding admission and discharges
- Lack of communication between clinical staff and catering staff on patient's specific dietary needs
- Large numbers to be served in short time period (~ 30 patients in 30 minutes).

Room service is a food service model that has been increasingly implemented in the United States to provide a high quality food service that is linked with patient satisfaction. Room service enables patients to choose when and what they feel like eating (within determined therapeutic dietary limits) on the expectation that they will eat more of what is ordered. Room service is also associated with reduced food waste and cost savings (Aase,2011). McCray *et al*. 2018 assessed the effect of room service compared to traditional food service in a cohort of Australian adult patients. This study reported an increase in nutritional intake, improved patient satisfaction, and reduced plate waste with room service compared to traditional food service models.

7.1.2 Key Recommendations for Food Service Provision

Food Service Provision

1. It is essential that there is a safe, consistent, agreed process of identification and communication of dietary needs between clinical and catering staff/support staff. This is necessary to ensure that individual patients' food and fluid requirements are correctly provided at all times (HIQA, 2016, DOH, 2009).
2. Meals times should be organised around patients' needs and support a patient centred approach to care (HIQA, 2016).
3. All patients (including patients in the Emergency Department who are deemed as admitted but are awaiting transfer to a ward) unless there is a clinical indication to fast and/or are nil by mouth must be provided with the following:
   - I. Three meals (Breakfast, Midday Meal and Evening Meal) should be provided daily
   - II. A minimum of 4 hours or more should be in place between the end of each main meal and the beginning of the next (DOH, 2009)
   - III. Snacks should be provided at a minimum of twice daily. The nutritional content of the snacks must provide the nutrition standard as specified (see section 3.0.) and be suitable for the individual therapeutic and texture modified diets (see section 4.0 and 5.0). A snack trolley should operate twice daily, including an evening snack to reduce the gap between food service
   - IV. All patients must have access to fresh drinking water throughout the day unless nil by mouth
   - V. Water jugs should be replenished twice daily. This may not be appropriate for patients requiring a fluid restriction
   - VI. Patients should be offered access to chilled water where possible and appropriate
   - VII. All aspects of "Making Meal Times Matter" (section 8.0) should be implemented to facilitate optimal food consumption including:
     - Patients who require assistance with eating and drinking must be given timely and adequate assistance to eat
     - Sufficient time should be allocated for patients to eat the food provided.

In addition, Food Service Provision requires the following:

4. Adequate ward catering staff must be available to ensure that food is served to all patients in a timely manner. This will enable food to be served to the patient at the correct temperature, that is, hot food should be served hot and cold food should be served cold.
5. All staff must adhere to the HACCP food safety management system including temperatures to serve food and holding times for cooked meals.
6. All staff must adhere to local infection control policies and procedures.
7. All hospitals should have a system in place for replacement meals in the event that a patient misses a meal.

Replacement Meals

In some circumstances the patient may be away from the ward or fasting when the meal is served. The National Patient Experience Survey 2017 highlighted that a significant number of patients who missed a meal did not receive a replacement meal (18%). A replacement meal should be provided in these situations.

8. If the patient returns to the ward during the Catering Department's food production time, a replacement meal should be ordered to replace the meal that was ordered by the patient.

9. For meals required outside main food production times, the meal supplied must provide a minimum energy and protein content of 500 kcals and 25g protein.

10. The appropriate food composition of the meal replacement will depend on the patient groups' specific dietary requirements and will typically consist of a sandwich, portion of fruit, a yogurt and a drink. The food provided must meet the specific therapeutic and or texture modified dietary requirements as required.

Special Considerations

Relatives or Visitors bringing Patients Food into the hospital

Food being brought in by visitors and or patients relatives or carers can create a safety risk due to the following:

- It may not be suitable for the individual therapeutic or textured modified dietary requirements
- It may breach food safety regulations that are required to prevent food borne illness in hospitalised patients. The hospital cannot store, reheat, cook or serve food that has not been prepared on site.

Whilst it is advised that only food prepared in the hospital is consumed, an individualised approach to bringing in food may be required for some patients to ensure that risk of food borne illness is balanced against ensuring that the patients' nutritional needs can be met.

Day cases

11. Food should be provided if oral intake is permitted by the medical team post procedure.

12. A menu with snack options should be available. A replacement meal should also be available as required (see 8-10).

Patients in the Emergency Department not designated for admission

13. Food should be offered at meal times throughout the day.

14. Food offered at lunch time and in the evening should provide a minimum energy and protein content of 500 Kcals and 25g protein (see replacement meals).

15. All patients must have access to fresh drinking water throughout the day unless nil by mouth.

16. Vending machines must contain food options in compliance with the HSE Healthier Vending Policy 2014.

7.2 Food Ordering

7.2.1 Evidence Statement/Summary

Work to date from countries which have well established hospital food service expertise, including the UK, Australia, and Canada was reviewed. This demonstrated that these countries have not standardised practice to a single food ordering system that maximises patient safety, choice and provides evidence on optimal time to complete food orders. A literature search of food service, menu cards, patient menus and food ordering provided an array of examples of practice, but there is no single solution on the ideal strategy to provide menu choices to patients. This is due to the limited research available exploring the effect of food ordering/ menu strategies on both clinical and non- clinical outcomes (Ottrey and Porter, 2016). A recent study by Ottrey and Porter (2017) explored patients' experiences of hospital meal ordering systems and recommended that hospital menus should provide sufficient choice and information about food items as well as minimise the time between food ordering and service.

Patient Meal Selection

Meal selection can be done using different methods including:

- Choice at time of service (bulk service/ dining room)
- Written menus/menu cards which can be completed by the patient
- Spoken menus; menu options are verbalised to the patient and the choices chosen are collated by the ward catering staff
- Visual menus which provide pictorial representation of menus and foods available
- Electronic menu management systems.

A recent systematic review found that the spoken menu was associated with improvements in some aspects of patient satisfaction (including taste of food, courtesy of the server, receipt of food ordered compared to a printed menu) (Ottrey and Porter, 2017). It also found that an electronic interactive menu selector can improve aspects of patient satisfaction with food service and reduce costs associated with printed menus. Electronic spoken bedside meal selection has been shown to increase patients' energy and protein intake with results been attributed to staff being able to spend more time with patients to select food choices due to time efficiencies with this process (Maunder *et al*. 2015).

The hospital menu typically informs patients of the meal and food choices available each day and enables the patient to choose and order their meal. Hospital menus function as both communication and food management tools between patients and ward catering staff (Ottrey and Porter, 2017). The hospital menu provides the first impression of food and therefore plays a significant role in providing food information and for eliciting patient interest to eat (Maunder *et al*. 2015, Alkire,1995). It is the first and last step in the process for providing the right patient with the right meal. Menus also provide a structure in which to deliver therapeutic and texture modified diets in a safe manner by ensuring that only choices deemed suitable are offered.

Currently when a patient is admitted a diet/ menu order is placed with the ward catering staff and a menu is provided to the patient to choose meals. Food orders are usually taken one day in advance of food service with a small number of hospitals facilitating same day orders or as a special arrangement for small patient numbers with specific dietary requirements. The majority of Irish hospitals utilise a paper based menu /menu card. The menu choices are presented to the patients by the ward catering staff either verbally or in writing. Once patient orders have been taken, meal requests are then sent to the production kitchen. Internationally electronic ordering has become available as an option whereby patients can view and order their meals using a tablet/electronic device at the bedside (Admed *et al*. 2015). Given the lack of a strong evidence base in this area, the following recommendations for patient food ordering are based on consensus opinion from available research.

7.2.2. Key Recommendations for Food Ordering

Food Ordering

1. A detailed patient menu selection process should be developed thereby ensuring that the right person gets the right foods and fluids whilst ensuring that choice is provided (See Figure 9).
2. Each patient should be provided with the opportunity to select food and fluids from a menu.
3. The menu provided must contain a choice of foods and fluids for each meal.
4. The menu must contain a description of the meal item for example roast chicken with herb stuffing and gravy. This description should be provided in writing, electronically or verbally.
5. This description must be read in full by ward catering staff if the patient is not provided with a visual or paper menu to read.
6. The menu must be available as a pictorial version for those with compromised communication.
7. The completed menu order must be identified as specific to that individual patient to support safe food delivery (correct diet provided) and monitoring.
8. It is essential that the individual roles and responsibilities of all staff members in the menu selection process are clearly established.
9. Menus/menu cards can also be used as an education tool on foods that are suitable to eat when you require a therapeutic or texture modified diet. Therapeutic and texture modified diet menu cards should state the clinical indication that they are being used for.
10. The Hospital should provide written information on food services in the patient admission handbook, patient information leaflets and on the hospital website.
11. The Food Services information should include information that is specific to the menu, and should summarise:
    a) Food Service Meals and Snacks Times
    b) Patient Menu Selection
    c) The range of menus available in the hospital
    d) The menu rotation cycle for each diet
    e) The options for those with communication challenges
    f) The snack list
    g) Allergen information
    h) Food safety
    i) Frequently asked food service questions.

Key Recommendations for Food Ordering continued

Food/Meal selection by the patient

12. The process for food selection in each hospital should include consideration of the following:

- Patients' therapeutic or texture modified dietary requirements
- Patients' cultural, ethnic or religious dietary requirements
- Data protection and patient privacy balanced with requirement for menu order to be linked with specific patient
- Patient literacy
- Patient communication challenges including aphasia, dysarthria, dementia, non-English speaking
- Patient/staff knowledge of meal descriptors ; Staff should have appropriate knowledge of menu options in terms of ingredients and cooking methods to be able to explain what the meal is, for example " What is Bolognaise?" Bolognaise is minced meat cooked in a tomato based sauce with onions and mushrooms added
- Presentation of information on the menu card relating to the principles of a therapeutic diet and allergen information
- Adequate staff training on the food ordering process.

Communication of meal orders to the Catering Department (Main kitchen)

13. The communication of meal orders to the catering department must allow for the production of the correct numbers of meals, and ensure that there is not an over production of food leading to unnecessary food waste. The following should be considered:

- The timeline between food ordering and meal generation
- Ability to change the food order, that is, cancel, revise a therapeutic diet order, delay meal delivery as patient absent from the ward undergoing a procedure, deliver to a different bed due to ward change, place food order as new admission
- Ability to match the patient with the meal order.

Introduction of a new Patient Menu Selection/Food Ordering Process

14. If a hospital is reviewing their patient menu selection/food ordering process, consideration should be given to:

- Changes in international practice
- Where there is emerging use of technology
- Electronic Patient Record systems that integrate the identification of dietary needs and mealtime assistance
- Capacity for menu analysis
- Availability of menu templates
- Cost
- Communication system
- Waste management assistance.

Key Recommendations for Food Ordering continued

Meal Tray Set up

15. Meal tray set up should be done in a consistent manner and optimise the ability of the patient to consume and enjoy their meal including:

- Appropriate crockery and cutlery
- Clean napkin
- Tray layout that allows food to be easily accessed and within easy reach
- Correct condiments
- Accompaniments as required
- Addition of garnishes to meals as required before service.

16. The meal tray may also be used as a means of communicating with the patient regarding

- Allergen information
- Meal service and nutritional information.

Provision of Beverages

Based on patient feedback from the National Patient Experience Survey (2017) on the importance of a cup of tea for patients overall comfort and wellbeing.

17. It is recommended that individual pots with hot water should be provided to all patients unless contraindicated. Tea bags and or coffee sachets should be provided separately.

Special Considerations

18. Patients with cognitive and or physical disabilities may require assessment by the occupational therapist to modify tray set up to assist ability to eat.

19. Patients requiring total assistance with eating and drinking which may be secondary to physical or cognitive difficulties: different coloured meal trays are a useful means of communicating which patients require total assistance. Coloured trays facilitate a staggered / hold back meal delivery service so that meals are not delivered to all patients who require assistance at the same time (HIQA, 2016).

7.3 Monitoring Patients Food and Fluid Intake

7.3.1 Evidence Summary/Statement

Work to date from countries which have well established hospital food service expertise, and have evaluated their work practices including the UK, US, Australia, and Canada was reviewed. This demonstrated that these countries have not standardised practice to a single nutrition and hydration monitoring tool being used nationwide. A literature search of tools used to monitor and record nutrition, hydration, fluid and food intakes provided an array of examples of practice. As a result there is no single ideal intake monitoring template available to be proposed for adoption in the Irish context.

7.3.2 Key Recommendations for Monitoring Patients Food and Fluid Intake

Monitoring Patients Food and Fluid Intake

1. It is recommended as best practice that food and fluid intake monitoring is undertaken in all patients who have:
   - Been identified at risk of malnutrition
   - Communication challenges and are unable to report their food and fluid intake independently
   - Requirements for assessment regarding transition from/to a therapeutic or texture modified diet and/ or fluid allowance
   - Requirements for assessment regarding compliance with a therapeutic or texture modified diet and/ or fluid allowance
   - High fluid losses (for example a high output stoma) or increased fluid requirements (for example a highly exudating wound or pressure ulcer).
2. Nursing staff should assess, record and report food and fluid intake.
3. Ward catering staff and health care assistants should inform the nursing staff and/ or the dietitian when low food intake is observed. Food record charts should be commenced.
4. The food intake of all patients identified at risk of malnutrition and /or receiving nutritional support should be recorded by means of a semi-quantitative food record chart (DOH, 2009, Canadian Malnutrition Taskforce, 2017).
5. Tray collection should be supervised closely to enable monitoring of patients' food intake (DOH, 2009).
6. The information about patients' food intake should be used to develop and adjust menus for specific groups.
7. Communication of low food intake is necessary and investigation of potential causes should be conducted without delay (Canadian Malnutrition Taskforce, 2017). Corrective actions for low food intake should be implemented without delay. All ward staff require training in appropriate actions and or processes available to improve food intake as demonstrated in table 1.

Table 1: Suggested measures to improve food intake	
Reason for Low Food Intake	**Corrective Action**
Food too dry	Liaise with ward catering staff to request additional accompaniments
Unable to open food lids	Identify person to provide support at meal times
Does not like hospital food	Request review by catering manager/ supervisor to assess ability to accommodate food preferences
Does not understand reason for food restrictions due to therapeutic or texture modified diet requirement	Request dietitian and/or speech and language therapist review
Gastrointestinal symptoms	Request medical and/or dietitian review

8. If intake does not improve patients should be referred to the dietitian for nutritional assessment.

9. It may not be appropriate or possible to improve food intake in some situations, for example a palliative patient. The nutritional care plan for this patient type should be discussed with the patient and/or carer and the consultant.

7.4 Patient Satisfaction and Experience

7.4.1 Evidence Statement /Summary

Patient experience has been shown to be a good indicator of healthcare quality and performance (Coulter and Cleary, 2001, Luxford and Sutton, 2014). Numerous recommendations and guidance has been published on the importance of assessing patient experience including nutritional care and food service experience.

NICE (National Institute for Health and Care Excellence) in 2012 developed a clinical guideline: Patient Experience in adult NHS (The National Health Service) services: improving the experience of care for people using adult NHS services. Quality standards for patient experience were developed alongside the guidance. Quality statement 10 states:

"Patients have their physical and psychological needs assessed and addressed, including **nutrition, hydration**, pain relief, personal hygiene and anxiety"

The HIQA Report of the review of nutrition and hydration in public acute hospitals (May 2016) identified four key areas that if implemented could drive improvements in nutritional and hydration care for patients in acute hospitals. One of the four key areas stated that:

"Hospitals should strive to improve patients' experience of hospital food and drink by engaging with patients about food variety and choice".

Instead of asking about satisfaction with a service, surveys of patient experience ask for details about what happened when a person used a healthcare service. These surveys provide a systematic way of gathering detailed information of patients' experiences and can be used to identify areas where improvements are required. Patient experience surveys have been used in a number of countries including the UK (United Kingdom), New Zealand and the United States. The first National Patient Experience Survey (NPES) conducted in Ireland in May 2017 included five specific food related questions. The results identified key areas for improvement which included hospital food. As the survey is repeated annually it allows us to measure how patients' experiences change over time and track progress with our improvement initiatives.

The HIQA (The Health Information and Quality Authority) report (2016), NPES (2017) and the report from UK patients association Improving patients' food and drink experience through a better understanding of their priorities (Oct 2015-May 2016) provide us with a wealth of patient experience about food in hospitals.

7.4.2 Key Recommendations for Review of Patient Satisfaction and Experience

Patient Satisfaction and Experience

1. To ensure on- going improvements with food provision all hospitals should actively support the National Patient Experience Survey and act on feedback.
2. In house patient satisfaction surveys should also continue as required
   - To support a culture which values patient feedback and
   - As a means to directly assess response to specific improvements.
3. Surveys of patient satisfaction and or experience should be conducted at least annually.

Delivery of a high quality food service

Food Service is the final link in the food chain (refer to Figure 5). A high quality food service should deliver the right meal to the right patient at the right time.

4. All new staff with responsibility for food service should get customer service training in relation to receiving food orders and serving meals to the patient.
5. All relevant staff should receive ongoing training in food and hydration care for patients.
6. Education and Training on therapeutic and texture modified diets should be provided routinely for all new members of catering and ward staff. Refresher training should also be provided.
7. Training should be provided by an individual with the necessary skills, knowledge and expertise to develop therapeutic and texture modified diets.
8. A process should be place to monitor and evaluate food service.

