FOOD IN HOSPITALS

National Catering and Nutrition Specification for Food and Fluid Provision in Hospitals in Scotland

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The Scottish Government
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Edinburgh
EH1 3DG

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Glossary of Terms

Acute sector	Hospital-based health services which are provided on an in-patient or out-patient basis.
Artificial Nutrition Support	Provided to patients who cannot consume sufficient foods to meet their nutritional requirements. This is specially formulated liquid feed that is provided via a feeding tube either into the stomach or via a vein and is prescribed by a dietitian or doctor.
Assessment	The process of measuring patients' needs and/or the quality of an activity, service or organisation.
Audit	Systematic review of the procedures used for diagnosis, care, treatment, and rehabilitation, examining how associated resources are used and investigating the effect care has on the outcome and quality of life for the patient.
Audit Scotland	Helps the Auditor General and Accounts Commission ensure that public bodies, including the NHS, spend money properly, effectively and efficiently, by carrying out financial and performance audits.
British Dietetic Association (BDA)	The professional association for dietitians in the UK.
Choice	More than one option that meets an individual's dietary and nutrient needs. With careful menu planning, one option may meet the differing needs of more than one patient group.
Commodity Advisory Panel	Commodity Advisory Panels (CAPs) are advisory groups who have clinical, technical or commercial expertise in the goods or services under consideration. CAPs are formed for each major area of expenditure, including food and fluids, to help to ensure that the goods or services meet the needs of those who use them and offer best value for money. They advise National Procurement on the clinical, technical or commercial aspects of the goods and services to be purchased.
Composite dish	A composite dish should consist of a protein containing food, vegetables and a carbohydrate/starchy item.

Dietary coding	Dietary coding provides information to patients, carers and staff to enable them to make an informed food choice whilst in hospital. Hospital menus should be coded for healthier eating and higher-energy nutrient-dense meal options. Vegetarian options should also be coded. Foods that are not coded may still be suitable for patients to choose, but are perhaps not the preferred choice.
Dietary needs	Individuals' dietary needs include their eating and drinking likes and dislikes; food allergies and need for therapeutic diet; cultural/ethnic/religious requirements; social/ environmental mealtime requirements; physical difficulties with eating and drinking and also whether there is a need for equipment to help with eating and drinking.
Dietary needs assessment	The process of assessing the specific dietary needs of individual patients (see dietary needs). The findings of the dietary needs assessment should be considered in the patient's nutrition care plan (see nutrition care plan).
Dietitian	A person who is specially trained in the nutritional needs/care of patients. A dietitian will assess a person in order that the food/fluid given to the person is nutritionally balanced and meets their therapeutic needs.
Evaluation	The study of the performance of a service (or element of treatment and care) with the aim of identifying successful and problem areas of activity.
Food allergen	Something in food, generally a protein which causes some individuals to have an immune reaction.
Food allergy	An immune reaction to food.
Food-based standards	See menu planning and food-based standards.
Food chain	The processes involved in obtaining, preparing, delivering and serving food.
Food fortification	Strategies are used to increase the energy and nutrient content (density) of foods and beverages without significantly affecting their volume (also known as food enrichment).
Food in Hospitals	The short title for the national nutrition and catering specification for food and fluid provision in hospitals in Scotland.

Food intolerance	A reaction to food that does not involve the immune system.
Food Standards Agency	The Food Standards Agency is an independent Government department set up by an Act of Parliament in 2000 to protect the public's health and consumer interests in relation to food. All activities undertaken by the Agency reflect their vision of safe food and healthy eating for all.
Healthier eating diet	A diet that follows the principles for a healthy balanced diet, including five portions of fruit and vegetables per day, reduced total and saturated fats, reduced non-milk extrinsic sugars (NMES) and reduced salt content.
Healthy balanced diet	See above.
Healthy Living Awards	A project run by the Scottish Consumer Council that rewards catering establishments and provides clear identification of healthier choices allowing customers to make informed food choices.
Higher energy and nutrient-dense diet	A diet recommended for the 'nutritionally vulnerable' patient with a poor appetite or increased requirements. The diet is characterised by provision of energy and nutrients in small portions of foods and drinks and increased eating opportunities (e.g. provision of substantial snacks).
Hospital Caterers Association (HCA)	National organisation with aims and objectives for the promotion and improvement of the standards of catering in hospitals and healthcare establishments in Great Britain, Northern Ireland and elsewhere; the education and training of persons in health care catering services; and the provision and improvement of the professional interests and status of those engaged in health care catering services.
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.

Malnutrition Universal Screening Tool (MUST)	Malnutrition Universal Screening Tool developed by the Malnutrition Screening Tool (MUST) Advisory Group of the main organisation for professions involved in nutritional care, the British Association for Parenteral and Enteral Nutrition (BAPEN). To identify individuals at risk of protein-energy malnutrition.
Menu capacity	The ability of the menu to meet the range of nutrient and dietary needs of the patient population for whom it is intended.
Menu Planning Group	The Menu Planning Group is responsible for implementing local protocol(s) for provision of food and fluid for patients. Core membership needs to include a senior member of catering staff, a senior nurse, doctor, a senior dietitian and allied health professionals and patient representative.[8] The planning group is responsible for menu planning, including the use of standard recipes; ensuring food and fluid meets the requirements of the individual and setting meal times appropriate for patient groups.
Menu planning guidance	Statements and further practical information to help caterers and menu planning groups achieve the nutrient and food-based standards.
Menu planning and food-based standards	The menu planning and food-based standards aim to ensure that patients' differing dietary needs are catered for and opportunities to ensure nutritional needs can be met are maximised. They are intended to assist hospitals achieve the nutrient standards detailed in section 2 and also a number of the standards set in NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals.[1]
Modified eating aids	Dishes, cups and cutlery that have been specifically adapted to allow individuals who have difficulty self-feeding to continue to self-feed without spilling or dribbling to reduce frustration and embarrassment.
Modified texture/ consistency diets	(See texture modified diets).
Monitoring	The systematic process of collecting information on clinical and non-clinical performance. Monitoring may be intermittent or continuous. It may also be undertaken in relation to specific incidents of concern or to check key performance areas.