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Section 8.0

Making Mealtimes Matter

8.1 Evidence Statement/Summary

Malnutrition affects more than one in four patients admitted to Irish Hospitals. It compromises quality of life for patients, affects recovery and causes unnecessary illness and death (HIQA, 2016). There is a high reported prevalence of malnutrition in older people in hospitals (39%) (Kaiser *et al*. 2010). In addition, many studies have shown that despite a good appetite, many older people do not always receive adequate nourishment due to insufficient feeding assistance (Tsang, 2008 and Mudge *et al*. 2011). Suboptimal feeding assistance can be multifaceted with patients having varying levels of requirements and or dependencies to enable optimal food consumption (Naithini *et al*. 2008; Edwards *et al*. 2017). This section focuses on what, if any, contribution the ward environment has on a patients' nutritional intake.

In 2003 the Council of Europe Resolution identified 10 Key Characteristics of Good Nutritional Care in Hospitals' (Appendix 1.0), one of which was that wards should introduce 'Protected Mealtimes' to provide an environment conducive to patients enjoying and being able to eat their food. Protected meal times can be described as a time in which the patient is encouraged to eat without any interruptions including and not limited by routine observations, routine therapy or administration of medications, non-emergency tests and visits from carers or family members, who are not assisting the patients who is eating. The Department of Health later published 'Food and Nutritional Care in Hospitals, 2009 which supported the concept of "protected meal times". In addition, these guidelines highlighted the need for timely assistance for those requiring help with feeding and an appropriate communication system to support this happening.

"Mealtime assistance is defined as receiving help from another person to eat or complete the eating process when a meal or snack is served" (Westergreen *et al*. 2001). Evidence suggests that up to 40% of hospital patients can have difficulty opening items such as cereals, drinks and condiments (Bell *et al*. 2013). All patients on admission should have requirement for assistance with feeding (eating and drinking) assessed and also the level of assistance required. Levels of assistance required have been defined in the patient acuity measures in the Trendcare workforce planning and workload management pilot system for nursing (UCC, HRB and DoH, 2018) as outlined below:

- **Self or N/A**: Does not require assistance with feeding, for example, independent with all feeding activities
- **Partial Assistance**: requires some assistance with feeding, for example, opening packages, cutting up food, buttering bread, repositioning
- **Total Assistance**: Fully dependent on assistance to eat, for example, patient requires staff, family member or a volunteer to feed them.

For many patients, no additional consideration is required to enable eating and drinking, however, there is a cohort of patients who require specialised help to adapt to their environment or to the technique they use to overcome the effect of their functional disability whilst feeding. For example, patients identified with:

- physical and or cognitive difficulties should be referred to an occupational therapist
- feeding, eating, drinking and swallowing difficulties should be referred to a speech and language therapist.

Over recent years in Ireland, many hospitals have endeavoured to introduce ward based initiatives to promote nutritional intake under the umbrella of "Protected Mealtimes" (HIQA, 2016), with some minor inter - site variations. Traditional protected mealtime policies had a big focus on 'ward lockdown' to minimise mealtime interruptions. International evidence to date has produced mixed results on the clinical effectiveness of protected mealtimes (Porter *et al*. 2017; Hickson *et al*. 2011; Young *et al*. 2013) with a more recent study highlighting that interruptions do not necessarily impact on a patient's nutritional intake (Young *et al*. 2018). Other studies have shown significant increases in nutritional intake by employing a range of factors such as:

- appropriate patient positioning (Xia and McCutcheon, 2006)
- de-cluttering and table preparation and timely assistance (within10mins)
- appropriate and timely assistance with feeding (Palmer and Huxable, 2015).

The NPES 2017 demonstrated that a significant number of patients identified a requirement for assistance with feeding (33%). This survey also highlighted that a significant number of patients who missed a meal did not receive a replacement meal (18%). Therefore it is necessary to promote a ward environment approach which priorities oral intake as the nutritional value of uneaten food is nil (BDA, 2017).

8.2 Key Recommendations for Making Mealtimes Matter

Based on the evidence available it is recommended that hospitals should put in place strategies that ensure that Mealtimes Matter in their institution with the overarching aim:

To promote and maintain an environment that is conducive to people enjoying their meals and having appropriate assistance to safely consume optimal amounts of their food and drinks. This will require a ward multi-faceted approach provided by all members of the Multi-Disciplinary Team and led by the nurse manager encompassing the following (Edwards *et al*. 2017):

1. All members of the MDT must be aware of the nutrition processes on the ward (for example, the food ordering system, identification of patients requiring assistance at meal times) and also ensure that nutritional needs are identified and addressed as part of individual care plans. This will require:
   - An effective communication system
   - Development of ward nutrition processes/protocols.
2. Ward staff should avoid interrupting patients whilst they are eating and prioritise assisting the patient with eating food where this is required.
3. Sufficient time should be made available to allow patients to eat food provided.
4. Staff should be encouraged to provide support to patients at mealtimes to optimise oral intake, for example prepare the patient and the eating environment for mealtimes.
5. Ensure that timely help is available to all patients that require additional assistance (partial assistance/ total assistance) at mealtimes.
6. Assistance requirements should be reassessed throughout the admission.
7. Relatives/visitors should be encouraged to visit at mealtimes to support and assist patients to eat as deemed appropriate.
8. The use of trained volunteers to provide mealtime support could be considered.
9. Volunteers should have support mechanisms in place.
10. Social interaction has been demonstrated to aid increased intakes so dining rooms should be considered as a mealtime option where safe and practical.

Guidance on implementation is provided in accompanying toolkit

Section 9.0

Figures

Figure 1 The Malnutrition Carousel (BAPEN, 2016)

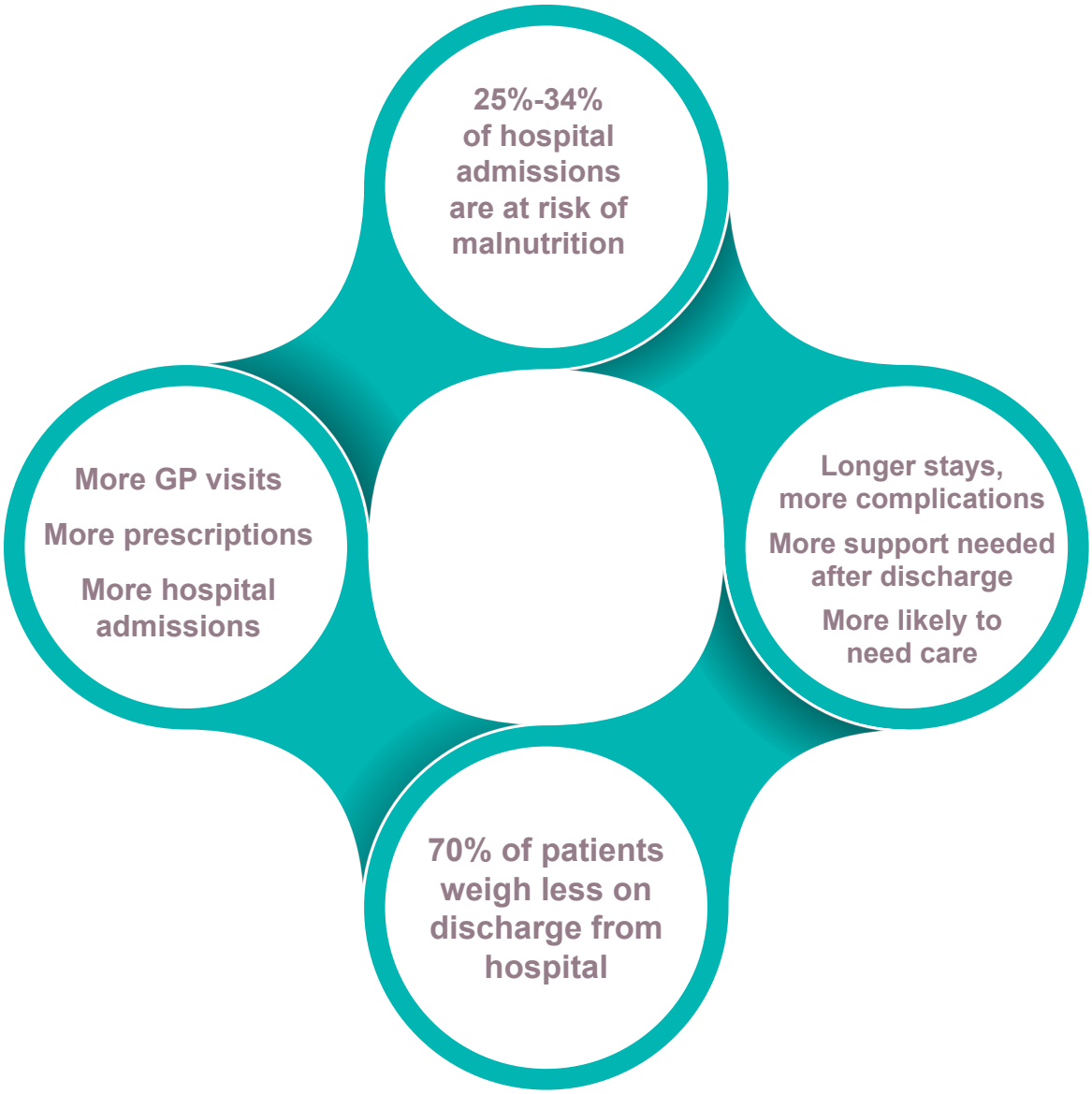


Figure 2: Patient Nutrition Characteristics in Acute Hospitals

Patient may also have cultural, ethnic or religious dietary requirements

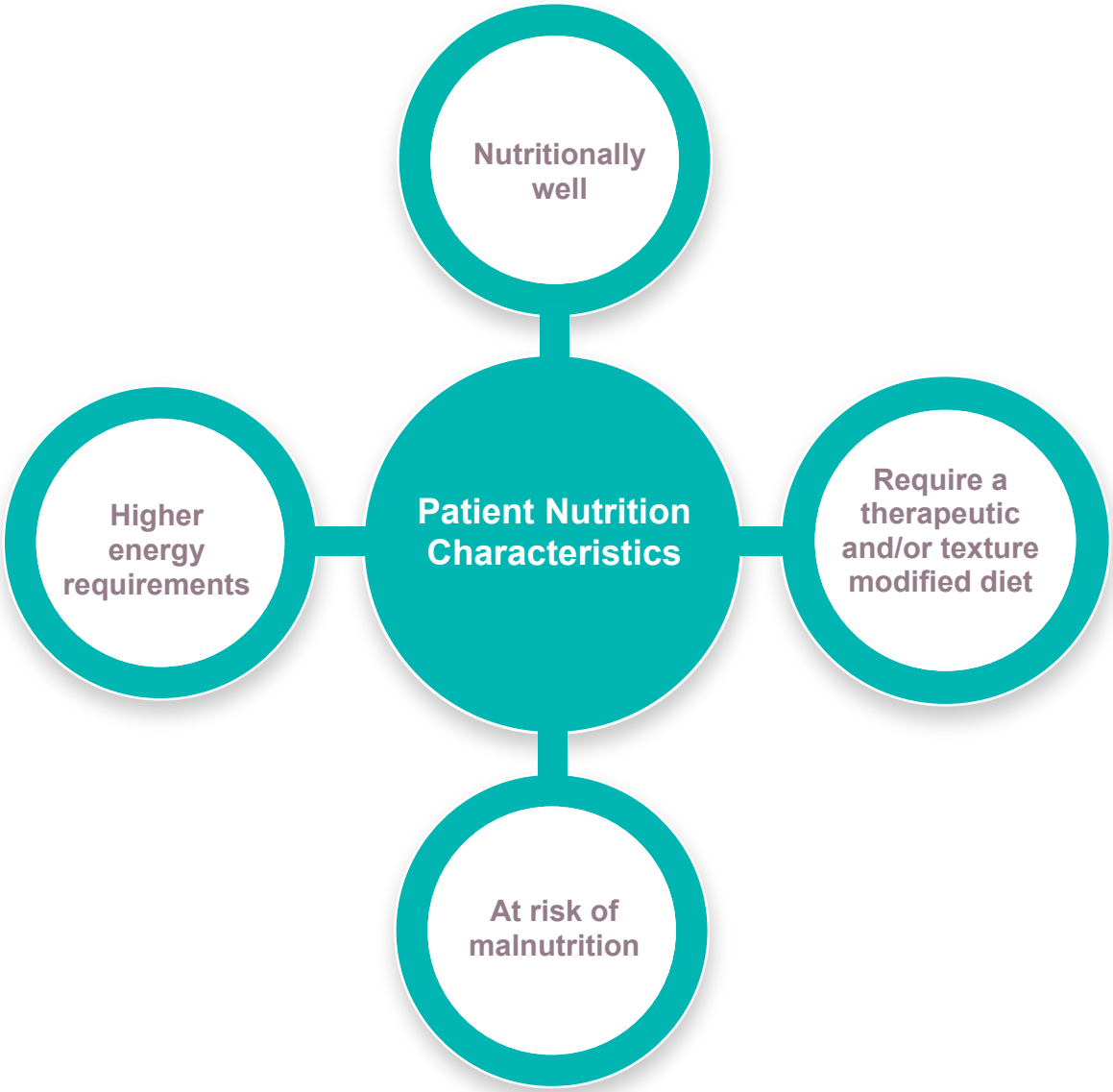
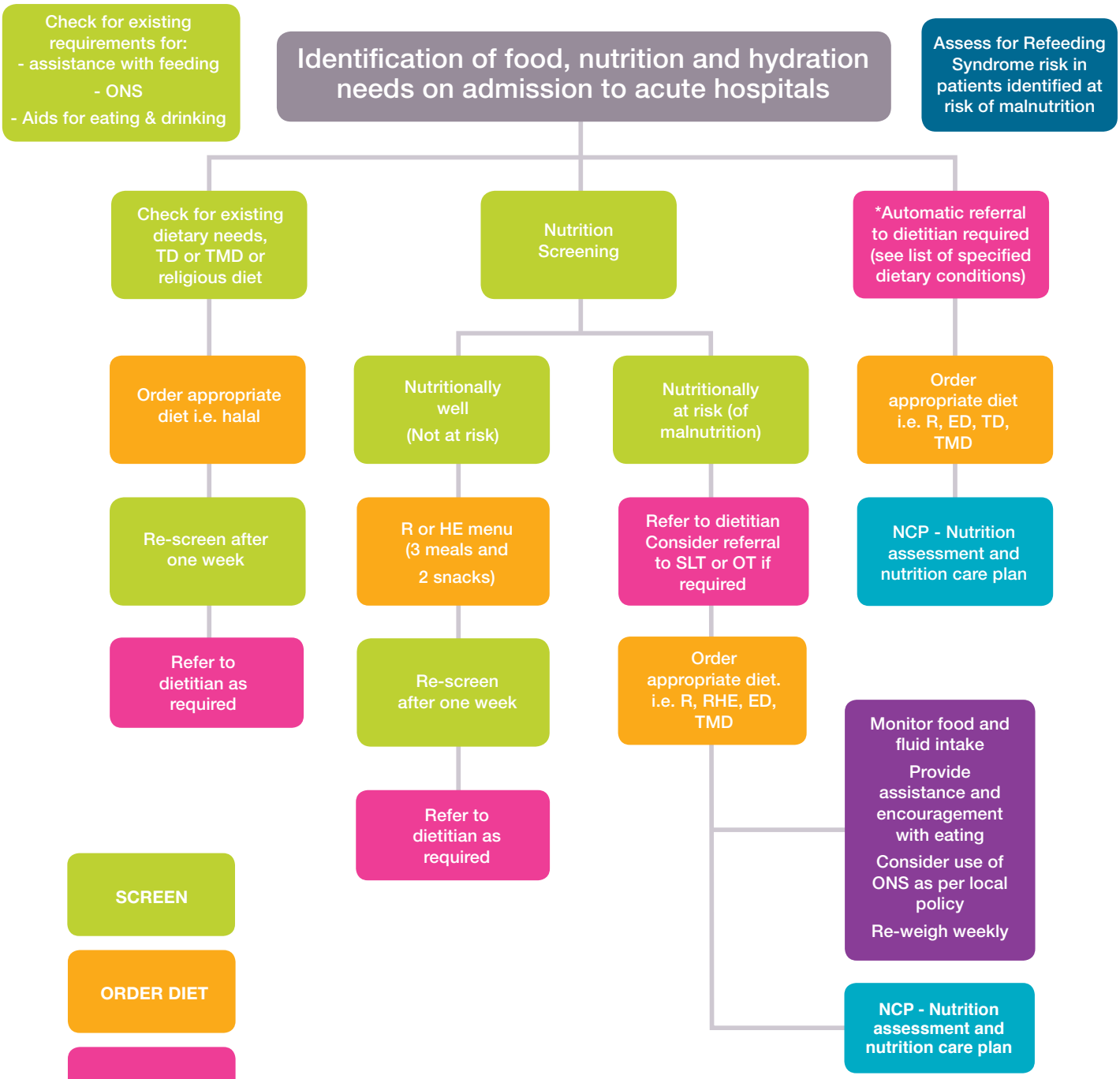


Figure 3: Identification of Patients Food, Nutrition and Hydration Needs on Admission to Acute Hospitals



Hospital Menus Available:
Regular menu (R): 2,100-2,400 kcals, 90g protein, Regular High Energy (RHE) 2,800 kcals
Energy Dense (ED): 2,100 kcals, 90g protein, energy dense, smaller portions, fortified
Healthy Eating (HE): Suitable for diabetics, cardioprotective and nutritionally well with good appetite
Therapeutic Diets (TD): including renal, gluten free, low fibre, no added salt
Texture modified diets (TMD) including soft and bite-sized, minced & moist, pureed & liquidised
Cultural, ethnic or religious diets

ONS: oral nutritional supplement. SLT: speech & language therapist. OT: occupational therapist.

Figure 4: **International Dysphagia Diet Standardisation Initiative (IDDSI)**

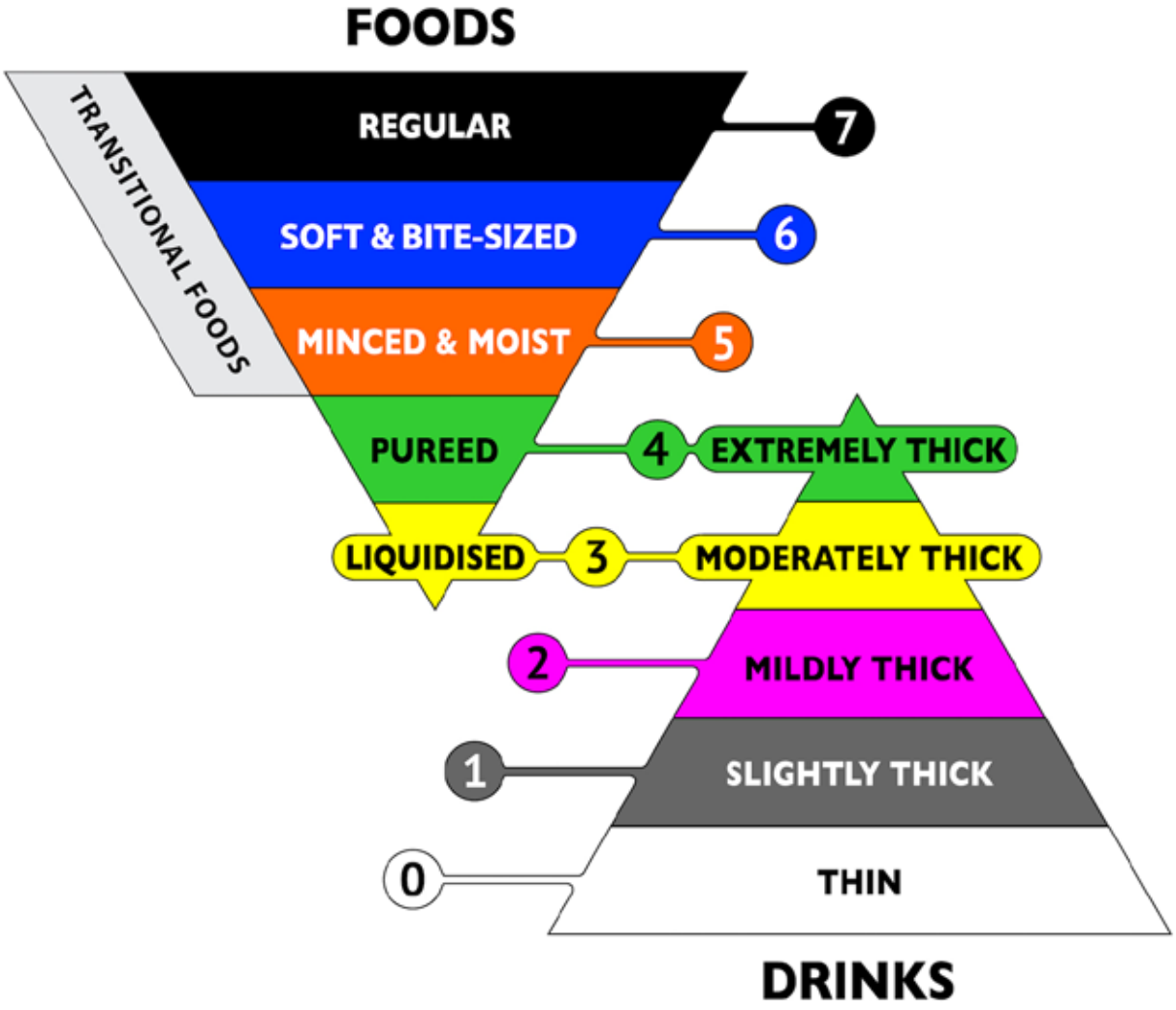
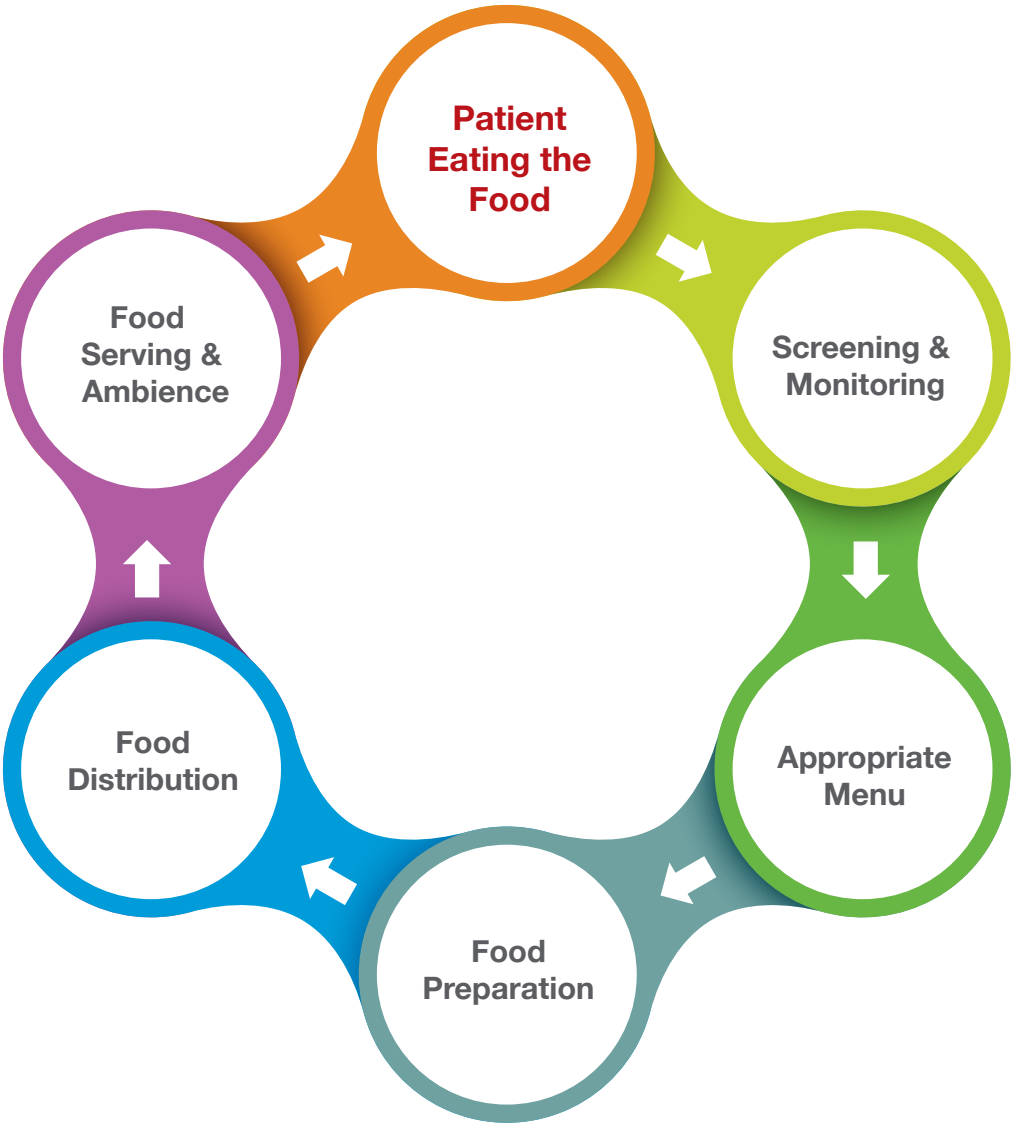


Figure 5: The Food Chain (DOH, 2009)



The Food Chain

The nutritional status of the patient depends on a cycle of interacting links. Poor performance at any of these links leads to a suboptimal outcome i.e. the patient eats less.

Figure 6: **Overview of Food Productions and Service**

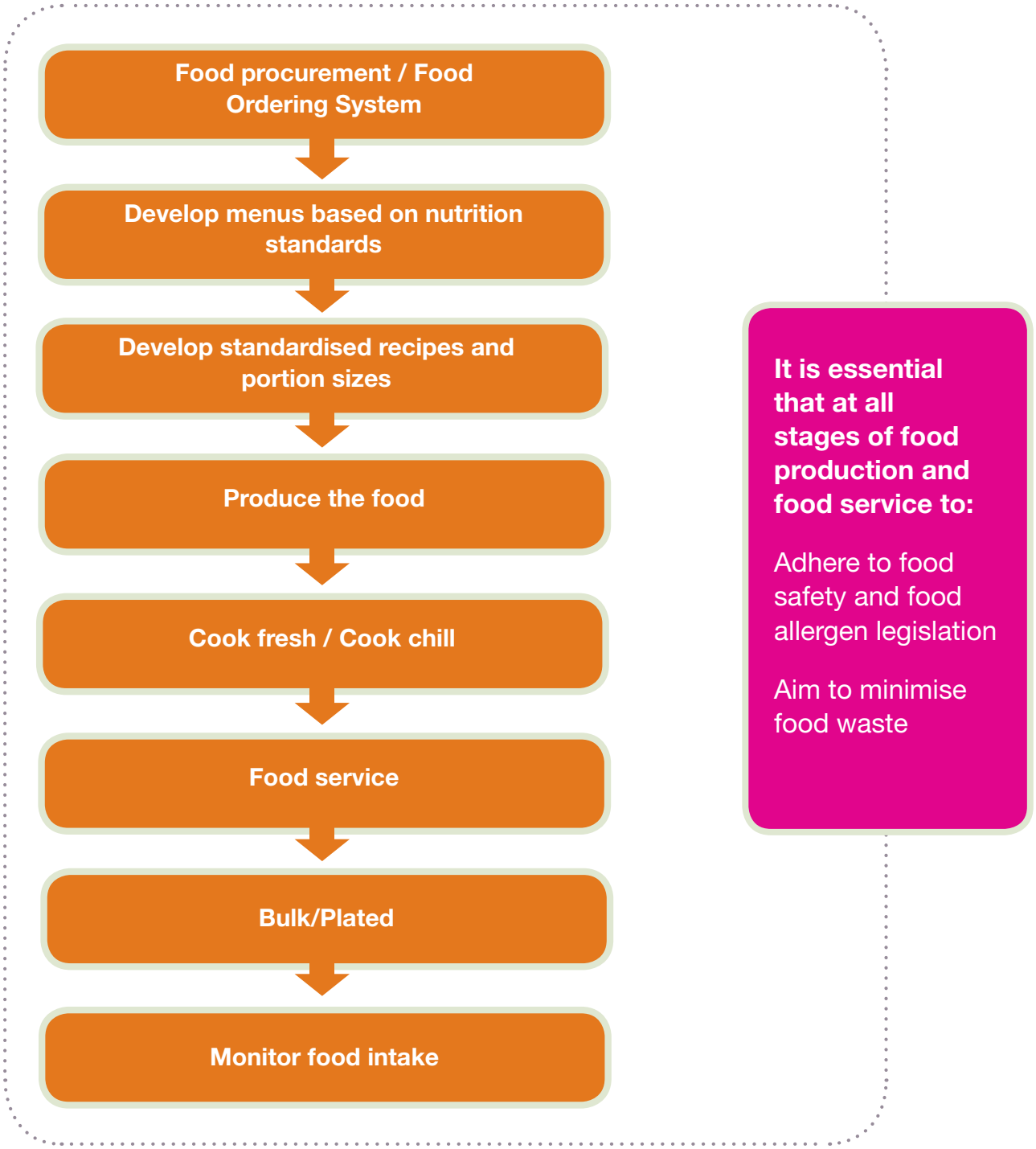
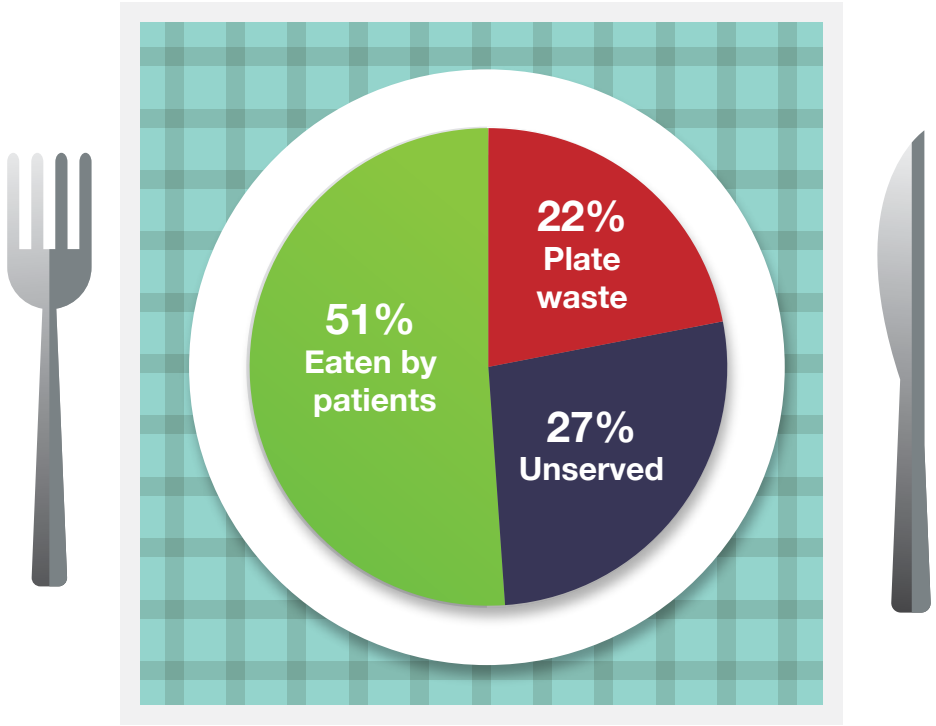
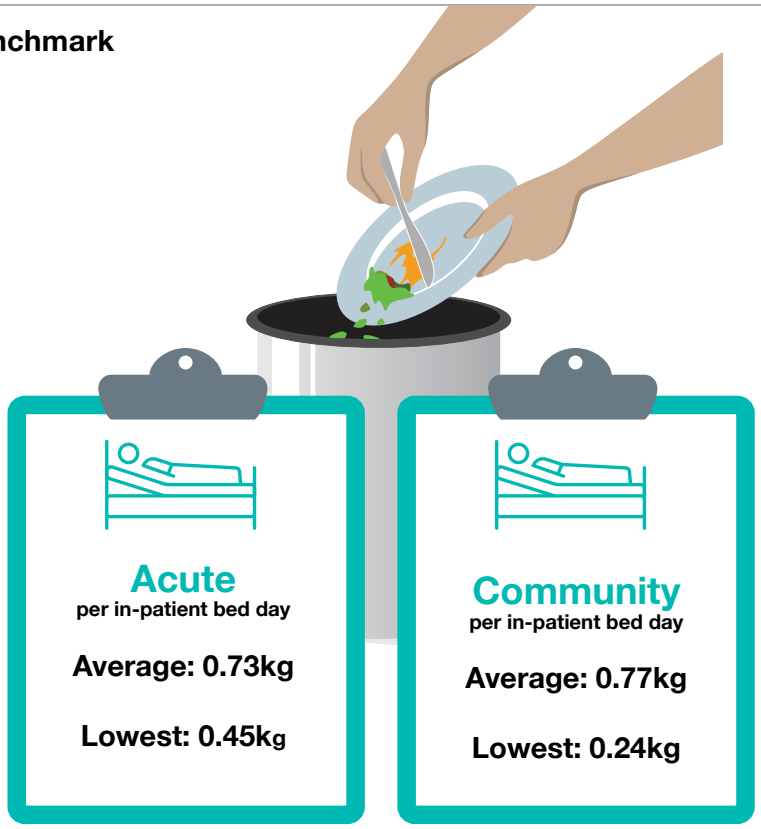