Multidisciplinary	A multidisciplinary team is a group of people from different disciplines (both healthcare and non-healthcare) who work together to provide care for patients with a particular condition. The composition of multidisciplinary teams will vary according to many factors. These include: the specific condition, the scale of the service being provided, and geographical/socio-economic factors in the local area.
MUST	(See Malnutrition Universal Screening Tool.)
National Catering and Nutrition Specification	The document named *Food in Hospitals* which states the catering, food and nutritional requirements that a catering establishment must meet or provide.
National Institute for Health and Clinical Excellence (NICE)	An independent organisation responsible for providing national guidance on promoting good health and preventing and treating ill health.
National Procurement	National Procurement (NP) is a new division of NHS National Services Scotland and was officially launched in 2005. NP combines the collective history and experience of Scottish Healthcare Supplies (SHS) and the Best Procurement Implementation (BPI) Programme into one coordinated, professional procurement organisation. NP is responsible for ensuring that an efficient service of the highest standards in modern procurement practice is provided to all NHSScotland organisations. There are three main components to National Procurement: Strategic Sourcing (Better Buying), eProcurement & Systems (Technology), Logistics (Product Distribution).
NHS Quality Improvement Scotland	NHS Quality Improvement Scotland (NHS QIS) is a special health board within Scotland, that sets clinical and non-clinical standards of care, monitors NHS progress towards meeting standards and supports NHS in improving service. These include the Clinical Standards for Food, Fluid and Nutritional Care in Hospitals.
Nutrient analysis	To calculate the amount of energy and nutrients in a particular food, recipe or menu using a standard procedure.

Nutrient (based) standards	The nutrient requirements of a 'general' hospital population, which a hospital catering service is required to meet through food and fluid provision. These are defined for the 'nutritionally vulnerable' patient and also the 'nutritionally well'.
Nutrient specification	A document which states the food and nutritional requirements that a catering establishment must meet.
Nutrition care pathway	The nutrition care pathway forms part of a patient's medical and nursing care pathway. It should include details of the assessment of a patient's nutritional status, their dietary needs (factors likely to affect dietary intakes), and then a plan of care detailing how this will be implemented and monitored.
Nutritional needs	(Refer to nutritional requirements.)
Nutritional requirements	The amounts of energy and nutrients that individuals need for health.
Nutritional screening	A simple, rapid process by which an individual's nutritional status or risk of developing poor nutritional status is determined. This then allows a care plan of monitoring and treatment to be implemented for the individual patient. This ideally should be carried out using a validated nutritional screening tool.
'Nutritionally vulnerable'	Individuals who have normal nutritional requirements but with poor appetite and/or unable to eat normal quantities at mealtimes; or who have increased nutritional needs.
'Nutritionally well'	Individuals who have normal nutritional requirements and normal appetite or those with a condition requiring a diet that follows healthier eating principles.
Obesity	The process of excess fat accumulation with multiple pathological consequences (characterised for epidemiological classification and for some clinical purposes by BMI > 30kg/m^2).
Out-of-hours provision	The provision of appropriate food and drinks to individuals outwith the scheduled mealtimes set within the institution.

Patient	A person who is receiving care or medical treatment. A person who is registered with a doctor, dentist, or other healthcare professional, and is treated by him/her when necessary. Sometimes referred to as a user.
Protected meal-times	Periods of time on a hospital ward when all non-urgent activity stops, allowing the patient to eat without being interrupted and staff are available to provide assistance.
Renal diets	Therapeutic diets for individuals who have kidney disease.
Satisfaction survey	Seeking the views of service users through responses to pre-prepared questions and carried out through interview or self completion questionnaires.
Scottish dietary targets	Food and nutrient-based targets set by the Scottish Office in 1994 for the population to meet by 2005. Population changes in dietary patterns in line with the targets set was expected to have beneficial health effects on the population.
Screening tool	Aid to assess a patient's status. A nutritional screening tool is an aid to assess a patient's nutritional status or their risk of poor nutritional status.
Special and personal diets	Religious or ethnic dietary requirements.
Standard recipe	A recipe where the quantities and ingredients are set and defined, and should not be deviated from. A standard recipe should give a consistent quality product.
Substantial snack	A snack is a small quantity of food eaten between meals. A substantial snack makes a significant contribution to a person's overall nutritional requirement and must provide > 150kcals per portion.
Target Nutrient Specifications	Target values set by the Food Standards Agency Scotland in consultation with food industry for total fat, saturated fat, sodium and total sugar for manufactured products with an aim to improve the quality of food provided in the public sector and thus improve the quality of the Scottish diet.[13]

Texture modified diet	Food/fluid that has had its consistency altered to enable a person to chew and swallow it safely without choking.
Therapeutic diet	Food/fluid which has had its nutrients modified to meet the nutritional needs of a person, and which forms part of their medical treatment to prevent symptoms or improve nutritional status.
Undernutrition	When a person's nutritional status is compromised and/or nutritional requirements are not being met.
Ward supplies	Minimum food and beverage provisions that must be available on a ward to provide to patients.
Wholegrain cereals	Fibre content is >3g/100g or at least 3g in a reasonable expected daily intake of food (Healthy Living Award).[14]

Executive Summary

Food in Hospitals: National Catering and Nutrition Specification for Food and Fluid Provision in Hospitals in Scotland has been developed to support Scottish NHS Boards in implementing (1) the NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals specifically standards 3, 4 and 5 which aim to address the risks of malnutrition in hospital patients and (2) the delivery of a healthy balanced diet for patients who are considered to be 'nutritionally well'.

There have been notable improvements in catering services within hospitals throughout Scotland over the last few years, including reduction in food wastage and improved provision of choice of meals to patients, this irrespective of the fact that the amount spent on food and beverages per patient day remaining stable.[15] However, there are still areas where improvements in food provision and nutritional care can be made: these include development and use of standardised recipes, nutritional analysis of all menus and universal nutritional screening for all patients on admission to hospital.[15] These changes are needed in order to ensure patients' nutritional needs are met and risks of malnutrition in hospitals are reduced.[15]

As such, *Food in Hospitals* sets standards for nutrient and food provision for patients within hospitals; it provides guidance on how these standards can be met, through assessment of population's dietary needs, menu planning, guidance and practical suggestions on food choices suitable for different dietary needs, including special and therapeutic diets.

Nutrient standards – The diversity of nutritional needs within the hospital setting is presented in this document and as such two sets of nutrient-based standards have been set. One set of standards recognises those patients who are 'nutritionally vulnerable' (those with poor appetites, increased risk of malnutrition) who require a diet that is energy and nutrient-dense. The other standards acknowledge 'nutritionally well' patients, whose needs are in-line with the healthy balanced diet. Menus will need to be analysed to ensure they have the capacity to meet the differing nutritional needs of the patient populations they are providing for.

Food-based standards have been set which recognise the Scottish dietary targets[4] and include for example, the need for provision of a minimum of 5 portions of fruit and vegetables a day.