Figure 7: **Plate waste**



Source: Green Healthcare. Reducing Food Waste in Irish Healthcare Facilities

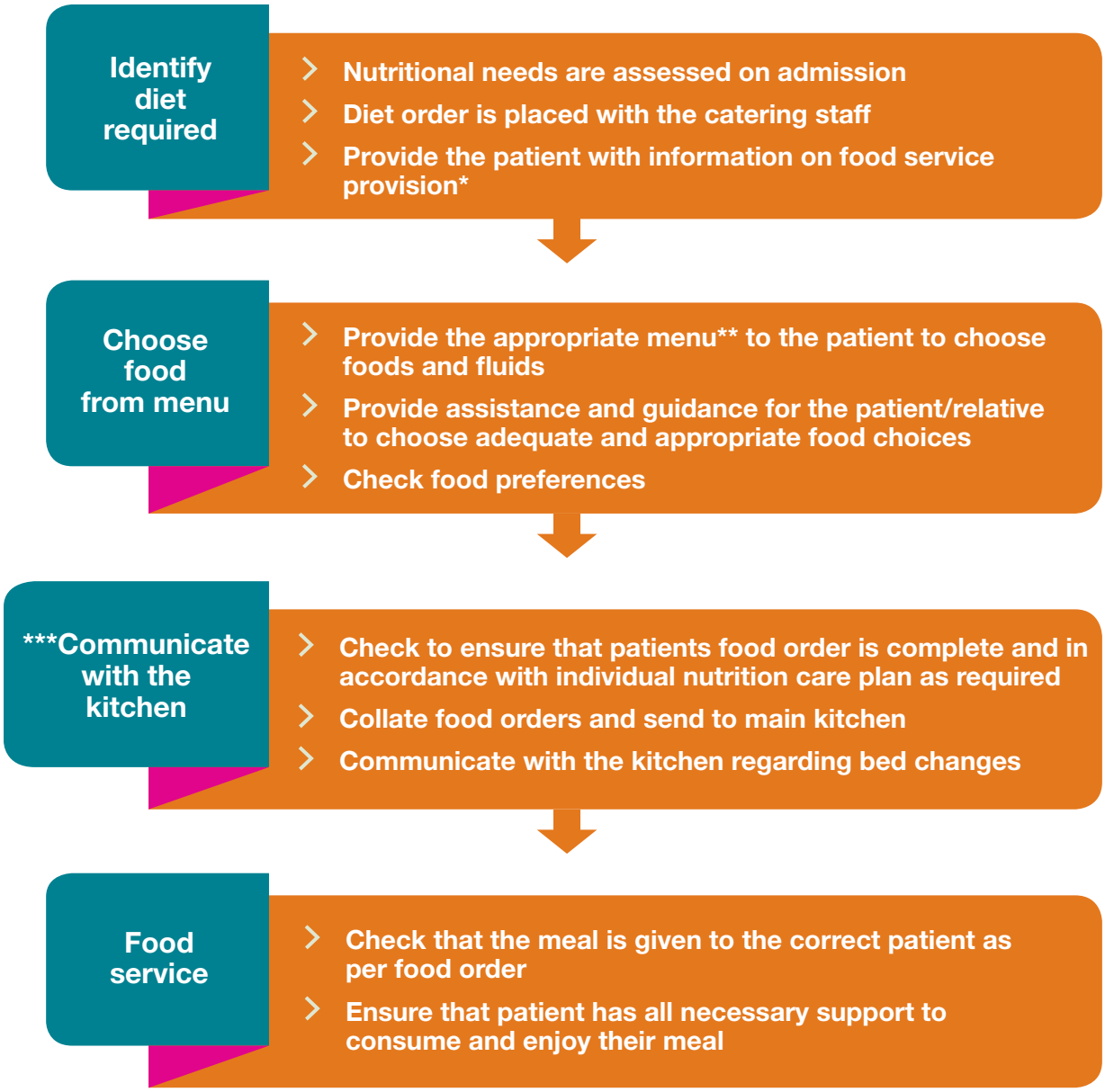
Figure 8 **Waste Benchmark**



Source: Green Healthcare. Reducing Food Waste in Irish Healthcare Facilities

Figure 9: Patient Meal Selection/Food Ordering Process

The food ordering process can be outlined as demonstrated



***Provide patients and relatives/carers with information on the Hospital Menu Options and Meal Selection Process.**

The Hospital should provide written information on food service in the patient admission handbook, and on the hospital website.

The Food Services information should include information that is specific to the menu, and summarises

a) Food Service Meals and Snacks Times

b) Patient Menu Selection

c) The range of menus available in the hospital

d) The menu rotation cycle for each diet

e) The options for those with communication challenges including availability of translated and pictorial menus

f) The snack list

g) Allergen information

h) Food safety

i) Frequently asked food service questions.

****Meal selection by the patient**

The process for food selection in each hospital should include consideration of the following:

- Patient's dietary requirements
- Data protection and patient privacy balanced with requirement for menu order to be linked with specific patient
- Patient literacy
- Patient communication challenges including aphasia, dysarthria, dementia, non- English speaking
- Patient/staff knowledge of meal descriptors ; Staff should have appropriate knowledge of menu options in terms of ingredients and cooking methods to be able to explain what the meal is, for example, " What is Bolognaise?" Bolognaise is mined meat cooked in a tomato based sauce with onions and mushrooms added
- Presentation of information on the menu card relating to the principles of a therapeutic diet and allergen information
- Adequate staff training on the food ordering process.

*****Communication of Meal orders to the Catering Department (Main kitchen)**

The communication of meal orders to the catering department must allow for the production of the correct numbers of meals, and ensure that there is not an over production of food leading to unnecessary food waste. The following should be considered:

- Timeline between ordering and meal generation
- Ability to change the food order, that is, cancel, revise a therapeutic diet order, delay meal delivery as patient gone for a procedure, deliver to a different bed due to ward change, place food order as new admission
- Ability to match the patient with the meal order.

Section 10.0
Appendices (Part A)

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Part A

Appendix I

Council of Europe (2003) 10 Key Characteristics of Good Nutritional Care in Hospitals

- All patients are screened on admission to identify the patients who are malnourished or at risk of becoming malnourished. All patients are re-screened weekly.
- All patients have a care plan which identifies their nutritional care needs and how they are to be met.
- The hospital includes specific guidance on food services and nutritional care in its Clinical Governance arrangements.
- Patients are involved in the planning and monitoring arrangements for food service provision.
- The ward implements Protected Mealtimes* to provide an environment conductive to patients enjoying and being able to eat their food.
- All staff have the appropriate skills and competencies needed to ensure that patient's nutritional needs are met. All staff receive regular training on nutritional care and management.
- Hospital facilities are designed to be flexible and patient centred with the aim of providing and delivering an excellent experience of food service and nutritional care 24 hours a day, every day.
- The hospital has a policy for food service and nutritional care which is patient centred and performance managed in line with home country governance frameworks.
- Food service and nutritional care is delivered to the patient safely.
- The hospital supports a multi-disciplinary approach to nutritional care and values the contribution of all staff groups working in partnership with patients and users.

* Protected Mealtimes is an umbrella term for ward-based initiatives to promote increased oral intake, see section 8.0 Making Mealtimes Matter.

Part A

Appendix II
Criteria for Automatic Referral to the Dietitian for Nutrition Assessment

The reasons for referral to a dietitian are set out below. It is important to refer to local guidelines for referral criteria also.

(1) Nutritional Support

- Enteral Tube Feeding Assessment
- Parenteral Nutrition Assessment
- Identified at Risk of Malnutrition post Nutrition Screening

Conditions Requiring Nutrition Support include:

- Decompensated Liver Disease
- Decompensated Heart Failure
- Active Inflammatory Bowel Disease
- Acute pancreatitis
- Frailty
- Falls risk
- Delayed wound healing /Pressure Ulcers (Stage 3 and 4)
- Head and Neck cancer
- Upper Gastrointestinal Cancers (oesophagus and stomach)
- Hepatobiliary Cancers (liver, pancreas and biliary tract)
- Lung cancer
- Other types of cancer diagnosis and weight loss
- Multiple fractures
- Major GI Surgery
- High Output Stoma
- Cystic fibrosis
- Post Solid Organ Transplant
- Pre Stem cell Transplant
- New Spinal Cord/Head injury
- Chyle Leak.

(2) Therapeutic Intervention and Education*

- Newly diagnosed Diabetes
- New start on insulin
- Diabetic Ketoacidosis (DKA)/uncontrolled diabetes
- Newly diagnosed coeliac disease
- Newly diagnosed dysphagia or change in treatment plan
- Newly diagnosed Chronic Kidney Disease (CKD)/End Stage Kidney Disease (ESKD)
- New start on dialysis
- CKD/ESKD with abnormal biochemistry
- Acute Kidney Injury with abnormal biochemistry
- Inherited Metabolic Disease
- Newly diagnosed food allergy
- New colostomy or ileostomy
- Post stroke/CVD event.**

***Patients requiring therapeutic and/or texture modified diets may also require nutritional support when acutely unwell.**

**May require secondary prevention dietary advice; refer to local dietitian referral guidance

(3) Multiple Comorbidities

Patients with multiple comorbidities requiring a combination of therapeutic diets may be at higher risk of malnutrition as may have pre-existing chronic disease related malnutrition. Therefore early referral to the dietitian for nutritional assessment is essential to ensure adequate intake.

Appendix III
Rational for Energy, Protein and Micronutrient Targets

Energy Targets

The energy requirement target range of 2,100- 2,800 kcals is based on:

- a review of other international recommendations on energy intake for hospitalised patients as shown in Table 1
- the estimated average energy requirements with minimal physical activity from the FSAI RDA's (1999) and data from the Irish Universities Nutrition Alliance (IUNA) survey (2011) as well as
- Estimated energy requirements using Henry Oxford Equations.

The RDA for energy was based on a range of ages, observed heights and activity levels. Recommended energy levels were based on ideal body weights based on a body mass index (BMI) of 22kg/m^2. The heterogeneous nature of the adult patient cohort in Acute Hospitals was also considered where nutrient requirements are not uniform across the group. Energy requirements depend on a number of factors including gender, age, level of mobility and metabolic rate. Therefore, a reference/ test person was used to set the recommended energy requirement. In the absence of data on body weights in inpatients, actual body weights and heights from the Irish Universities Nutrition Alliance (IUNA) survey (2011) were used and adjusted to an ideal body weight based on a BMI of 22kg/m^2 following a similar approach to energy recommendations as outlined in the FSAI RDA (1999). See Table 2

Table 1:

Recommendations for Energy and Protein Intake in Hospitalised Adult Patients

	ENERGY (KCALS) or Kcals/Kg	PROTEIN (G)	NOTES
BDA 2017	1,840-2,772	Nutritionally well: 45-56g /day Nutritionally Vulnerable: 66-83 (1.1g/kg)	Reference person – 60kg for a female and 75kg for a male Energy range is for nutritionally well (lower end) and Nutritionally vulnerable upper end of range
NHS, 2016	*2,250-2625 **1,800-2400		*Nutritionally Vulnerable ** Nutritionally Well
ACI, 2011(a)	1,912	1.2g/kg (1.2 x 76 = 90g)	Reference person – 76kg and age 51-70yrs
DOH, Food and Nutritional Care in Hospitals 2009	2,000kcal	90g protein	Larger portions 2,500 kcal and 110g
BAPEN, 1999	30-35kcal/kg		
NICE 2006	25-35kcals /kg	0.8-1.5g/kg	
DOH Healthy Eating 2016	1,800 (F) / 2,000 (M) Inactive	85-90g	Protein based on food portions recommended
FSAI RDA 1999	18-29 years: 2,842 (M) and 2,030 (F) 75+ years: 1791 (M) and 1354 (F)	0.75g/kg	Based on Ideal Body Weight at BMI 22kg/m^2 and observed heights, with minimal physical activity

Table 2

Reference Person

AGE IDEAL BODY WEIGHT (IBW)	MALE	FEMALE
18-64 years **IBW**	86.2kg; 1.77m; BMI 27.5kg/m^{2*} 70kg (BMI 22.3 kg/m^2)	70kg; 1.63m; BMI 26.4kg/m^{2*} 60kg (BMI 22.5kg/m^2)
>65yrs **IBW**	82.4kg; 1.71m; BMI 28.1kg/m^{2*} IBW 70kg (BMI 24 kg/m^2)	68.1kg; 1.58m; BMI 27.3 kg/m^{2*} IBW 60kg (BMI 24/kg/m^2)

*Data from IUNA 2011

As a cross check, actual weights from the IUNA study 2011 for males were used and Henry Oxford (2005) equations (Appendix IV) were applied to determine estimated energy requirements using a 15% activity factor and 10% stress factor which provided the following energy requirements:

18-30 years (86.2kg) = 2,400 kcals

30-60 years (86.2kg) = 2, 272 kcals

60-70 years (86.2kg) = 2,109 kcals

> 70 years (82.4kg) = 2,011 kcals

Although the patient population consists almost equally of male and females, the male reference person of 70kg has been chosen to set the nutrition standard for energy provision. The nutrition standard for energy has been set at 2,100 kcal/day to ensure that at least 30kcal/kg for a male patient will be achieved and will provide 35kcals/kg for the reference woman. The energy range set also concurs with international recommendations as outlined in Table 1.

There may be some patients who require less energy intake and this needs to be addressed at local level based on a review of patient population needs.

Protein targets

The protein requirements are based on the average intake recommended by the food pyramid (DOH, HEG, 2016) and also the Australian guidelines (ACI, 2011a) which recommend 90g per day which equates to 1.2 g/kg per day for their reference person of 76kg. As per Table 1 protein requirements vary from 0.75g/kg (FSAI RDA, 1999) to 1.5 g/day. Protein requirements can increase when unwell and are increased in the presence of some chronic diseases and certain treatments. The nutrition standard set for protein will provide ~ 1.28g/kg for our reference person. This aims to cover the requirements of the majority of hospitalised patients including the elderly not at nutritional risk through to those recovering from surgery. It is expected that patients with higher protein requirements would be appropriately identified and referred to a dietitian for an individualised nutrition care plan. Some patients may require a protein restriction, this cohort require referral to the dietitian for an individualised nutrition care plan.

Micronutrient targets

Targets have been set for micronutrients which have been identified as most important for patients in hospital. The targets set are based on the European Food Safety Authority (EFSA) See table 3 and table 4 for vitamin and mineral recommendations**.** By ensuring that diets/ menus are produced in accordance with nutrition standards for energy and protein provision and that a variety of food choices are available daily for the patients, intake of micronutrients should be sufficient.

Table 3 : Vitamin Requirements

Table EFSA Dietary Reference Values; Recommended Dietary Allowance and Adequate Intake for Vitamins

Source: FSAI (2018) Report of the Scientific Committee of the Food Safety Authority of Ireland. The Safety of Vitamins and Minerals in Food Supplements Establishing Tolerable Upper Intake Levels and a Risk Assessment Approach for Products Marketed in Ireland.

Life Stage Group	Vit C (mg/d)	Pantothenic acid (mg/day)	Biotin (µg/day)	Niacin (mg NE/MJ)[a]	Folate (µg DFE/day)[b]	Vit A (µg RE/day)	Vit E (mg/d)	Vit B12 (µg/d)	Vit B6 (mg/d)	Choline (mg/d)	Vit D (µg/d)	Thiamine (mg/MJ)
Infants												
0-6 mo	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-11 mo	20	3*	6*	1.6	80*	250	5*	1.5*	0.3*	160*	10*	0.1
Children												
1-3 y	20	4*	20*	1.6	120	250	6*	1.5*	0.6	140*	15*C	0.1
4-6 y	30	4*	25*	1.6	140	300	9*	1.5*	0.7	170*	15*C	0.1
Males												
7-10 y	45	4*	25*	1.6	200	400	9*	2.5*	1.0	250*	15*	0.1
11-14 y	70	5*	35*	1.6	270	600	13*	3.5*	1.4	340*	15*	0.1
15-17 y	100	5*	35*	1.6	330	750	13*	4*	1.7	400*	15*	0.1
≥ 18 y	110	5*	40*	1.6	330	750	13*	4*	1.7	400*	15*	0.1
Females												
7-10 y	45	4*	25*	1.6	200	400	9*	2.5*	1.0	250*	15*	0.1
11-14 y	70	5*	35*	1.6	270	600	11*	3.5*	1.4	340*	15*	0.1
15-17 y	90	5*	35*	1.6	330	650	11*	4*	1.6	400*	15*	0.1
≥ 18 y	95	5*	40*	1.6	330	650	11*	4*	1.6	400*	15*	0.1
Pregnancy	105	5*	40*	1.6	600	700	11*	4.5*	1.8	480*	15*	0.1
Lactation	155	7*	45*	1.6	500	1300	11*	5*	1.7	520*	15*	0.1

NOTE: This table presents Recommended Dietary Allowance (RDA) AND Adequate Intakes (AI) in ordinary type followed by an asterisk (*). RDA is the level of (nutrient) intake that is more than enough for virtually all health people in a group. AI is the value estimated when requirements cannot be determined. RDA is the term used by the IOM and in Ireland; PRI is the equivalent term used by EFSA.

If an RDA is set for a vitamin or mineral there, will also be a corresponding AR set for the vitamin or mineral.

ND = Not Determinable

[a] NE: niacin equivalent (1mg niacin = 1 niacin equivalent = 60mg dietary tryptophan)

[b] DFE: Dietary folate equivalent (DFE = µg natural food folate + 1.7 times µg folic acid from fortified foods)

[c] Under conditions of assumed minimal cutaneous vitamin D synthesis. In the presence of endogenous cutaneous vitamin D synthesis, the requirement for dietary vitamin D is lower or may be even zero.

Sources: EFSA (2013) Scientific Opinion on Dietary Reference Values for vitamin C EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA): EFSA (2014) Scientific Opinion on Dietary Reference Values for pantothenic acid EFSA Panel on NDA; ESFA (2014) Scientific Opinion on Dietary Reference Values for biotin EFSA Panel on NDA; EFSA (2014) Scientific Opinion on Dietary Reference Values for niacin EFSA Panel on NDA; EFSA (2014) Scientific Opinion on Dietary Reference Values for folate EFSA Panel on NDA; EFSA (2015) Scientific Opinion on Dietary Reference Values for vitamin A EFSA Panel on NDA; EFSA (2015) Scientific Opinion on Dietary Reference Values for vitamin b12 EFSA (2015) Scientific Opinion on Dietary Reference Values for vitamin e EFSA Panel on NDA EFSA Panel on NDA; EFSA (2016) Scientific Opinion on Dietary Reference Values for vitamin B6 EFSA Panel on NDA; EFSA (2016) Scientific Opinion on Dietary Reference Values for choline EFSA Panel on NDA; EFSA (2016) Scientific Opinion on Dietary Reference Values for vitamin D EFSA Panel on NDA; EFSA (2016) Scientific Opinion on Dietary Reference Values for thiamine EFSA Panel on NDA.

Table 4: Mineral Requirements

Table.EFSA Dietary Reference Values; Recommended Dietary Allowance and Adequate Intake for Minerals

Source: FSAI (2018) Report of the Scientific Committee of the Food Safety Authority of Ireland. The Safety of Vitamins and Minerals in Food Supplements Establishing Tolerable Upper Intake Levels and a Risk Assessment Approach for Products Marketed in Ireland.

Life Stage Group	Molyb-denum µg/d)	Man-ganese (mg/d)	Iodine (µg/d)	Fluoride (mg/d)	Iron (mg/d)	Zinc (mg/d)	Selenium (µg/d)	Calcium (mg/d)	Mag-nesium (mg/d)	Phos-phorus (mg/d)	Copper (mg/d)	Potassium (mg/d)
Infants												
0-6 mo	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7-11 mo	10*	0.02*-0.5*	70*	0.4*	11	2.9	15*	280*	80*	160*	0.4*	750*
Children												
1-3 y	15*	0.5*	90*	0.6*	7	4.3	15*	450	170*	250*	0.7*	800*
4-6 y	20*	1.0*	90*	1.0/0.9[a]	7	5.5	20*	800	230*	440*	1.0*	1,100*
Males												
7-10y	30*	1.5*	90*	1.5*	11	7.4	35*	800	230*	440*	1.0*	1,800*
11-14y	45*	2.0*	120*	2.2*	11	10.7	55*	1,150	300*	640*	1.3*	2,700*
15-17y	65*	3.0*	130*	3.2*	11	14.2	70*	1,150	300*	640*	1.3*	3,500*
≥18y	65*	3.0*	150*	3.4*	11	9.4-16.3[c]	70*	1,100/950[e]	350*	550*	1.6*	3,500*
Females												
7-10y	30*	1.5*	90*	1.4*	11	7.4	35*	800	230*	440*	1.0*	1,800*
11-14y	45*	2.0*	120*	2.3*	11	10.7	55*	1,150	250*	640*	1.1*	2,700*
15-17y	65*	3.0*	130*	2.8*	13	11.9	70*	1,150	250*	640*	1.1*	3,500*
≥18y	65*	3.0*	150*	2.9*	16/11b	7.5-12.7c	85*	1,00/950[e]	300*	550*	1.3*	3,500*
Pregnancy	65*	3.0*	200*	2.9*	16	+1.6[d]	1,000/950[e]	1,000/950[c]	300*	550*	1.5*	3,500*
Lactation	65*	3.0*	200*	2.9*	16	+2.9[d]	1,000/950[e]	1,000/950[c]	300*	550*	1.5*	4,000*

NOTE: This table presents recommended dietary allowance (RDA) and adequate intakes (AI) in ordinary type followed by an asterisk (*). RDA is the level of (nutrient) intake that is more than enough for virtually all healthy people in a group. AI is the value estimated when requirements cannot be determined. RDA is the term used by the IOM and in Ireland; PRI is the equivilant term used by EFSA.

If an RDA is set for a vitamin or mineral there will also be a corresponding AR set for the vitamin or mineral.

ND = Not Determinable.

[a] AI for males 5-6 years of 1.0mg/d; AI for females 4-6 years of 0.9mg/d

[b] RDA for premenopausal women of 16 mg/d (the RDA covers the requirement of approximately 95% of premenopausal women); RDA for postmenopausal women of 11mg/d

[c] Determined by the level of phytate intake (ranging from 300-1,20mg/day)

[d] The RDA covers the requirement of approximately 95% of premenopausal women

[e] RDA for Adults 18-24years of 1,000mg/d; RDA for adults >25years of 950mg/d.

Sources: EFSA (2013) Scientific Opinion on Dietary Reference Values for molybdenum EFSA Panel on NDA; EFSA (2013) Scientific Opinion on Dietary Reference Values for manganese EFSA Panel on NDA; EFSA (2014) Scientific Opinion on Dietary Reference Values for Iodine EFSA Panel on NDA; EFSA (2013) Scientific Opinion on Dietary Reference Values for fluoride EFSA Panel on NDA; EFSA (2015) Scientific Opinion on Dietary Reference Values for Iron EFSA Panel on NDA; EFSA (2014) Scientific Opinion on Dietary Reference Values for zinc EFSA Panel on NDA; EFSA (2015) Scientific Opinion on Dietary Reference Values for magnesium EFSA Panel on NDA; EFSA (2014) Scientific Opinion on Dietary Reference Values for selenium EFSA Panel on NDA, EFSA (2015) Scientific Opinion on Dietary Reference Values for calcium EFSA Panel on NDA; EFSA (2015) Scientific Opinion on Dietary Reference Values for phosphorus EFSA Panel on NDA; EFSA (2015) Scientific Opinion on Dietary Reference Values for copper EFSA Panel on NDA; EFSA (2016) Scientific Opinion on Dietary Reference Values for potassium EFSA Panel on NDA.

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Appendix IV
Henry Oxford Equations (2005)

The Henry Oxford Equations were developed to estimate BMR/RMR for free healthy living populations. These equations are adjusted for the hospitalised patient using stress and activity factors.

Henry Oxford Equations		
Sex	**Age (yrs)**	**Kcal per day**
Male	10-18	18.4W +581
	18-30	16.0W+545
	30-60	14.2W+593
	60-70	13.0W+567
	70+	13.7W+481
Female	10-18	11.1W+761
	18-30	13.1W+558
	30-60	9.74W+694
	60-70	10.2W+572
	70+	10.0W+577

Appendix V
Standardised Portion Guidance

Food Groups	Standardised Portions Use standardised utensil sizes (e.g. ladle sizes)
***Vegetables, salad and fruit** **Provide 5 portions per day**	**1 portion is equal to 80g** › 1 medium sized fruit – apple, orange, pear or banana › 2 small fruits – plums, kiwi or mandarin oranges › Small fruits – 6 strawberries, 10 grapes or 16 raspberries › ½ cup of cooked vegetables – fresh or frozen › 1 bowl of salad – lettuce, tomato, cucumber › 1 bowl of homemade vegetable soup › 150mls unsweetened fruit juice
***Cereals and breads, potatoes, pasta and rice** **Provide 5 portions per day**	**1 portion is equal to:** › 2 thin slices of white or wholemeal bread › 1 torilla wrap › 1 ½ slices wholemeal soda bread or 1 pitta pocket › 40g dry porridge oats › 45g flaked type breakfast cereal › 125g cooked rice, › 100g pasta, noodles, or cous cous › 2 medium potatoes (200g) or 4 small potatoes
***Milk, yogurt and cheese** **Provide 3 portions per day**	**1 portion is equal to:** › 200mls milk › 25g cheese › 125g yogurt
Meat, poultry, fish, eggs and beans **To meet the nutrition standard for protein (90g per day), 35-42g protein must be provided per day from meat, fish, chicken, eggs and beans** **Protein containing foods should be provided at 2-3 meals each day**	**Each of these foods provides 7g protein:** › 1 egg › 25g roast chicken › 22g roast beef › 25g cooked roast pork › 30g cooked minced beef › 30g baked salmon › 30g baked cod › 100g cooked beans These foods must be weighed after cooking to ensure that specified weight is given at each meal for example to provide 28g protein from roast chicken, cooked portion should weigh 100g
Foods and drinks high in fat, salt and sugar	Portions and types of foods used will be determined by the nutrition standards for the individual therapeutic and texture modified diets, see Section 4.0 and 5.0

*DOH, HEG, 2016 Please refer to the HSE Nutrition Standards for food and beverage provision for staff and visitors in healthcare settings Section Guidance for Caterers. This provides advicfor buying ingredients, for preparation, cooking and serving guidance to maximise nutritional content

Appendix VI
Religious Food Restrictions

Many religions have rules or guidelines about foods which may not be eaten, or which may be restricted at certain times of the year. Below is a list of the religious restrictions that may affect the foods served to some patients in hospital.

	ROMAN CATHOLIC	MUSLIM	JEWISH	HINDU
Beef	Some prefer to avoid meat on Fridays and during Lent	Halal	Kosher	NA
Pork	Some prefer to avoid meat on Fridays and during Lent	NA	NA	Rare
Lamb	Some prefer to avoid meat on Fridays and during Lent	Halal	Kosher	Some
Chicken	Some prefer to avoid meat on Fridays and during Lent	Halal	Kosher	Some
Fish		With fins and scales	With scales, fins and backbone	With fins and scales
Shellfish		Halal	NA	Some
Milk/ Yoghurt		Without rennet	Not eaten with meat	Without rennet
Cheese		Vegetarian	Not eaten with meat	Some
Eggs		No blood spots	No blood spots	Some
Tea/coffee/ cocoa		A	A	A
Fruit/ vegetables/ pulses/nuts	A	A	A	A
Alcohol	A	NA	A	Some
Fasting	Some will fast for 1 hour before communion	Ramadan	Yon Kippur	

KEY:

A: Allowed NA: Not Allowed
Some/Rare: Some variations will occur, check with individual about preference

Religious food restrictions (continued)

Many religions have rules or guidelines about foods which may not be eaten, or which may be restricted at certain times of the year. Below is a list of the religious restrictions that may affect the foods served to some patients in hospital.

	BUDDHUST	SIKH	RASTAFARIAN	MORMON	7th Day Adventist
Beef	Varies, many prefer a vegetarian or vegan diet	NA	Some	A	Some
Pork	Varies, many prefer a vegetarian or vegan diet	Some, not hallal or kosher	NA	A	NA
Lamb	Varies, many prefer a vegetarian or vegan diet	Some, not hallal or kosher	Some	A	Some
Chicken	Varies, many prefer a vegetarian or vegan diet	Some, not hallal or kosher	Some	A	Some
Fish	Varies, many prefer a vegetarian or vegan diet	Some	A	A	Some
Shellfish	NA	Some	A	A	NA
Milk/ Yoghurt	A	A	A	A	Most
Cheese	A	Some	A	A	Most
Eggs	Some	Some	A	A	Most
Tea/Coffee/ Cocoa	A	A	A	NA	NA
Fruit/ Vegetables/ Pulses/Nuts	A	A	A	A	A
Alcohol	NA	A	NA	NA	NA
Fasting	New and full moon and all holy days after midday	Varies		24 hours once a month	

KEY:

A: Allowed NA: Not Allowed
Some/Rare: Some variations will occur, check with individual about preferences

Appendix VII

Guidance for diet provision for patient cohorts with specific dietary requirements

Menu planning guidance is provided in the supporting toolkit to aid implementation

DIABETES

Patients with diabetes may also have another chronic condition such as chronic kidney disease, coeliac disease or liver disease. Patients with diabetes may also be at risk of malnutrition and require alterations to their dietary management goals, for example, the frail elderly patient with diabetes (International Diabetes Federation (IDF), 2013). Dietary management of diabetes tends to be individualised with many requiring consistent carbohydrate intake day-to-day and others being taught how to carbohydrate count (ADA, 2018).

Suitable Diets for Patients with Diabetes include:

- A Healthy Eating diet
- A Regular hospital diet or the energy dense diet: this may be suitable for the following patient types, if adapted to reduce the added sugar content of the menu with the addition of higher energy and protein snack options
  - Elderly patient with diabetes, or patients with diabetes who are identified to be at risk of malnutrition. A reduced sugar menu may be required, to limit the amount of added sugar ingested to aid glycaemic management where no other dietary restrictions are appropriate. Excess sugar, soft drinks and fruit juices should be avoided (IDF, 2013)
- A renal diet : It is estimated that the prevalence of CKD in patients with diabetes (Type 2) is as high as 43.5% (Bailey *et al.* 2014)
- A gluten free diet will be required for patients with diabetes and coeliac disease. Coeliac disease is significantly more common in patients with Type 1 Diabetes than in the general population. Screening studies have shown that the prevalence of coeliac disease among adults with Type 1 Diabetes is between 1.3% and 6.4%, which is 10 times the prevalence in the general population (ICGP, 2015)
- A 'clean diet' (note a neutropaenic diet is sometimes referred to as a low microbial or clean diet) will be required for patients post organ transplant. The estimated rates of new onset diabetes after transplant at 12 months or longer post transplant are approximately 20–50% for kidney transplants, 9–30% for liver transplants, 28–30% for heart transplants, 6–45% for lung transplants and approximately 15% for bone marrow transplants (Lane and Dagago- Jack, 2011)
- Where a combination of diets is required, referral to a dietitian is necessary to ensure that an individualised care plan and menu options are devised to ensure nutritional adequacy.

What additionally is required?

- The carbohydrate content of all foods and meals will need to be visible on the menu and/or available to facilitate patients with Type 1 diabetes who are carbohydrate counting (Lane and Dagago- Jack, 2011).
- For patients who are not carbohydrate counting, portion control for the carbohydrate components of menus is key, to ensure a consistent pattern of carbohydrate intake with respect to time and amount on a day-to-day basis (ADA, 2018).
- Provision of snacks to patients with Diabetes will need to be considered on an individualised basis. Traditionally, eating snacks played a major part in managing blood glucose levels for people with diabetes and preventing hypoglycaemia (low blood glucose levels). However, with many of the current diabetic oral medications and insulin regimes, patients are advised to avoid snacking between meals in order to achieve good blood glucose control. As there are many different combinations of medication used in patient care, it is essential to refer to local guidelines in relation to the need for snacks for patients with diabetes.
- The patient with diabetes who has been identified at risk of malnutrition may require regular snacks to optimise oral intake. This may necessitate a change in insulin and or diabetic medications to facilitate snacking whilst ensuring good glycaemic control.
- It is recommended that a 50g late evening carbohydrate snack is provided for all patients with decompensated liver disease (Kondrup and Muller,1997, Scolapio *et al.* 2000). For patients who have decompensated liver disease and diabetes, local agreement will be required as to the appropriateness of this snack and the management of blood sugars to facilitate it.

STEROID INDUCED HYPERGLYCAEMIA IN PATIENTS WITHOUT DIABETES

Some acutely unwell hospitalised patients may also have steroid induced hyperglycaemia. Patient types include those with exacerbation of Chronic Obstructive Airways Disease, post organ transplantation or with cancer, where high dose steroids forms part of chemotherapy treatment. The American Diabetes Association 2018 define hyperglycaemia in hospitalized patients without diabetes as blood glucose levels > 140mg / dl (7.8mmol/l). Blood glucose levels that are persistently above this level may require alterations in diet or a change in medications that contribute to hyperglycaemia (ADA, 2018). Refer to local protocol and guidelines for management plans or discuss with a senior member of the medical/endocrinology team.

Suitable diets for Management of Steroid Induced Hyperglycaemia in Patients without Diabetes include:

- Healthy Eating
- Regular or Energy Dense diet. These diets may be more suitable for patients who have developed hyperglycaemia due to treatment with high dose steroids, but who may also be identified as at risk of malnutrition. The regular and/or energy dense diet would require adaptations to reduce the added sugar content.

What additionally is required?

Further guidance on steroid induced hyperglycaemia in patients without diabetes including those at risk, blood sugar targets and treatment algorithms can be found in the Joint British Diabetes Societies (JBDS) for Inpatient Care (IP): Management of Hyperglycaemia and Steroid (Glucocorticoid) Therapy, 2014.

PATIENTS WITH DECOMPENSATED LIVER DISEASE (DLD)

Malnutrition is extremely common in patients with liver disease, with a very high reported incidence of 75-100% in patients with DLD (INDI, 2015). This patient type may also present with ascites, may have diabetes and/or renal disease and may be pre or post transplant. Meeting the higher energy and protein requirements of this patient group is of paramount importance and many may require additional nutritional support.

Suitable diets for patients with DLD include:

- Regular with higher energy options
- Energy Dense
- No added salt
- Diabetes
- Renal.

What additionally is required?

- A 50g late evening carbohydrate containing snack is recommended for all patients with DLD (Kondrup and Muller,1997, Scolapio *et al.* 2000). For patients who have DLD and diabetes, please consult with your endocrinology team or senior medical team to optimise glycaemic control with this CHO containing snack.
- Where a combination of diets is required, referral to a dietitian is necessary to ensure that an individualised care plan and menu options are devised to ensure nutritional adequacy.