Menu planning standards have been set to assist caterers and menu planning groups develop menus that will ensure both the dietary and nutritional needs of patients are met, these include standards for the provision of substantial snacks twice a day; provision of a hot meal option both in the middle of the day and at the evening meal; standards for out-of-hours food provision; minimum ward-based food stock items; use of standard recipes for all dishes provided; guidance on nutritional analysis of recipes and also determination of menu capacity.

Food in Hospitals is of relevance to all those involved in the food chain to the patient, including food suppliers, National Procurement, Commodity Advisory Panels, menu planning groups, caterers, dietitians, nurses and allied health professionals. As indicated, there have already been positive changes in food service provision in hospitals in Scotland.[15] However implementation and achievement of the standards that are set within *Food in Hospitals* and also achievement of the wider NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals[1] will require coordinated actions, clear communications and support from the Boardroom to ensure the dietary as well as the nutritional needs of all patients are met.

Food provided must provide choice for all. NHS QIS standards have stated that patients must be offered a choice of food that meets their dietary needs, this including choice for those individuals requiring a therapeutic or special diet. This document provides guidance on the provision of key therapeutic diets. Inappropriate food provision has significant patient health and safety risks. Whether this means provision of food that does not meet individuals' nutrient requirements potentially resulting in malnutrition, provision of the wrong therapeutic diet, including incorrect food and fluid textures for someone requiring a modified consistency diet which may cause choking; cross-contamination of food that needs to be allergen-free; these all carry potentially serious health risks.

Food in Hospitals is one important part of an integrated programme for improving nutritional care in hospitals. It is fundamental that hospitals provide appropriate food, fluid and nutritional care to manage any nutritional risk, to improve nutritional health and well-being and optimise the wider clinical management of all patients. Appropriate food and fluid provision needs to be recognised as a fundamental part of every patient's clinical care.

POLICY
CLINICAL STANDARDS
PURPOSE

① INTRODUCTION

1 Introduction

Eating well is important for everyone's health, well or ill. Providing appropriate nutrition in the hospital setting is a particularly challenging task due to the diverse dietary needs of the population. Food not only needs to meet individual nutritional requirements, it also needs to be appropriate for different age groups, religious, cultural and social backgrounds as well as for different medical conditions. Food provided needs to be familiar, tasty and available; above all it needs to be eaten and enjoyed. **Maximising opportunities** for individuals to eat and drink and **maximising quality and choice** of food and fluids offered are considered to be fundamental to improving intakes.

In the hospital context, good nutritional practice must encompass the diverse needs of individual patients. For many who are assessed to be 'nutritionally vulnerable', good nutrition means the provision of small, energy and nutrient-dense meals with frequent snacks to address the well recognised problems of poor appetite and risk of under-nutrition. However, there are also a significant proportion of patients who may be classified as 'nutritionally well' and who's nutritional needs do not differ from that of the general population. The accepted advice for these people is a healthy balanced diet that is characterised by a higher proportion of lower fat, salt and sugar foods and the inclusion of at least 5 portions of fruit and vegetables a day plus a higher proportion of starchy foods including high fibre foods.[16, 17] NHS hospitals should be exemplar in the promotion of healthy eating for those individuals, including staff and visitors who would benefit from a healthy balanced diet.[16] This is the challenge, but one that can be met through clear communication and coordinated actions between all those involved in the food chain including input from the patients themselves. This will be central to the success of the wider nutritional care of patients.

Food in Hospitals has been developed to support Scottish NHS Boards in implementing:

- The NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals specifically standards 3, 4 and 5 which aim to address the risks of malnutrition in hospital patients.
- The delivery of a healthy balanced diet for patients who are considered to be 'nutritionally well'.

As such *Food in Hospitals* provides information on standards for nutrient and food provision for patients within hospitals; it provides guidance on how these standards can be met, through assessment of the population's dietary needs, menu planning, guidance, and practical suggestions on food choices suitable for different dietary needs, including special and therapeutic diets.

Food in Hospitals aims to ensure a common and accurate understanding about different patients' nutritional and dietary needs by all those involved in food provision in the hospital setting, from food procurement to on ward service. It sets out how not only caterers, but all those involved in the provision of food and fluids to patients, including menu planning groups, nurses, dietitians, speech and language therapists (SALT) and Commodity Advisory Panels can help ensure appropriate food is procured, produced, available and provided to meet the varying dietary needs of such a diverse population. Ultimately this document aims to support the current culture change surrounding hospital catering to one that recognises the fundamental importance of appropriate food provision for every patient as part of his or her treatment. This in turn will positively influence health and recovery.

Food in Hospitals is just one strand of the integrated programme of work for improving nutritional care in Scotland. As part of the bigger implementation strategy both an educational framework and practice development programme are also being developed which will further support delivery of the NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals.

1.1 Policy background

Many patients who are ill in hospitals or other care settings and have poor appetites or an impaired ability to eat are at risk of developing undernutrition. In 1994, McWhirter and Pennington[18] reported that 40% of patients admitted to a large Scottish teaching hospital were undernourished on admission. Even more striking, on discharge 75% of the patients initially assessed as undernourished had lost more weight during their hospital stay. In 2000 the Clinical Resource and Audit Group (CRAG)[19] found 21% of elderly people in Scotland's long-term care establishments (including NHS hospitals) were undernourished. The food consumed by residents was significantly less than the dietary recommendations for many nutrients including energy.[19] More recently, the British Association of Parenteral and Enteral Nutrition (BAPEN) in conjunction with the Royal College of Nurses (RCN) and the British Dietetic Association (BDA) carried out the largest prospective national survey of the prevalence of malnutrition on admission to hospital and care in the UK – Nutrition Screening Week 2007.[20] In Scotland, the risk of malnutrition was slightly below the national average, however one in four adults (23%) admitted to General Acute Hospitals were at risk of malnutrition; many of these individuals were admitted from their own homes.[20] In hospitals, the risk of malnutrition was 27% for those <30 years old, 34% for those 80 years and older. Prevalence of malnutrition of individuals admitted to Mental Health Acute Care was 30%.[20]

Sixty-one percent of patients in the NHS in Scotland are over 65 years and around 30% of NHS in-patient beds in Scotland are for older patients with or without mental health acute care needs.[21] The mean length of stay per episode for all specialty in-patient facilities was 8.7 and 8.4 days in 2005 and 2006 respectively, but for the older population was 36.5 and 35.8 days in the same years.

Older people are more likely to be undernourished when admitted to hospital and remain undernourished during their hospital stay. They also have longer periods of hospital stay. The majority of patients depend on ordinary hospital food to improve or maintain their nutritional state in order to optimise their recovery from illness.[22] Therefore, it is hypothesized that offering appropriate food and fluid for the patient population would be effective in cutting length of hospital stay and cost from in-patient admissions. Two fundamental considerations that hospitals need to address in order to provide a service which is likely to meet the dietary and nutritional needs of its patients, is **maximise opportunities** for patients to eat and drink: the provision of substantial snacks, out-of-hours service provision, on-ward provisions and also **maximising the choice of suitable foods and fluids available**.

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals apply to all hospital in-patients, including those in community hospitals and long-term care facilities. *Food in Hospitals* sets minimum standards for food provision for all settings. It is recognised that acute care, community hospitals and long-term care facilities will need to provide for different patient profiles with differing dietary needs. Food service provision must reflect the needs of the local patient population. The size of the catering facility and also the method of food production, whether it is on-site, out-sourced, ready-prepared bought-in, cook-fresh, cook-chill or cook-freeze will impact on the scope of service that different establishments can provide.

Hospital catering and the food it provides, although previously viewed as a non-clinical service within the NHS, and grouped with facilities services such as portering and cleaning, is now widely accepted to play an important clinical role in the treatment of hospital patients. Understanding of the importance of food and nutrition in the well being of hospital patients has also increased.

The National Institute for Clinical Excellence published Nutrition Support for Adults – Oral Nutrition Support, Enteral Tube Feeding and Parental Nutrition – Methods, Evidence and Guidance[23] in February 2006. These recommendations re-iterate the need for regular nutritional screening, multi-disciplinary working and education and training in the hospital setting. They also state that 'healthcare professionals should ensure adequate quantity and quality of food and fluid is available in an environment conducive to eating and there is appropriate support, e.g. modified eating aids, for people who can potentially chew and swallow but are unable to feed themselves'.[23]

In November 2003, The Council of Europe produced resolution ResAP (2003)3[22] Food and Nutritional Care in Hospitals: How to Prevent Undernutrition', to which the UK is a signatory. It states that 'All patients have the right to expect that their nutritional needs will be fulfilled during a hospitalisation'.[22] This resolution acknowledges there are differences in nutritional care across Europe with improvements required in nutrition screening, food provision and education and training of staff. Audit Scotland[15] in November 2003 audited all NHS Boards in Scotland and showed similar findings. Recommendations included that the Departmental Implementation Group should develop or commission national catering and nutrition specifications for NHSScotland.

In Scotland in September 2003, NHS Quality Improvement Scotland (NHS QIS) published Clinical Standards for Food, Fluid and Nutritional Care in Hospitals.[1] The standards summarised in section 1.2 cover all hospitals, age groups, short and long stay establishments and are used by NHS QIS to assess the performance of NHS Boards in the provision of food, fluid and nutritional care to patients.

The Scottish Government is committed to improving the diet of the Scottish people; part of this commitment relates to an increased availability of healthier food and encouraging individuals to make healthier choices. The strategic framework Eating For Health – Meeting the Challenge[16] supports the delivery of key actions outlined in Improving Health in Scotland – The Challenge.[17]

In A Partnership for a Better Scotland (2003), Scottish Ministers also made a commitment to ensure adequate nutritional standards for food served in care homes, hospitals, day centres and prisons.

The Food Standards Agency in its strategic plan (2005 - 2010)[24] states its commitment to this end. It is committed to encourage the public sector to provide healthy food in hospitals and other institutions and work with other Government departments to set targets to improve the nutritional quality of such meals in line with the UK national targets for energy, fat, salt and sugar intakes.

Hospitals as part of public sector catering are well placed to show good practice and be exemplary in providing and encouraging healthier food choices to enable the population to reduce the risks of developing preventable diseases such as Coronary Heart Disease, Stroke and Diabetes. However, it is acknowledged that the nutritional needs of many hospital patients vary significantly from the general population and this must be acknowledged in the food that is offered in this setting.[16]

Strategies to meet NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals,[1] fulfil the Council of Europe Resolution[22] and also meet the Scottish Dietary Targets[16] must ensure respect and valuing of the diversity of patients' needs – Fair for All.[25] NHS Boards and menu planning groups must gather information on the diverse needs of the populations they are serving and ensure inclusive attitudes and practises to food service provision if all individuals' needs are to be met.

Further, business continuity plans for ensuring safe delivery of food depend on local processes and patterns of providers. Catering and Facilities Managers (in consultation with Emergency Planning Officers) need to work together locally to produce and update robust plans for a range of emergencies, and test them out regularly.

1.2 NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals

The NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals[8] encompass the planning, assessment, provision, delivery and education of nutrition care (refer to table 1 for overarching standards). This document supports the delivery of all of these standards; however it gives further clarity and support in specifically achieving standards 3, 4 and 5. It is seen very much as being just one aspect of an integrated programme to improve nutritional care of all patients in NHS Boards throughout Scotland.

1.3 Dietary targets for Scotland

The Scottish dietary targets[16] have been set as part of a coordinated strategy to improve the nation's diet with the aim to reverse the prevalence of non-communicable diseases that cause morbidity and early mortality in a significant proportion of the Scottish population. Coordinated actions to achieve the dietary targets for Scotland for 2005, have been extended to 2010.[16] It is recognised that public sector settings, including the NHS and hospitals, need to take an exemplary role in the provision of healthier food choices.[24] The nutrient and food-based standards within this nutrient specification acknowledge the Model Nutritional Guidelines for Catering Specifications for the Public Sector,[26] and try to emphasise a clear message on healthy eating where applicable.

1.4 Purpose

Nutritional care is more than the provision of food and fluid to patients and demands effective multi-disciplinary team working to ensure the dietary needs of all patients are met.

The purpose of this catering and nutritional specification *(Food in Hospitals)* is to

1. Define the nutritional and dietary requirements of hospital patients
2. Set out nutrition and catering standards to ensure that NHS Boards can meet NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals
3. Provide guidance for the planning group responsible for the implementation of local protocols for the provision of food and fluid to patients

Table 1 NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals[1]

Standard 1: Policy and Strategy	Each NHS Board has a policy, and a strategic and coordinated approach, to ensure that all patients in hospitals have food and fluid delivered effectively and receive a high quality of nutritional care.
Standard 2: Assessment, Screening and Care Planning	When a person is admitted to hospital, an assessment is carried out. Screening for risk of undernutrition is undertaken, both on admission and on an ongoing basis. A care plan is developed, implemented and evaluated.
Standard 3: Planning and Delivery of Food and Fluid	There are formalised structures and processes in place to plan the provision and delivery of food and fluid.
Standard 4: Provision of Food and Fluid to Patients	Food and fluid are provided in a way that is acceptable to patients.
Standard 5: Patient Information and Communication	Patients have the opportunity to discuss and are given information about their nutritional care, food and fluid. Patient views are sought and inform decisions made about the nutritional care, food and fluid provided.
Standard 6: Education and Training for Staff	Staff are given the appropriate education and training about nutritional care, food and fluid.