PATIENTS WITH DEMENTIA

Dementia is an umbrella term used to describe a range of progressive neurological disorders. Alzheimer's disease and vascular dementia are the most prevalent, accounting for 79% of all diagnosed (NHS Improvement, 2017). As dementia progresses, there may be changes in a person's eating habits and ability to eat (BDA, 2017). Difficulties with eating and drinking vary according to the type and duration of dementia (INDI Older Person/Dementia, 2016). A meta-analysis by Abdelhamid *et al.* (2016) found an individualised patient centred approach to address peoples' different needs to be the most beneficial. New guidelines related to providing care for patients with dementia have been published by NHS Improvement, which includes guidelines for nutrition (NHS improvement, 2017).

Suitable diets for Patients with Dementia include:

- Regular
- Energy Dense
- Texture modified diets.

What additionally is required?

Offering finger food can improve nutritional intake, and help maintain independence especially for people who like to walk (NHS, Norfolk). Finger Food is a way of presenting meals in an easier way to enable enhanced ability to eat for some patient types instead of traditional meal presentation. In certain patient types (for example, people with dementia, limited manual dexterity (e.g. arthritic hands), inability to sit for a meal, stroke, (difficulty using cutlery) using finger foods in place of traditional meals may prolong a person's independence and stimulate them to eat more frequently (Crawley and Hocking, 2011). The use of finger food has been shown to arrest weight loss (Jean, 1997), improve eating independence (Jean, 1997) and increase the proportion of food eaten (Soltesz and Dayton, 1995) in cognitively impaired residents.

Guidance on provision of finger food is provided in the policy toolkit.

PATIENTS WITH AN INHERITED METABOLIC DISORDER

Metabolic diets are used for patients with an inherited metabolic disorder requiring specific dietary modifications which are the primary treatment for management of the condition. These patients often require extremely low amounts of protein, fat or carbohydrate; therefore the suite of diets already specified will not meet the specific dietary requirements of this patient cohort.

What additionally is required?

An individually tailored metabolic diet specific to each patient and their respective metabolic disorder is arranged with the catering department by the metabolic dietitian, or arranged by the local dietitian with the catering department following consultation with a metabolic dietitian.

PATIENTS REQUIRING COMBINATION DIET THERAPY/MULTIPLE DIETARY RESTRICTIONS

Approximately 38% of Irish people over 50years have one chronic disease and 11% have more than one. Chronic disease accounts for 55% of hospital expenditure, 40% admissions, 75% of bed days and 76% of deaths (DOH and HI, 2016). Patients with a number of co morbidities and medical or surgical conditions, will often require a range of therapeutic diets whilst at the same time requiring sufficient amounts of energy and protein, for example, a patient with stage 4 Chronic Kidney disease (CKD) Type 1 Diabetes (DM) and Coeliac Disease. These specific dietary requirements must be integrated into the patient's nutrition care plan by the dietitian.

What diet is required?

Condition	Standard Menu Required
Stage 4 CKD	Renal Menu
Type 1 DM	Healthy Eating Menu with carbohydrate counts
Coeliac Disease	Gluten free

Individual standard therapeutic menus will not meet the nutritional needs of this patient type or patients who require more than a single diet, without modification by a Dietitian. All meal options should be coded by an experienced dietitian for the diet standard specification that they match, to enable development of a la carte menus for patients requiring combination diets. Refer to the toolkit for sample meal coding.

It is essential to ensure that that nutrition standards for energy and protein are achieved within the necessary dietary restrictions. To ensure adequate intake, choice of meals available will need to be considered and will be largely dependent on resources available. It will occasionally require preparation of additional meals in conjunction with the dietitian and catering department for individual patients. The majority of patients requiring combination diet therapy will require referral to a dietitian for an individualised nutrition care plan.

DIET AND BARIATRIC SURGERY

Dietary management is required for patient's undergoing bariatric surgery as:

- Bariatric procedures will affect nutritional intake and/or absorption (O'Kane *et al.* 2014)
- Food portions required post surgery will be significantly reduced. A staged reintroduction of different textured foods as well as management of gastrointestinal disturbances will also be required (O'Kane *et al.* 2014)
- Likely to require individualised nutritional monitoring post surgery (O'Kane *et al.* 2014).

As both pre and post surgery protocols vary across units carrying out bariatric surgery, local guidance will be needed from the bariatric team regarding the appropriate dietary prescription required.

Referral to a dietitian will be necessary to ensure that an individualised care plan and menu options are devised to ensure nutritional adequacy.

OBESITY

Obesity is defined as patients with a BMI (Body Mass Index) of greater than 30kg/m^2. Data from the Healthy Ireland Survey findings 2015 showed that 23% of Irish people over the age of 15 years are obese. A study published in the Lancet Public Health in 2017 (Kent *et al.* 2017) found a clear relationship between body weight and hospital admissions. This prospective cohort study carried out in 1.1 million women in England found that for each 2kg/m^2 increase in BMI above 20kg/m^2, hospital admissions increased by 5%.

Why:

- Obese patients can often present with a paradoxical malnutrition, resulting from a calorie-dense diet that is high in carbohydrates and fats and low in vitamins and minerals. There is a high occurrence of both macronutrient and micronutrient deficiencies in the obese, in particular protein, vitamin B12, vitamin D, zinc, and iron (Pierpoint *et al.* 2014)
- Patients with a BMI greater than 30kg/m^2 are at risk of sarcopenic obesity (Stenholm *et al.* 2008)
- Obese patients may have other comorbidities / conditions such as diabetes, chronic kidney disease (CKD), congestive cardiac failure (CCF) and liver disease. A recently published audit of an obese cohort of inpatients in a large Dublin teaching hospital found that 78% of the obese patients had Diabetes, 22% had CKD and 33% had CCF (Loughnane and McKiernan, 2018)
- Obese patients are at high risk of pressure ulcers and wound infections (El-Solh, 2004).

Suitable Diets include:

- Regular with higher protein snack options; see protein requirements below.
- Renal
- No added salt
- Healthy Eating.

Where a combination of menus is required, referral to a dietitian is necessary to ensure that an individualised care plan and menu options are devised to ensure nutritional adequacy.

What additionally is required?

Protein: in order to maintain lean body mass, obese inpatients have a high requirement for protein, which can be difficult to achieve without overfeeding calories (Choban and Dickerson 2005, Choban *et al.* 2013). This high requirement may be difficult to meet with food alone and may necessitate additional forms of nutritional support. Higher protein snack options and/or higher protein oral nutritional supplements may be required for this group, especially if sarcopenic obesity is present.

DIETARY MANAGEMENT OF TASTE CHANGES

There are many patient cohorts that may experience taste changes including those:

- Diagnosed with cancer
- Undergoing chemotherapy or radiotherapy
- With lesions in their oral mucosa
- With chronic hepatitis
- With renal dysfunction
- On mental health medications (Maffesis and Silva-Netto,1990).

A dysfunction of taste perception (dysgeusia) may impair a patient's quality of life by affecting appetite, body weight, and psychological well-being (Deems *et al.* 1991). There are several factors that may affect taste perception, including medication, nutrition, smoking, aging, and perturbation in hormonal secretions (Maffesis and Silva- Netto, 1990). Changes in taste perception are especially important in diseases like cancer, which is one of the main causes of morbidity and mortality throughout the world (Murtaza *et al.* 2017). Some studies suggest that 15 to 100% of cancer patients may suffer from a taste change (Lockhart, and Clarke, 1990, Ripamonti *et al.* 1998). Malnutrition is highly prevalent in cancer patients and an important predictor of morbidity, mortality, treatment response, and toxicity. Taste and smell changes (TSCs) are common and may contribute to malnutrition (Ripamonti *et al.* 1998). TSCs may occur pre-treatment, with other treatment modalities, and in cancer survivors. TSC prevalence varies depending on stage of disease and treatment regimens, from 16% to 70% and 50% to 70% during chemotherapy and radiotherapy, respectively (Ripamonti *et al.* 1998).

Suitable diets include

- An energy dense diet may be most appropriate for the above patient groups presenting with weight loss or a poor appetite. Small but frequent meals should be encouraged as they are better tolerated by the patients (Spotten *et al.* 2016)
- Multiple therapeutic diets may be required in certain patient groups, for example, an oncology patient presenting with weight loss +/- sore mouth with an altered taste, would require an energy dense soft diet with food types provided adapted for specific taste changes reported.

What additionally is required?

- Symptoms, for example, food tastes metallic or food tastes too sweet or too salty) should be explored with the patients and alternative food choices arranged to aid taste changes management.

SOLID ORGAN TRANSPLANTS

There are several types of solid organ transplants performed in National Centres annually as outlined in Table 1. In 2017, 308 transplants were performed and numbers have been steadily increasing over last the decade.

(https://www.hse.ie/eng/services/news/media/pressrel/record-numbers-of-organ-donors-and-transplants-in-2017.html)

Table 1

Solid Organ Transplant	National centre
Renal	Beaumont Hospital
Liver	St Vincents University Hospital
Pancreas	St Vincents University Hospital
Lung	Mater Misericordiae University Hospital
Heart	Mater Misericordiae University Hospital

Patients post transport may have many different nutritional considerations/ requirements including:

- Nutritional support post operatively
- Nutritional management of concomitant chronic disease such as renal disease and diabetes mellitus. There is also a very high rate of new –onset diabetes after transplantation with incidence quoted between 10 and 40% (BDA, 2015, Shivasvanny, 2016)
- Nutritional management of bone health as transplant specific therapies may affect rate of bone turnover and loss (BDA, 2015)
- Food safety advice, which is a lifelong requirement (BDA, 2015, Obayashi, 2012).

Infection is a recognised post transplant complication due to increased susceptibility to a wide range of pathogenic organisms (BDA, 2015). Post transplant care includes an immunosuppression medication regimen to ensure that the new organ is not rejected. These medications weaken the immune system's ability to fight infections and increase the risk of all types of infection, including foodborne infection (Obayashi, 2012). Rates of foodborne infection in transplant recipients are not recorded, so the actual increased risk is unknown (McGeeney and Gatiss, 2014). However, it has been estimated that immunocompromised patients have a 15-20% higher risk than the general population for foodborne infection (Lund, 2011). Compliance with food safety legalisation is compulsory to ensure that a hospital produces food that is safe to eat. There is, however current variation in food safety advice provided post transplant of the different organs, so it is essential to consult with local hospital guidelines. It may also be required to provide food to transplant patients who develop neutropenia. The risk of foodborne infection is greater if the patient is neutropenic, and therefore food safety guidance needs to be adjusted accordingly (see section 4.10).

Suitable diets for this cohort include:

- Regular
- Regular high energy
- Healthy eating
- Renal
- Texture Modified Diets (post operatively)
- Neutropenic diet (may be required for transplant recipients with an a low neutrophil count, see section 4.10).

Special precautions

- Foods that interact with medications (BDA, 2015)
  - Grapefruit and grapefruit juice as well as pomegranate is best avoided if you are taking immunosuppression medications, Cyclosporin (Neoral/ Sandimmum), Prograf (Tacrolimus) or cholesterol lowering drugs (statins)
- Depending on the type of organ transplanted, patients may have received varying levels of food safety advice. Therefore it is essential that all transplanted patients must be asked on admission what level of food safety they require, that is, general or specific i.e. bottled water etc.
- Neutropenic transplant patients: please refer to your local medical teams policies for guidance with regard to the management of this patient type. Please refer to neutropenic diet section (Section 4.10) if a transplant patient is admitted and is also neutropenic.

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Part B

Food, Nutrition and Hydration Policy Development Cycle

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Part B:

Food, Nutrition and Hydration Policy Development Cycle

1.0 INITIATION

1.1 Purpose

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1.2 Scope

Please see Part A: Section 1.0 of this document for scope

1.3 Objectives(s)

Please see Part A: Section 1.0 of this document for objectives

1.4 Outcome(s)

Please see Part A: Section 1.0 of this document for outcomes

1.5 National Policy Development Group (NPDG)

The National Policy Development Group (NPDG) for the Food, Nutrition and Hydration Policy (FNHP) undertook the content development within an agreed project plan and under the guidance of a Project Lead and Chairperson. The NPDG was established post consultation with stakeholders and had a range of multidisciplinary members. Additional expertise was sought using focus groups with relevant disciplines where wider consultation was required to develop content. Work-streams were established with a dedicated lead from the group supported by the Project Lead to develop the content.

Work-streams included:

Work-stream 1: Nutrition standards for catering for nutritionally well and nutritionally at risk patients

Work-stream 2: Nutrition standards for catering for patients requiring therapeutic or textured modified diets

Work-stream 3: Nutrition standards for staff and visitors

Work-stream 4: Food Production

Work-stream 5: Food Service

Work-stream 6: Making Meal Times Matter

Work-stream 7: Overview of nutritional care

See Appendix VIII for Membership of the NPDG. See Appendix IX for NPDG Policy Conflict of Interest Declaration Form. See Appendix X for Work-stream Membership

1.6 Food, Nutrition and Hydration Policy Governance Group

The National Nutrition Policy and Clinical Guideline Joint Steering and Clinical Advisory Group (JSCAG) provided governance for the project and policy development. See Appendix XI for Membership of the JSCAG for the Food, Nutrition and Hydration Policy

1.7 Supporting Evidence

Legislation, regulation and report publications, which are relevant to the provision for nutrition and hydration care in acute hospitals by clinical and non-clinical staff, were referred to in the development of the Policy. In addition, existing policies and standards were referred to and aligned to the development of the Policy. These were identified as:

1.7.1 Relevant Legislation/PPPG's/ Standards/Reports

1.7.1.1 National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting, Department of Health (expected publication 2019)

1.7.1.2 Food and Nutritional Care in Hospitals. Guidelines for Preventing Under –Nutrition in Acute Hospitals. Published by the Department of Health, 2009

1.7.1.3 National Standards for Safer Better Healthcare. Health Information and Quality Authority, 2012

1.7.1.4 Health Information and Quality Authority. Report of the review of nutrition and hydration care in public acute hospitals, 2016

1.7.1.5 Healthy Food for Life. Healthy Eating Guidelines and Food Pyramid. Department of Health, 2016

1.7.1.6 Healthy Catering Guidelines for Staff and Visitors in Healthcare Facilities. Published by Health Promotion Unit, Department of Health and Children, 2004

1.7.1.7 Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs

1.7.1.8 Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety

1.7.1.9 Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers

1.7.10 IS 340:2007 Hygiene in the catering sector (2007)

1.7.11 FSAI (2018). *FSAI Guidance Note 15: Cook Chill Systems in the Food Service Sector (Revision 2) 2018*. Dublin: FSAI

The applicable legislation and available guidelines for the catering industry is extensive and the list above is not complete. A full list may be found at www.fsai.ie. At all times the hospital must adhere to the requirements and advice of the local Environmental Health Officer

1.7.12 HSE Intercultural Health Strategy 2007-2012

1.7.13 Report of the Scientific Committee of the Food Safety Authority of Ireland 2018. The Safety of Vitamins and Minerals in Food Supplements- Establishing Tolerable Upper Intake Levels and a Risk Assessment Approach for Products Marketed in Ireland.

1.7.2 PPPG's that are being replaced by this Policy

1.7.2.1 Food and Nutritional Care in Hospitals. Guidelines for Preventing Under-Nutrition in Acute Hospitals. Published by the Department of Health, 2009

1.7.3 Related PPPG's/Standards

1.7.3.1 Department of Health National Clinical Effectiveness Committee National Clinical Guideline No.11 Communication (Clinical handover) in Acute and Children's Hospital Services Handover Policy, 2015

1.7.3.2 HSE National Framework for developing Policies, Procedures, Protocols and Guidelines (PPPG's) 2016

1.7.3.4 HSE Nutrition Standards for food and beverage provision for staff and visitors in healthcare settings (pending publication)

1.7.3.5 HSE Wound Management Guidelines, 2018

1.7.3.6 HSE Royal College of Surgeons in Ireland, College of Anaesthetists of Ireland. Model for Elective Surgery- Including Implementation Guide, National Clinical Programme in Surgery, 2011

1.7.3.7 IrSPEN Guideline Document 1 Prevention and Treatment of Refeeding Syndrome in the Acute Care Setting, 2013.

1.8 Glossary of Terms

Term	Definition
Body Mass Index	Body Mass Index, A key index for relating weight to height. BMI is a person's weight in kilograms (kg) divided by his or her height in meters squared.
Chyle	Chyle is an alkaline, milky, odourless fluid that provides about 200kcal/ litre, 30g fat/litre and 30g protein/litre as well as electrolytes including potassium, sodium, calcium and phosphate. It contains greater than 30g/l of protein, 4-40g/l of lipid (mostly triglyceride) and cells consisting primarily of lymphocytes. Its primary function is immunological, but it also transports long chain fatty acids, fat soluble vitamins and proteins.
Combination Diet	A combination diet is required when a patient has a number of dietary requirements to manage existing conditions/comorbidities and /or coupled with acute clinical requirements for example a gluten free (coeliac), texture modified diet (due to swallowing difficulties post stroke)
Dietitian	Dietitians are the only qualified health professionals that assess, diagnose and treat dietary and nutritional problems at an individual and wider public health level. They work with both healthy and sick people. In addition, dietitian's also work with catering managers to ensure provision of nutritionally adequate food to individuals or groups in health and disease in acute and community settings. Dietitians use the most up-to-date public health and scientific research on food, health and disease which they translate into practical guidance to enable people to make appropriate lifestyle and food choices.
Food Based Standards	These are targets relating to specific foods, rather than the nutrients they contain.
Food Chain	The process involved in obtaining, preparing, delivering and serving food
Health Care Professional	A healthcare professional is a person associated with either a specialty or a discipline and who is qualified and allowed by regulatory bodies to provide a healthcare service to a patient.
Healthy Ireland	Healthy Ireland is a Government-led initiative which aims to create an Irish society where everyone can enjoy physical and mental health, and where wellbeing is valued and supported at every level of society.
Hospital Food	The meals served in hospitals to patients, including therapeutic, texture modified and cultural, ethnic and religious diets.
Ideal Body Weight (IBW)	This is the weight for your height that will enable you have a normal BMI
IrSPEN	The Irish Society for Clinical Nutrition and Metabolism (IrSPEN) is a multi-disciplinary organisation dedicated to optimising the identification and management of patients at nutritional risk, both in hospital and community settings.