Food in Hospitals does not set standards or provide guidance for all aspects of food service provision, including food hygiene, meal ordering, eating environments, ward kitchen design. It is not that these issues are not considered important instead it is acknowledged that other documents already exist that cover these in detail, or that these issues will be covered by the wider implementation programme being taken forward. It is intended that this document is used in conjunction with other key documents such as the Hospital Caterers Association Good Practice Guide Healthcare Food and Beverage Service Standards, A guide to ward level services[27] and the British Dietetic Association's Delivering Nutritional Care through Food and Beverage Services – A Toolkit for Dietitians[4] to support healthcare establishments achieve this specification. Also, *Food in Hospitals* does not set standards or provide guidance on delivery of meals to patients, assistance with feeding, etc. The wider integrated programme to improve nutritional care throughout Scotland will be central to the success of *Food in Hospitals.*

PATIENTS' NEEDS
NUTRITIONALLY VULNERABLE
NUTRITIONALLY WELL
RATIONALE

② NUTRIENT NEEDS OF THE HOSPITAL POPULATION

2 NUTRIENT NEEDS OF THE HOSPITAL POPULATION

2.1 Introduction

It is important to remember hospitals, by their very nature, consist of varied population groups; and with the exception of specialist centres such as children's hospitals, the food service will have to provide suitable food and fluid for babies to older adults.

This section lays out the nutrient requirements of a 'general' hospital population, which a hospital catering service is required to meet. Unlike food service in other institutions such as schools or prisons, the hospital population's nutritional and dietary needs are much more diverse. These will vary according to a number of factors, including individuals' age, physical condition and/or illness. Each age group of the population has different nutritional requirements, e.g. children have specific needs to facilitate growth and development whilst adult requirements are necessary to achieve or maintain good health. In terms of health, at one end of the scale, short-term admissions where an individual's normal diet is not interrupted, whilst at the other end of the scale long-term illness and or treatments that adversely affect a patient's food intake and have negative effects on their health are also commonplace. **Local assessment of the dietary needs of each hospital population is fundamental for successful menu planning and appropriate food provision.**

A large proportion of hospital patients, such as the acutely ill or undernourished, require diets that are more energy and nutrient-dense. This means that the same amount of energy (from fat and carbohydrate), protein, vitamins, minerals and trace elements must be provided in a smaller volume of food. Many patients may also require a therapeutic diet, e.g. patients with increased requirements, patients with renal failure or patients requiring a modified consistency diet. Critically-ill patients or those requiring specialised nutrition care in relation to their illness should continue to be assessed individually by the appropriate healthcare professionals. Specific dietary parameters of common therapeutic diets are covered in section 5.

2.2 Recognising patients' needs

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard two[1] states:

> **'When a person is admitted to hospital, an assessment is carried out. Screening for risk of undernutrition is undertaken, both on admission and on an ongoing basis. A care plan is developed, implemented and evaluated.'**

This should take place within one day of admission using a tool validated for the relevant patient population, for example, Malnutrition Universal Screening Tool (MUST).[15, 1]
A completed patient screening tool must identify any undernutrition. It must also be able to identify other factors likely to affect food and/or fluid intake. This should provide guidance for healthcare professionals to produce a ward-based nutrition care pathway including recommendations for observation of food intake, or referral to a dietitian for specialised dietary assessment as necessary or referral to other healthcare professionals for example, dentist or speech and language therapist (SALT) as patients' needs indicate.

In addition to the need for nutritional screening of all patients, an assessment of each patient's dietary needs should also form part of their individual medical and nursing care pathway (nutrition). A plan of how these needs will be met should be developed, implemented and monitored. NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard 2.1 specifies that:

> **'When a person is admitted to hospital as an in-patient, the following are identified and recorded within 1 day as part of the medical and/nursing assessment':**[1]
>
> - Eating and drinking likes and dislikes
> - Food allergies and need for therapeutic diet
> - Cultural/ethnic/religious requirements
> - Social/environmental mealtime requirements
> - Physical difficulties with eating and drinking
> - The need for equipment to help with eating and drinking.

Assessment of eating and drinking likes and dislikes should consider foods from all food groups to identify potential dietary omissions and thus nutritional risks. Assessment to identify food allergies or need for a therapeutic diet is essential to ensure that appropriate food and fluid is provided to minimise any patient health risks associated with provision of an inappropriate diet. Assessment of individuals' physical difficulties with eating and drinking, e.g. need for a soft-easy-chew diet and need for equipment to help with eating and drinking. This may require referral to a physiotherapist or occupational therapist for advice on positioning individuals when eating or drinking, identify suitable cutlery, dishes and cups to assist eating and drinking and hence maximise dietary intakes. It is important to remember that individuals' dietary needs can change with changes in their medical condition(s) and thus monitoring individuals' requirements is important to inform appropriate food provision.

2.2.1 'Nutritionally vulnerable' hospital patients

As mentioned, studies have shown that a significant proportion of patients admitted to hospital are undernourished and that many of these patients' nutritional needs go unrecognised leading to preventable complications and an increase in length of stay.[18] Older adults in long-stay care have been shown to be at particular nutritional risk.[19]

Patients can be 'nutritionally vulnerable' if they:

- Are admitted to hospital undernourished
- Have preceding unexplained or unintentional weight loss
- Have physical difficulty eating and/or drinking
- Have acute or chronic illness affecting appetite and food intake
- Have cognitive or communication difficulties
- Have increased nutritional requirements (e.g. due to trauma, burns)
- Require the texture of food and/or fluid to be modified

The dietary intakes of hospital patients have been found not to meet energy and nutrient requirements, even when the hospital menu in theory will meet individual requirements.[28] These individuals' dietary needs are very much more focussed on the provision of tasty, energy and nutrient-dense foods that come in modest portion sizes.[29] Increasing the availability of suitable food choices and also the opportunities to eat will be critical in enabling patients achieve their needs. For many of these patients it may not be appropriate for a healthy eating style diet to be provided at this time.

2.2.2 'Nutritionally well' hospital patients

A significant proportion of patients who are in hospital can be classified as 'healthy' individuals and may only be admitted for the average length of stay, approximately three days in a major acute hospital. This will include for example patients who may be hospitalised due to a minor illness and are 'nutritionally well', maternity patients not experiencing complications and previously fit healthy people whose illness does not/will not affect their food and fluid intake such as those having minor elective surgery. There are also other patient groups with chronic conditions, for example, young adults with mental health problems who are in long-stay care – some of these individuals may be nutritionally at risk for example those with eating disorders, whilst other individuals' dietary needs are very much more in line with those of the general healthy population. It would be appropriate for these patients to be provided with a diet that is based on general healthy eating principles.

In one NHS Board in Scotland, an audit of the dietary needs of all hospital patients (n=373) on one day showed that 64% of patients required some kind of 'therapeutic diet' (including, texture modified, energy and nutrient-dense, 'healthy eating'/diabetic and combination of diets (personal communication)). This illustrates the complexity of catering in the hospital setting and thus the challenge that exists in meeting the dietary needs of all patients through the hospital food service.

2.3 Nutrient specification

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard 3.2 IV states 'The planning group is responsible for ensuring the food and fluid provided meets the requirements of the individual'.

2.3.1 Nutritional requirements of hospital patients

The Department of Health Committee on Medical Aspects of Food Policy (COMA) in 1991 published Report on Health and Social Subjects number 41, Dietary Reference Values for Food Energy and Nutrients for the United Kingdom.[11] This publication set out recommended Dietary Reference Values (DRVs) – daily requirements for energy (calorie) intake and all other nutrients for all age groups (Appendix two). The following terms relating to energy and nutrient intakes are used to define the needs of population groups of the UK:

- **EAR** (Estimated Average Requirement) – the amount of energy required each day by an average person in the specified age group, some people require more, and some less than this figure.
- **RNI** (Reference Nutrient Intake) – the amount of a nutrient estimated to meet the needs of the majority of the population.
- **Safe Intake** – some nutrients can be toxic in high amounts, safe levels of intake are recommended for these.

The current document uses the DRVs and, in the case of salt, advice from the Scientific Advisory Committee on Nutrition (SACN) as a **baseline guide** for the nutrient specifications for the general hospital population. However, these recommendations were developed specifically for use with healthy groups of the population.[30] The British Association of Parenteral and Enteral Nutrition (BAPEN) have proposed amendments to the recommendations for energy and protein for the un-well hospital patient.[31] The amendments to the DRVs for a hospital population and the rationale behind this are explained fully in Appendix three. The nutrient specifications in the current document endorse the recommendations provided by the British Dietetic Association document Delivering Nutrition Care through Food and Beverage Services[4] and The British Association of Parenteral and Enteral Nutrition (BAPEN) Hospital Food as Treatment report.[31]

Using DRVs to plan the food provision in hospitals alongside nutritional screening procedures that have clear nutritional management guidelines to support those individuals identified 'at-risk', should ensure that NHS QIS standard 3.2 can be achieved.

It is **essential** a hospital menu is capable of meeting the nutrient standards set out in table 2, as appropriate for the patient population it is catering for.

- **Energy on a daily basis**
- **Protein on a daily basis**
- **RNI for micronutrients (vitamins and minerals) on a weekly basis**

This pragmatic approach allows menus to be planned with greater flexibility. It is unlikely that a free-living individual at home will meet the RNI for all nutrients on a daily basis, with most being met on average over a week.

As noted, hospital menus must meet the nutritional requirements of diverse patient population groups.[32] Two sets of nutrient standards have been specified in table 2; this is acknowledgement of the extremes of the core nutritional requirements in the hospital setting (outlined in section 2.2). One set of standards is applicable to the needs of 'nutritionally vulnerable' patients; those with poor appetites, poor food intakes, undernourished. The other set of nutrient standards is in line with the requirements of the healthy balanced diet and thus are applicable to the needs of those patients who are considered to be 'nutritionally well'. Provision of a menu that meets the nutritional requirements outlined for hospital patients, must also be a menu that provides **choices of dishes** that tempt patients to eat, and which they will enjoy.

2.3.2 Rationale for differences in nutrient standards set

Many of the nutrient standards that have been set in table 2 are common to both 'nutritionally well' and 'nutritionally vulnerable' patients. A healthy eating style of service is inappropriate for the 'nutritionally vulnerable' patient. The DRV for fat (<35% of total energy, and that for saturated fat <11% of total energy) and also that set for carbohydrate (and non-milk-extrinsic sugars – NMES) have therefore not been included as core nutrient standards for this population group. Given the levels of malnutrition in the hospital setting and also the poor appetites and poor food intakes of many patients[28] one of the key aims of the core foodservice should be to **provide food with concentrated energy and nutrients** in **small serves**. The very nature of providing a diet that is energy and nutrient-dense in small serving sizes may require the addition of extra fat, protein, or refined carbohydrate; or selection of food items that are perhaps considered 'less healthy'. This practice is incompatible with a standard that limits the percentage of energy from these macronutrients. More specific guidance about individual meals and components of the meal for the 'higher-energy' diet is provided in section 5.

Non-starch polysaccharide (NSP) or fibre provides bulk to the diet. A diet high in NSP is beneficial for individuals whose needs are in line with the healthy diet; it is important in preventing constipation, it gives a feeling of fullness and thus individuals are less likely to want to eat as frequently. As such, a diet that is very high in NSP is not advocated for individuals with a poor appetite where the aim is to ensure maximum food and thus energy and nutrient intakes. Diets of 'nutritionally well' adults should contain 18g/day; with a range 12-18g for the 'nutritionally vulnerable' depending on individual circumstances.[11]

Where a menu must meet the needs of the 'nutritionally well' and the 'nutritionally vulnerable', then ensuring that both 'healthy choices' and 'higher energy and nutrient-dense' choices are available at each eating occasion should enable all patients to choose a diet that meets their nutritional requirements. It would be considered good practise for menus to be analysed to ensure that they have the capacity to enable individuals to choose a healthy balanced diet through selection of healthy choices and meet the nutritional standards for healthy eating based on COMA and SACN recommendations. They should also be analysed to ensure they have the capacity to meet the nutrient standards set for 'nutritionally vulnerable' patients.

Many patients will have changes in their nutritional and dietary requirements during their stay in hospital. Regular nutritional screening of patients, especially those who are most vulnerable, should ensure that changing needs can be met.

In situations when a menu is being planned solely for a defined patient group, for example children, it would be considered good practise to aim for the RNIs for nutrients for that particular age group (provided in Appendix two). In practice, the patients' choice of different portion sizes of food should account somewhat for meeting different energy and nutrient requirements.