1.8 Glossary of Terms (continued)

Macronutrients	Nutrients that are used or can be used to supply energy to the body: carbohydrate, protein and fat.
Main meal	A main meal can be defined as a serving of food and fluid which provides the greatest contribution to the energy and range of nutrients required.
Malnutrition	A state of nutrition in which a deficiency, excess or imbalance of energy, protein or other nutrients, including minerals and vitamins, causes measurable adverse effects on body function and clinical outcome.
Meal time support	Meal time support strategies can be used to support the patient before, during and after meals. Examples of support include de-cluttering the patients mealtime environment, mealtime positioning, opening food items, and social interaction.
Micrograms (mcg)	A Microgram. This is one millionth of a gram.
Micronutrients	Essential nutrients required by the body in small quantities: vitamins, minerals and trace elements.
Multi-disciplinary team	A multidisciplinary team is a group of health care workers who are members of different disciplines (professions e.g. dietitians, doctors, nurses, etc.), each providing specific services to the patient. The team members independently treat various issues a patient may have, focusing on the issues in which they specialise.
NICE	The National Institute for Health and Care Excellence (NICE) in the United Kingdom provides national guidance and advice to improve health and social care. An independent organisation responsible for providing national guidance on promoting good health and preventing and treating ill health.
Nutrient Standards	These are targets defined for minimum/maximum provision of a range of nutrients that should be provided in a meal/menu.
Nutrition	The process of providing or obtaining the food and hydration necessary for health and growth.
Nutrition Analysis	This is the calculation of macro and micronutrients in a particular recipe or menu using a standardised procedure
Nutrition Care Plan	A nutrition care plan is developed by a dietitian outlining the individual nutritional interventions and outcomes to be monitored. The nutrition intervention chosen is directed to the root cause of the nutrition problem identified by nutrition assessment and is aimed at alleviating the signs and symptoms of the problem.

1.8 Glossary of Terms (continued)

Nutrition Screening	A rapid, simple and general procedure used by nursing, medical or other trained staff, often at first contact with the patient, to detect those who have significant nutritional problems or significant risks of such problems, in order that clear guidelines for action can be implemented, e.g. simple dietary measures or referral for expert help.
Occupational Therapist	Occupational therapists have a broad education in the health, social, psychological and occupational science which equips them with the attitudes, skills, and knowledge to work collaboratively with people, individually or in groups, to bring about positive life changes to enable them to participate in the activities of everyday life .Occupational therapists work with people with a wide range of health needs, including those who have an impairment of body structure or function owing to a health condition, to enhance their ability to engage in the activities and occupations they want to, need to, or are expected to do, or by modifying the occupation or the environment to better support their occupational independence
Oropharyngeal Dysphagia	**Oropharyngeal Dysphagia** is the term used to describe a feeding, eating, drinking and swallowing disorder usually resulting from a neurological or physical impairment of the oral, pharyngeal or oesophageal mechanisms. The normal swallow has 4 phases: 1. oral preparatory 2. oral 3. oropharyngeal 4. oesophageal. The first three of these together are termed the oropharyngeal phase. The 'normal' swallow needs the respiratory, oral, pharyngeal, laryngeal and oesophageal anatomical structures to function in synchrony, which is dependent upon the motor and sensory nervous system being intact.
Patient	A person receiving or registered to receive medical treatment.
Procurement	The action of obtaining or buying goods and services.
Quality Improvement Plan	The aim of a Quality Improvement Plan is to help providers self-assess their performance in delivering quality education and care, and to plan future improvements.
Standard	A level or quality or achievement that is acceptable
Speech and Language Therapist	Speech and language therapists provide screening, assessment, diagnosis, management and prevention of speech, language and communication disorders and dysphagia. The objective of speech and language therapy is to improve patients' quality of life by optimising their ability to communicate and/or swallow in their environment. SLT's are Health and Social Care Professionals (HSCPs) who work collaboratively with patients, carers and with other professionals including doctors, nurses, Occupational Therapists and Dietitans. SLT's also provide training and education to patients/families/caregivers and other professional.

Texture Modified Diet	Foods that have been physically altered to change their texture/ consistency. Altering food texture has demonstrated a therapeutic benefit for reducing the risk of choking. Within the International Dysphagia Diet Standardisation Initiative framework, there are 5 levels of food textures (Levels 3-7) which include Regular diet (Level 7), Soft Diet (Level 6), Minced & Moist Diet (Level 5), Pureed Diet (Level 4) and Liquidised Diet (Level 3).
Therapeutic diet	A therapeutic diet is modified from a 'normal' diet and is prescribed to meet a medical or special nutritional need. It is part of a clinical treatment and in some cases can be the principle treatment of a condition
Thickened Drinks/Modified fluids	Fluids to which there has been an addition of a commercially available thickener. Within the International Dysphagia Diet Standardisation Initiative framework, there are 5 levels of drinks (Levels 0-4) which include Thin (Level 0), Slightly Thick (Level 1), Mildly Thick (Level 2), Moderately Thick (Level 3) and Extremely Thick (Level 4).
WHO	The World Health Organisation. It is a specialised agency of the United Nations that is concerned with international public health.
Volunteer	A person who freely offers to take part in an enterprise or undertake a task

2.0 DEVELOPMENT OF THE FOOD, NUTRITION AND HYDRATION POLICY (FNHP)

2.1 The Clinical and Non Clinical Questions

The FNHP Policy was developed in conjunction with the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting. The NCG provided the evidence for policy recommendations pertaining to nutrition screening and use of oral nutritional support. Many members of the NPDG also worked on the national clinical guideline group including the Policy Project Lead. To address additional aspects of the policy in relation to patient care clinical and nonclinical questions were formulated to inform literature searches and also assessment of current food provision practices nationally.

2.2 Describe the literature search strategy

The National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting was developed by adapting an existing guideline, using the internationally recognised ADAPTE process. To address gaps in evidence required to support other aspects of the Policy not included in scope of the NCG, specific questions were formulated using a who, why, what and how approach in each of the work streams. This was based on the population, intervention, comparison and outcome (PICO) framework. A literature search was undertaken to answer questions posed. Literature searching was conducted independently or by buddy groups within the work- stream. Results from the literature search were then reviewed by all members of the work-stream, each consisting of at least 3 members, which provided a degree of confidence that all relevant literature and current practice

was identified. All draft content prepared by the work-steams was presented at the NPDG meetings and also sent to all members for review and written feedback.

2.3 Method of Evidence Appraisal

Refer to the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting for methodology for used. As there is a paucity of research on many aspects of food provision for patients in hospital particularly in the area of minimum nutrition standards for the provision of therapeutic diets and or effectiveness of specific food service ordering systems, the literature was reviewed and assigned to specific policy sections where it supported recommendations. Catering guidelines for provision of food for inpatients internationally were also included based on appraisal using the AGREE II tool.

2.4 Recommendations

The recommendations in this policy originate either from the National Clinical Guideline (NCG): Nutrition Screening and Use of Oral Nutrition Support for Adults in the Acute Care Setting (due for publication 2019) or were formulated by the National Policy Development Group based on the evidence gathered. Using a systematic approach to content development, this policy provides a number of evidence based recommendations for food, nutrition and hydration care of adult inpatients in acute hospitals. It is also recommended that Acute Hospitals implement the HSE Nutrition Standards for food and beverage provision for staff and visitors in Healthcare Settings (pending publication).

2.5 Summary of the Evidence

A summary of the evidence is not included as it was considered that part A identifies each recommendation clearly and provides a comprehensive summary of evidence for each section.

2.6 Resource Implications

Any additional costs associated with the implementation of the policy will need to be identified at hospital level and included in the respective Hospital Group's annual estimates submission.

2.7 Outline of recommendations

Please see part A of this document for recommendations regarding nutritional care for patients, nutrition standards for food provision for patients, food production, food service and making meal times matter.

3.0 GOVERNANCE AND APPROVAL

3.1 Formal governance arrangements

Following meetings with the Minister for Health and the HSE in 2016, it was agreed that the HSE would lead on the following key areas in relation to hospital food and nutritional care in acute hospitals.

(1) Development of a National Clinical Guidelines for the Identification and Management of Patients at risk of Malnutrition and

(2) A Food and Nutrition Policy including nutrition standards for catering for patients, staff and visitors.

The National Policy Development Group (NPDG) for the Food, Nutrition and Hydration Policy undertook the content development within an agreed project plan and under the guidance of a Project Lead and Chairperson. The National Nutrition Policy and Clinical Guideline Joint Steering and Clinical Advisory Group (JSCAG) provided formal governance for the project. A General Manager in Acute Operations is the designated chairperson for the group. The Steering Committee met monthly with the clinical advisors attending three monthly or as required. The NPDG worked to an agreed scope and terms of reference. The Project Lead reported monthly to both the JSCAG and the Healthy Eating and Active Living Programme Lead.

Updates were also provided to the Department of Health. The project lead worked with a subgroup (The Healthier Food Environment Advisory Group) of the HSE Healthy Eating and Active Living Programme to develop nutrition standards for food and beverage provision for staff and visitors in healthcare settings. It was agreed by the JSCAG that Acute Hospitals should implement the nutrition standards for food and beverage provision for staff and visitors.

3.2 Policy Development Standards

This policy was developed within the template of HSE National Framework for developing Policies, Procedures, Protocols and Guidelines (2016) and adhered to standards set out.

3.3 Copyright/permission sought

Permission was granted from NICE to adapt an existing guideline: Clinical Guideline 32: Nutrition Support for Adults, Oral Nutrition Support, Enteral Tube Feeding and Parenteral Nutrition.

3.4 Approval and Sign Off

The completed HSE National Food, Nutrition and Hydration Policy 2018 was submitted for approval to the National Director for Acute Operations and the HSE Leadership team. This was accompanied by the signed PPPG Checklist (refer to appendix XIV) to confirm that all the required stages in the development of the policy had been completed and met the HSE National Framework for developing Policies, Procedures, Protocols and Guidelines (PPPGs) 2016. The policy was approved by the HSE Leadership team on the 13th November 2018.

4.0 COMMUNICATION AND DISSEMINATION

A communication and dissemination plan was developed within the project and endorsed by the JSCAG.

4.1 Describe communication and dissemination plan

Staff will be made aware of this Policy through the Communications Department in the Acute Operations Division and relevant professional bodies.

The Policy will be available on https://www.hse.ie/eng/about/who/acute-hospitals-division/about/

5.0 IMPLEMENTATION

5.1 Describe implementation plan listing barriers and /or facilitators

Implementation of the Policy will be a key action in the Acute Operations Plan, individual Hospital Group Operational Plans and Hospital Groups Healthy Ireland Implementation Plans. The supporting toolkit and on line support hub was designed to provide tools to enable local implementation. Nutrition and Hydration Steering Committees will be responsible for developing local implementation plans. It is recommended that Nutrition and Hydration Steering Committees should firstly conduct a gap analysis to ascertain what work needs to be undertaken to implement the policy locally. A self - assessment questionnaire is included in the toolkit. Standard operating procedures will then be required to apply policy recommendations locally. There are also significant nutrition related knowledge gaps which will require education and training across relevant staff to increase food and nutrition knowledge. Communication and information sharing with the patients regarding nutritional care in hospitals is required. Close collaboration between all key stakeholders will be essential to implement the policy.

5.2 Education/training required to implement the Food, Nutrition and Hydration Policy

It is recommended that each local setting will identify the educational and training requirements of each staff discipline that are required to implement this policy. The level of training will differ between staff categories and therefore different models of training will be required for example in – service education sessions, continuous professional development updates, stand alone on line training modules to post graduate educational programmes. Food Safety training is required for all staff involved in food provision to patients.

5.3 Identify lead person(s) responsible for the Implementation of the FNHP

The National Policy for Food, Nutrition and Hydration will apply to all staff involved in the provision of food and nutritional care in acute hospitals. All acute hospitals must have a Nutrition and Hydration Steering Committee who will be responsible for developing local plans to implement the Policy.

5.4 Specific roles and responsibilities

Specific roles and responsibilities are centred on achieving key recommendations to deliver patient centred food, nutrition and hydration care. On admission identification of food, nutrition and hydration needs provides the patient with the opportunity to inform staff of existing nutritional requirements for example level of assistance needed with eating and drinking. Importance of good nutritional intake during admission should be communicated by staff to patients.

5.4.1 Nutrition and Hydration Steering Committees

The HIQA report on the review of nutrition and hydration care in public acute hospitals, May 2016 identified four key areas for improvement which includes:

"All hospitals should have a nutrition steering committee in place. A well-functioning Nutrition Steering Committee, with relevant multidisciplinary membership is necessary to provide leadership and to promote and sustain improvement in the area of nutrition and hydration".

5.4.1.2 The governance structure for the Nutrition and Hydration Steering Committee should be established at individual hospital level with a direct reporting structure within the Hospitals' Quality, Safety and Risk Programme/Committee to ensure the following:

- Clear ownership and accountability for nutritional care at a corporate level
- Leadership to support delivery of patient nutritional care having regard to the strategic priorities for the hospital.
- Performance with delivery of nutritional care is effectively managed
- A multidisciplinary approach which values delivery of high quality nutritional care.

5.4.1.3 The role of the committee is to:

- Direct and support a comprehensive programme of nutrition and hydration care across all services in the hospital
- Ensure that all patients admitted to hospital receive high-quality nutrition and hydration care.

5.4.1.4 The responsibilities of the committee are to:

- Advise on all aspects of nutrition, including nutrition screening and nutrition assessment, catering and

food service, oral nutritional supplements, nutrition related written information enteral and parenteral nutrition for in-patients and out-patients.

- Develop standard operating procedures to support nutrition screening, assessment and monitoring, food provision and nutritional support
- Co- ordinate the implementation of national nutrition policies and guidelines
- Co- ordinate relevant education and training to ensure that all staff have the appropriate skills and competencies needed to support patients in meeting their nutritional requirements and to adhere to their nutrition care plans.
- Participate in the procurement process for food, nutritional products and services for patients.
- Drives QIP's through audit of food service and nutritional care processes.
- Acts on national recommendations and feedback pertaining to food and nutrition.
- Review and approve all nutrition related patient information for use in all locations by all members of the multidisciplinary team in the hospital, for example, nutritional information on stoma leaflets, dietary advice for tests or procedures.

5.4.1.5 See Appendix XII for the recommended membership of a Nutrition and Hydration Steering Committee

5.4.1.6 Operational Recommendations

To ensure that a nutrition and hydration committee is functioning effectively, it is recommended that:

- Committees should meet at least 4 times annually
- The chair of the committee should rotate at least every 2 years
- The chair should provide an annual report for the hospital board of management summarising key achievements and other service improvements.

5.4.2 Specific roles and responsibilities

All relevant staff are responsible for adhering to the National Food, Nutrition and Hydration Policy for Patients in Acute Hospitals.

5.4.2.1 Hospital CEO/General Manager

- The hospital CEO/General Manager has the ultimate responsibility for creating the environment that makes it possible for the nutritional needs of patients to be met.

5.4.2.2 The Multidisciplinary Team

Catering Support Staff, Catering Staff, Doctors, Health and Social Care Professionals and Nurses are responsible for making sure robust communication systems exist at ward level between the multidisciplinary team to ensure that patient's nutrition & hydration needs are met.

5.4.2.3 Doctor

The doctors led by the consultant have a responsibility to integrate nutrition as an important component of the patients' treatment and overall care plan.

5.4.2.4 Clinical Nurses Manager (CNM)

The CNM has responsibility for promoting and maintaining a ward environment that is conducive to making sure each patient's nutritional needs are met.

5.4.2.5 The Registered Nurse (RN)

Each RN has the day to day responsibility for ensuring that;

- The patient's nutritional needs are identified on admission and reassessed as relevant during their hospital stay.
- Patients receive appropriate meals and fluid intake.
- Assistance with feeding and fluid intake is provided to patients if required.
- Assessment, recording and reporting on the patient's food and hydration status.

5.4.2.6 The Health Care Assistant (HCA)

The HCA will support the RN in ensuring patients are given required assistance to eat their meals and have an appropriate fluid intake.