Table 2 Essential criteria for the provision of nutrients for hospitalised children and adults

Nutrient (/ day)	'Nutritionally vulnerable' patients	'Nutritionally well' patients (DRVs)	Provided
Energy (kcal)	Adults 2250 – 2625[1b]	Adults 1800 – 2550[1a]	Daily
		Children 1200 – 2750	Daily
Protein (g)	60 – 75[3]	56[2]	Daily
Total fat (% food energy)	Not specified	≤ 35	Averaged over a week
Saturated fat (% food energy)	Not specified	≤ 11	Averaged over a week
Carbohydrate (% food energy)	Not specified	≥ 50	Averaged over a week
Non-milk extrinsic sugars (NMES) (% food energy)	Not specified	≤ 10	Averaged over a week
Non-starch polysaccharides (g)	12-18[4]	18[4]	Daily
Sodium (mg)	< 2400[5]	< 2400[5]	Daily
Salt equivalents (g)	< 6[5]	< 6[5]	Daily
Vitamin A (µg)	700[6]	700[6]	Averaged over a week
Vitamin D (µg)	10[7]	10[7]	
Calcium (mg)	≥ 700	≥ 700	Averaged over a week
Potassium (mg)	3500[6]	3500[6]	Averaged over a week
Magnesium (mg)	300[6]	300[6]	Averaged over a week
Iron (mg)	≥ 14.8[8]	≥ 14.8[8]	Averaged over a week

Table 2 Essential criteria for the provision of nutrients for hospitalised children and adults *(continued)*

Nutrient (/ day)	'Nutritionally vulnerable' patients	'Nutritionally well' patients (DRVs)	Provided
Vitamin B12 (µg)	≥ 1.5	≥ 1.5	Averaged over a week
Folate and Folic Acid (µg)	≥ 200	≥ 200	Averaged over a week
Vitamin C (mg)	≥ 40	≥ 40	Averaged over a week
Zinc (mg)	≥ 9.5	≥ 9.5	Averaged over a week
Fluid (litres)	≥ 1.5	≥ 1.5	Daily

[1a] Estimated Average Requirement (EAR) for males and females 19+ years.[11]

[1b] BAPEN recommendations for the energy requirements for the 'unwell' hospital patient are 1.3 to 1.5 times resting energy expenditure, that equates to approximately 30-35kcal/kg/day (1800 – 2200kcal/day for a 60kg individual; 2250 – 2625 for 75kg individual).[31] Recommendations are based on reference weights used for DRVs.[11]

[2] Age group RNIs should be used for children and to provide for the increased requirements of pregnant and lactating females.[11]

[3] BAPEN recommendations for protein requirements for the 'unwell' or 'nutritionally vulnerable' hospital patient are 1g/kg/day.[31] Recommendations are based on reference weights used for DRVs.[11] This intake must be accompanied by an adequate energy intake if optimal protein utilisation is to be achieved.[31] Those patients with altered metabolic state should be identified by screening procedures and referred for dietetic assessment.

[4] Applicable to individuals > 5 years old.[11] Diets of well adults should contain 18g/day; with a range 12-24g depending on individual circumstances.[11, 32]

[5] Age-specific recommendations: 1-3 years ≤ 2g salt/day (0.8g sodium); 4-6 years ≤ 3g salt/day (1.2g sodium); 7-10 years ≤ 5g salt/day (2.0g sodium); 11+ years ≤ 6g salt/day (2.4g sodium).[33]

[6] Age group RNIs should be used for children.[11]

[7] The provision of food that will provide >10 µg/day vitamin D is difficult. Individual patients may still require additional supplementation, especially elderly patients and those who are in long-stay care and are house/hospital bound.[11]

[8] When catering solely for older adults, use RNI for individuals 50+ years (9mg/day).

CALORIES
MEAL CHOICES
SNACKS

③ MENU PLANNING AND FOOD-BASED STANDARDS

3 MENU PLANNING AND FOOD-BASED STANDARDS

The following menu planning and food-based standards have been set to assist hospitals achieve the nutrient standards detailed in section 2 and also a number of the standards set in NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals.[1] These standards also aim to ensure that patients' differing dietary needs are catered for and thus maximise opportunities to ensure nutritional needs can be met.

3.1 Menu planning standards

The following standards must guide menu planning and food provision within each hospital. It is recognised that specified nutrient criteria attached to a number of the menu planning standards (φ) will not apply to children who have different energy and nutrient requirements to the adult population. It is recommended that local menu planning groups develop local criteria.

Menu requirements need to be informed by assessment of local patient population needs. Those standards marked with (α) must be included on the menu where local assessment identifies such needs.

Table 3 Menu planning standards

Standard	Rationale
The hospital menu **must** provide –	
A **minimum of 300kcal per main meal and 500kcal for an energy-dense main meal** and **18 grams protein** (entrée + starch + vegetables + sauce/gravy).φ	To provide a menu that will enable the range of energy and protein requirements of patients to be met. This applies to the midday and evening meals (main course). It assumes that breakfast, two hot meals with two courses, and a minimum of two snacks per day are provided.[1, 4, 31, 32]
A **'healthy eating' meal choice** at each eating occasion (must fulfil criteria as specified in table 18).φ α	To provide a choice of foods for individuals who require or would benefit from following a diet based on 'healthy eating' principles to enable them to meet their nutritional requirements.[1, 4, 32]
A **'higher energy and nutrient-dense' meal choice** at each eating occasion (must fulfil criteria as specified in table 16).φ α	To provide a choice of foods for individuals with poor appetites or increased requirements to enable them to meet their nutritional requirements.[1, 4, 31, 32]
A **vegetarian meal** choice at each eating occasion	To provide for the dietary needs of individuals who follow a vegetarian diet. These dishes must comply with other nutrient and food-based standards based on local population needs.
A **minimum of two courses** at the midday and evening meals	To provide a menu that will enable the range of energy and nutrient requirements and dietary preferences of the patient population to be met.

Table 3 Menu planning standards *(continued)*

Standard	Rationale
The hospital menu **must** provide –	
A **choice of portion sizes for all main meals**	To provide for the range of patients' appetites and also range of energy and nutrient requirements.[1]
A **choice of a hot meal at midday and at the evening meal**	To increase patient choice and ensure the varying dietary needs and preferences of the patient population are met.
A variety of **substantial snacks must be provided a minimum of twice per day**. • **One snack** must be capable of **providing a minimum 150kcal**. **Must include fruit as a choice.**	Provision of substantial snacks in addition to meals is essential to maximise opportunities for patients to select foods to enable them to meet their energy and nutrient requirements, especially those with a poor appetite. It would be considered good practice to offer snacks three times per day for those individuals with increased energy and nutrient requirements (section 5.2).[1, 31] Provision of fruit as a snack can enable individuals to meet the standard of 5 A DAY.
On-ward provisions must provide the minimum food and beverage items (table 13)	Increasing the choice, range and variety of food items and beverages available to patients in between meals will mean patients are more likely to eat something and meet their nutritional requirements.
Standard recipes must be used for all dishes provided by NHS catering. • There must be an up-to-date nutritional and content analysis of each menu item.	Standard recipes can help to ensure consistent quality and nutritional content of dishes produced. Also ensure consistent budgetary control. There are significant patient health and safety risks associated with not following standard recipes. Up-to-date nutritional analysis of each menu item enables determination of whether the menu meets the nutrient and food-based standards set.
Healthier eating, higher energy and **vegetarian dishes must** be **coded as a minimum** on the hospital menu (according to criteria provided in section 5).φ α	These are the most commonly occurring dietary codes. These can be used to inform staff and patients of the suitability of menu items and guide patient choice. Too many codes on the menu can be confusing.[4]
An '**out-of-hours**' service must be provided for all patients who do not have the opportunity to have a meal at the normal mealtime. '**Out-of-hours**' service must provide the **minimum 300kcal** and **18 grams protein**.φ	There needs to be a flexible service and recognised procedures that provide for the dietary and nutritional needs of patients who miss meals at normal meal-times.[1]