5.4.2.8 Catering Manager

The Catering Manager is responsible for overseeing all aspects of food production and foods service. This includes ensuring that:

- Food is produced and served in compliance with all relevant food safety legislation.
- Strategies are in place to monitor and reduce food waste.
- Food produced meets the nutrition standards for hospital diets.
- Menus with appropriate food choices are available
- Replacement meals are available as required.

5.4.2.9 Chef

The chef is responsible for:

- Production of safe food in compliance with all relevant food safety legislation.
- Development of standardised recipes and menu cycles in conjunction with the Dietitian, Speech and Language Therapist (as required) and the Catering Manager.
- Ensuring that food produced is prepared and presented in an appetising way.

5.4.2.10 Kitchen Attendant

The kitchen attendant is responsible for assisting the Catering Manager and Chefs in the provision of high quality meals whilst adhering to all relevant food safety legislation.

5.4.2.11 Staff involved in Food Service (Ward Catering Staff)

Food Service Staff are responsible for providing a high quality customer service experience for patients. Close collaboration and regular communication with the ward multidisciplinary team is essential. The Food Service Staff are responsible for providing the patients with:

- An appropriate food choice.
- A detailed description of all menu and food items that are available.
- Food at the correct temperature and time.
- Access to water throughout the day.
- Food served in compliance with all relevant food safety legislation.
- Food served in compliance with local infection control policies and procedures.

5.4.2.12 The Dietitian Manager

A Dietitian Managers role is to manage the Nutrition and Dietetic service within their hospital. The Dietitian Manager works with all key stakeholders (Nutrition and

Hydration Steering Committee, hospital management and senior members of the multi - disciplinary team) to provide a high quality service that is:

- Patient focused.
- Evidenced based and in line with local and national strategy priorities.
- Effective and efficiently delivered.
- Promotes and supports implementation of national recommendations pertaining to nutritional care including food provision and nutrition support practices.
- Ensures that nutrition related policies and procedures are reviewed and updated regularly.

5.4.2.13 The Dietitian

Dietitians apply the science of nutrition to promote health, prevent and treat malnutrition and to provide therapeutic dietary advice. Dietitians provide evidence based nutritional interventions in conjunction with the medical plan for complex clinical conditions.

Dietitians work as integral members of multi-disciplinary teams in the hospital setting to:

- Collaborate with other stakeholders to develop strategies to implement recommendations from the nutrition and hydration steering committee.
- Develop standard operating procedures in relation to nutritional care provision in conjunction with the Dietitian Manager
- Audit adherence with nutrition policies and procedures.
- Develop, deliver and evaluate training packages for all staff involved in the provision of nutritional care for patients.
- Perform nutritional analysis on standardised recipes, interpret results and code meals for therapeutic diets
- Menu Planning in conjunction with the Catering Manager, Chefs, and Speech and Language Therapist as required.
- Assess nutritional status in patients identified at risk of malnutrition.
- Advise on appropriate care plan to empower and support the malnourished patients to select nutritionally adequate, safe (if requires therapeutic diet) and tasty food options.
- Provide individually adapted nutritional counselling for patients and their family members that require therapeutic dietary education as part of their medical management.
- Provide dietary advice to alleviate discomfort for patients receiving palliative care.
- Assess, plan, monitor and evaluate all nutritional treatment prescribed.

5.4.2.14 The Speech and Language Therapist

Speech & Language Therapists (SLTs) are responsible for the management of patients presenting with Feeding, Eating, Drinking and Swallowing (FEDS) and communication difficulties.

The SLT works as part of a multidisciplinary team (MDT) in the management of a FEDS disorder. Assessment will include case history and discussion with the patient and/or relevant carers and MDT members, oromotor exam (where possible) followed by clinical evaluation of swallow and/or objective assessment of swallow, for example, videofluoroscopy or Fiberoptic Endoscopic Evaluation of Swallowing (FEES).

Following assessment the SLT will develop an individualised management plan which may include postural changes (eg: chin down), sensory procedures (e.g. change of bolus volume, taste, temperature), swallow manoeuvres (e.g. supraglottic

swallow) and/or changes to fluid and/or diet consistencies. The SLT communicates swallow recommendations and treatment strategies with the patient and other relevant members of the MDT. This will also include discussion and communication of information pertaining to issues such as alternative feeding, safe positioning for eating and drinking, and mealtime supports, as well as further monitoring and assessment recommendations. Training and raising of awareness of FEDS disorders amongst all relevant stakeholders is also the responsibility of the SLT.

5.4.2.15 The Occupational Therapist

The Occupational Therapist is responsible for assessing patients who have difficulty with feeding due to physical, cognitive or psychological disability. The Occupational Therapist can suggest adaptations, techniques, positioning and/or aids and equipment to facilitate independence.

5.4.2.16 All clinical staff:

All clinical staff should comply with this Policy and related guidelines, procedures and protocols. Clinical staff should adhere to their professional scope of practice guidelines. Refer to appendix XIII for a copy of the signature sheet. This should be signed to record that all staff have read, understood and agree to adhere to this Policy.

6.0 MONITORING, AUDIT AND EVALUATION

6.1 The Plan

It is anticipated that this policy will support the promotion of food, nutrition and hydration care for patients in acute hospitals through evidence based processes. The policy will also support healthier eating for all hospital users, namely staff and visitors and promote sustainable food and catering services. As this policy impacts on patients care and clinical outcomes, audit should be undertaken by all members on the multidisciplinary team to assess adherence with the Policy recommendations.

6.1.1 Monitoring

The hospital CEO, or General Manager, is responsible for monitoring the implementation of this policy. The hospital Nutrition and Hydration Steering Committees should develop plans to enable implementation and monitor the delivery of the policy.

6.1.2 Audit

Audit using key performance indicators should be undertaken to identify where improvements are required and to enable changes as required. Audit should also be undertaken to provide evidence of continuous quality initiatives.

6.1.3 Evaluation

Evaluation of the effectiveness of the policy should be undertaken locally. Implementation of the policy requires the establishment of robust governance and accountability processes for monitoring and evaluation. It is recommended that formal evaluation of the Policy is undertaken on an annual basis until it is fully implemented.

7.0 REVISION/UPDATE

7.1 Procedure for the update of the National Food, Nutrition and Hydration Policy (FNHP)

The FNHP will be due for revision three years from publication. The procedure for update will be aligned to the HSE PPPG Policy (2016).

7.2 Identify the method for amending the National Food, Nutrition and Hydration Policy if new evidence emerges

In the event of new evidence emerging which relates directly to the Policy a working group will be convened to revise and amend the Policy if warranted.

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Part B

Appendix VIII

Membership of the Nutrition Policy Development Group

(In alphabetical order)

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Maeve McConnell
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Dietitian Manager, Naas General Hospital, DMHG NSC Representative

Margaret O'Neill
National Dietetic Advisor, HSE Strategic Planning and Transformation

Maeve Phillips
Catering Manager, Mater Misericordiae University Hospital

Michael Quirey
HSE National Health Sustainability Office

Marie Ryan
HSE, Principal Environmental Health Officer

Appendix IX
Conflict of Interest Declaration Form (Template)

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

CONFLICT OF INTEREST DECLARATION

This must be completed by each member of the PPPG Development Group as applicable

Title of PPPG being considered:

_____

Please circle the statement that relates to you

1. I declare that I DO NOT have any conflicts of interest.

2. I declare that I DO have a conflict of interest.

Details of conflict (Please refer to specific PPPG)

_____
_____
_____
_____
_____
_____

(Append additional pages to this statement if required)

Signature

Printed name

Registration number (if applicable)

Date

The information provided will be processed in accordance with data protection principles as set out in the Data Protection Act. Data will be processed only to ensure that committee members act in the best interests of the committee. The information provided will not be used for any other purpose.

A person who is covered by this PPPG is required to furnish a statement, in writing, of:

(i) The interests of the person, and

(ii) The interests, of which the person has actual knowledge, of his or her spouse or civil partner or a child of the person or of his or her spouse which could materially influence the person in, or in relation to, the performance of the person's official functions by reason of the fact that such performance could so affect those interests as to confer on, or withhold from, the person, or the spouse or civil partner or child, a substantial benefit.

Appendix X
Work stream Membership

	WS 1	WS 2	WS 3	WS 4	WS 5	WS 6	WS 7
WS Leads	Gillian O Loughlin Dietitian Manager	Barbara Gillman Clinical Specialist Dietitian	Barbara Gillman Clinical Specialist Dietitian	Maeve Phillips Catering Manager	Teresa Fitzsimmons Catering Manager	Judy McEntee Director of Nursing	Barbara Gillman
WS Members	Linda Killeen	Maeve Mc Connell	Margaret O'Neill	Gerry Hughes	Andrew Grant	Annette Lalor	Mary Mc Kiernan
	Anne Hevers	*Teresa Loughnane		Andrew Grant	Aidan Duffy	Muireann De Roiste	Linda Killeen
	Sheila Bowers	*Pauline Connolly		Aidan Duffy	Maeve Phillips	Emer Martin	Gillian O Louglin
	Barbara Gillman	*Theresa Rennick		Marie Ryan	Mary McKiernan	Barbara Gillman	Annette Lalor
	*Niamh Fitzpatrick			Michael Quirey	Barbara Gillman		Anne Hevers
	*Judy Ennis			Teresa Fitzsimmons			Sheila Bowers
				Barbara Gillman			Margaret O 'Neill

*Additional Technical expertise

WS 1 Niamh Fitzpatrick, Senior Dietitian, Cavan General Hospital

WS 1 Judy Ennis, Dietitian Manager, Midlands Regional Hospital, Portlaoise

WS 2 Teresa Loughnane, Clinical Specialist Dietitian in Diabetes, Renal Diabetes and Obesity, Mater Misericordiae University Hospital

WS 2 Pauline Connolly, Senior Renal Dietitian, Cavan General Hospital

WS 2 Theresa Rennick, Dietitian Manager/Senior Renal Dietitian, Midlands Regional Hospital, Tullamore

Many other members of Nursing Staff, Catering Staff and Health and Social Care Professionals contributed to focus groups which informed content development by the Work streams

Appendix XI

Membership of the Joint Steering and Clinical Advisory Group

Margaret Brennan
HSE, Quality and Patient Safety Lead, Acute Operations

Dr. Declan Byrne
Consultant Geriatrician, St James' Hospital
Chairperson National Clinical Guideline (NCG): Nutrition Screening and the Use of Oral Nutrition Support for Adults in the Acute Care Setting

Sharon Dwyer
General Manager, HSE, General Manager, Office of the Chief Clinical Director (member up to June 2018)

Barbara Gilman
Clinical Specialist Renal Dietitian, Project Lead
Mater Misericordiae University Hospital

Dr Vida Hamilton,
National Clinical Advisor and Group Lead, HSE Acute Operations (since September 2018)

Dr Colm Henry,
HSE Chief Clinical Officer (member up to June 2018)

Chairperson:

Carmel Beirne
General Manger, HSE Acute Operations

Sarah O'Brien
HSE, National Lead for Healthy Eating and Active Living Program

Margaret O'Neill,
HSE, National Dietetic Advisor, Strategy Planning and Transformation

Carmel O'Hanlon
Clinical Specialist Dietitian, General ICU, Beaumont Hospital, NCG Project Lead

Professor Donal O'Shea
Consultant Endocrinologist
HSE, Clinical Lead for Obesity Programme

Appendix XII
Membership of a Nutrition and Hydration Steering Committee

Roles and responsibilities for committee members should be specific and purposeful. The committee may benefit from having sub-committees – for example Food Service, Nutrition Screening, Nutrition Support and Procurement.

Members should be drawn from hospital management and include a minimum of senior representation from :
A Consultant
Catering/Catering Support Services
Dietitians
Nursing
Occupational Therapy (where available)
Patient Representation/Patient Voice*
Pharmacy
Quality and Patient Safety
Senior Management
Speech and Language Therapy (where available)

Note additional members may be included as required

*Patient Representation is an essential component of a committee but can be provided in a number of ways including:

- A representative from patient services
- A patient representative with a clearly defined role and responsibility as a member of the committee
- Focus groups which enable collective involvement for specific and purposeful tasks for example :
  - as Ireland is now a multi-cultural country, representation from ethnic minorities is important so that suitable dishes can be included in menu planning or
  - introduction of a new tube feeding discharge protocol should include a patient representative who requires tube feeding
- The National Patient Experience Survey, this could be used to represent the patient voice for food service.
- A combination of all of the above

Appendix XIII
Signature Sheet

I have read, understand and agree to adhere to this Policy, Procedure, Protocol or Guideline:

Food, Nutrition and Hydration Policy for Adult Patients in Acute Hospitals

Print Name	Signature	Area of Work	Date

Appendix XIV

PPPG Checklist

Title of PPPG: Food, Nutrition and Hydration Policy for Adult Patients in Acute Hospitals

STANDARDS FOR DEVELOPING THE POLICY	
Stage 1 Initiation	**Checklist**
The decision making approach relating to the type of PPPG guidance required (policy, procedure, protocol, guideline), coverage of the PPPG (national, regional, local) and applicable settings are described.	☑
Synergies/co-operations are maximised across departments/organisations (Hospitals/ Hospital Groups/Community Healthcare Organisations (CHO)/National Ambulance Service (NAS)), to avoid duplication and to optimise value for money and use of staff time and expertise.	☑
The scope of the Policy is clearly described, specifying what is included and what lies outside the scope of the Policy.	☑
The target users and the population/patient group to whom the PPPG is meant to apply are specifically described.	☑
The views and preferences of the target population have been sought and taken into consideration (as required).	☑
The overall objective(s) of the Policy are specifically described.	☑
The potential for improved health is described (e.g. clinical effectiveness, patient safety, quality improvement, health outcomes, quality of life, quality of care).	☑
Stakeholder identification and involvement: The Policy Development Group includes individuals from all relevant stakeholders, staff and professional groups.	☑
Conflict of interest statements from all members of the Policy Development Group are documented, with a description of mitigating actions if relevant.	☑
The Policy is informed by the identified needs and priorities of service users and stakeholders.	☑
There is service user/lay representation on Policy Development Group (as required).	☑
Information and support is available for staff on the development of evidence-based clinical practice guidance.	☑

Stage 2 Development	Checklist
The clinical question(s) covered by the Policy are specifically described.	✓
Systematic methods used to search for evidence are documented (for PPPGs which are adapted/adopted from international guidance, their methodology is appraised and documented).	✓
Critical appraisal/analysis of evidence using validated tools is documented (the strengths, limitations and methodological quality of the body of evidence are clearly described).	✓
The health benefits, side effects and risks have been considered and documented in formulating the Policy.	✓
There is an explicit link between the Policy and the supporting evidence.	✓
Policy guidance/recommendations are specific and unambiguous.	✓
*The potential resource implications of developing and implementing the Policy are identified e.g. equipment, education/training, staff time and research.	X
There is collaboration across all stakeholders in the planning and implementation phases to optimise patient flow and integrated care.	✓
*Budget impact is documented (resources required).	X
Education and training is provided for staff on the development and implementation of evidence-based clinical practice guidance (as appropriate).	N/a
Three additional standards are applicable for a small number of more complex PPPGs: Cost effectiveness analysis is documented. A systematic literature review has been undertaken. Health Technology Assessment (HTA) has been undertaken.	N/a
***Resource implications will need to be identified at local hospital level ; any additional costs associated with implementation of the policy will need to be included in the respective Hospital Groups' annual estimates submission**	

Stage 3 Governance and Approval	Checklist
Formal governance arrangements for Policy at local, regional and national level are established and documented.	✓
The PPPG has been reviewed by independent experts prior to publication (as required).	N/a
Copyright and permissions are sought and documented.	✓

Stage 4 Communication and Dissemination	Checklist
A communication plan is developed to ensure effective communication and collaboration with all stakeholders throughout all stages.	✓
Plan and procedure for dissemination of the PPPG is described.	✓
The PPPG is easily accessible by all users e.g. PPPG repository.	✓

Stage 5 Implementation*	Checklist
Written implementation plan is provided with timelines, identification of responsible persons/units and integration into service planning process.	X
Barriers and facilitators for implementation are identified, and aligned with implementation levers.	X
Education and training is provided for staff on the development and implementation of evidence-based PPPG (as required).	N/a
There is collaboration across all stakeholders in the planning and implementation phases to optimise patient flow and integrated care.	N/a
Implementation is the responsibility of the local hospital A toolkit has been developed to support local implementation	

Stage 6 Monitoring, Audit, Evaluation	Checklist
Process for monitoring and continuous improvement is documented.	✓
Audit criteria and audit process/plan are specified.	✓
Process for evaluation of implementation and (clinical) effectiveness is specified.	✓
Monitoring audit and evaluation is the responsibility of the local hospital	

Stage 7 Revision/Update	Checklist
Documented process for revisions/updating and review, including timeframe is provided.	✓
Documented process for version control is provided.	✓

I confirm that the above Standards have been met in developing the following:

Title of PPPG: Food Nutrition and Hydration Policy for Adult Patients in Acute Hospitals
Name of Person(s) signing off on the PPPG Checklist:

Name: Margaret Brennan Title: HSE Quality and Safety Lead, Acute Operations	 Signature: _____ Date: 6 November 2018

This signed PPPG Checklist must accompany the final PPPG document in order for the PPPG to be approved.

Please note this Checklist must not be altered or changed.

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