(φ) Nutrient criteria for this standard will not necessarily apply to children; criteria should be determined at the local level for this standard.

(α) Must be included on the menu as determined appropriate by local assessment of patient population's needs.

3.2 Food-based standards

The following food-based standards are known to contribute to a diet of good nutritional quality and have been set to assist hospitals achieve the nutrient standards detailed in section two for the 'nutritionally vulnerable' and the 'nutritionally well' patients.

Table 4 Food-based standards

Breads, other cereals and potatoes	
A selection of extra breads, including brown and wholemeal, must be available as an accompaniment to all meals. A selection of wholegrain breakfast cereals must be available at breakfast time.	Bread is a good source of energy; offering extra bread with every meal will allow those with higher energy requirements to increase energy intakes. Wholegrain breakfast cereals are a good source of fibre and can be useful in managing individuals with constipation (>3g/100g).[34]
Fruit and vegetables	
The menu must provide the opportunity for patients to **choose at least five servings of fruit and vegetables** across a day including as wide a variety as possible (can be included as snacks).	There is increasing evidence that consuming > 400g of fruit and vegetables every day may reduce the risk of developing chronic diseases such as coronary heart disease and some cancers. Fruit and vegetables are generally a good source of vitamin C which has a role to play in wound healing and also immune function.
Meat, fish and alternatives	
The menu must provide a choice of meat or meat alternative at both midday and evening meals. The menu must provide a choice of **fish a minimum twice a week**, one choice of which should be an oily fish variety.	Meat and fish are key sources of protein, iron, zinc and vitamin B12 in the diet. Oily fish provides long-chain omega-3 fatty acids that are deficient in the Scottish diet and may help to prevent heart disease (Appendix four).
Milk and dairy foods	
There must be provision for a minimum of **600 mls of milk for each patient every day**. • A **choice** of whole milk and lower fat milk (semi-skimmed) must be available at every meal.	Milk is a key source of protein, calcium, and vitamin B12 in the diet. 600mls allowance is based on provision for breakfast cereal (200mls) and drinks throughout the day (400mls).[4] Providing a choice of both whole and lower fat milk and milk-products will enable the dietary needs of both those choosing a 'healthier diet' and 'higher energy and nutrient-dense' diet to be met.

Table 4 Food-based standards *(continued)*

Foods containing fats, foods and drinks containing sugar	
Offer a choice of butter and spreads rich in PUFA or MUFA, including those low in fat, at all meals where a spreading fat is offered. Only butter or spreads and oils that are rich in polyunsaturated and monounsaturated fats should be used in cooking.	Increasing the intake of poly or monounsaturated fats in place of saturated fats may help reduce the risk of diseases such as coronary heart disease and stroke. Provision of additional spreading fats including butter at mealtimes can increase the energy density and palatability of the diet, which can help those individuals with poor appetites and also those with increased energy requirements.
Fluids	
There must be provision to ensure patients are able to access a **minimum of 1.5 litres of fluid per day** (seven to eight beverages).[7, 35, 36] **Water must be available at all times throughout the 24 hours**, preferably this should be chilled mains water.	Basic fluid requirements for adults range 30-35mls/kg body weight/24hrs.[7] Sufficient fluids are needed to ensure optimal health, including digestion and absorption of nutrients, renal, cardiovascular and respiratory function.[7] Insufficient intakes can contribute to constipation, confusion, pressure sores.[37] Mild dehydration often begins before the sensation of thirst is triggered;[7, 37] this is particularly the case in the elderly and children thus drinks should be offered and encouraged throughout the day.[35, 36, 37]

3.3 Salt target for manufactured products

Target Nutrient Specifications (TNS) for total fat, saturated fat, sodium and total sugar were initially developed by the Food Standards Agency Scotland (FSAS) for manufactured products used in schools in Scotland in support of the Scottish Executive policy initiative, Hungry for Success (2002).[13] Consultation with the food industry on the practicality, palatability and affordability of achieving such specifications was an integral part of developing them. While these are specifically intended for use in the education sector, the Scottish Government and FSAS recognise that these specifications are a helpful tool for catering provision in Scotland as part of the strategy to improve the food provided in the public sector and thus the diet of the Scottish people. The nutrient standard for sodium is applicable to all hospital patients. As contracts come up for re-tendering they must be extended to consider the inclusion of the sodium target for manufactured products. These values are available in Appendix five and will help caterers meet the nutrient standard of <6g/day for salt intake in hospitals.

The setting of nutrient and food-based standards and Target Nutrient Specifications for manufactured products used in the hospital setting highlights the significant role both Commodity Advisory Panels and National Procurement have to play in the hospital food chain. Their role in terms of ensuring national contracts reflect the standards set, is to ensure that suppliers are able to source the food items necessary to enable caterers to meet the specification.

PLANNING

ASSESSMENT

MENU STRUCTURE

FOOD GROUPS

④ MENU PLANNING GUIDANCE

4 MENU PLANNING GUIDANCE

4.1 Introduction

With awareness that 80 -100% of patients in hospitals rely completely on food provided by the catering service for their nutritional support it is important to remember, many of the problems that arise in the provision of nutritionally balanced food are potentially preventable with good planning.[7, 32]

Planning a menu effectively requires the collection of a wide range of information and input from numerous groups within a hospital.[32] **NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard three** has set the following standards relating to menu planning:[1]

- **A planning group is responsible for implementing local protocol(s) for provision of food and fluid for patients. Core membership needs to include a senior member of catering staff, a senior nurse, doctor, a senior dietitian and allied health professionals and patient representative.**
- **The planning group is responsible for:**
  - **Menu planning, including the use of standard recipes**
  - **Ensuring food and fluid meets the requirements of the individual**
  - **Setting meal times appropriate for patient groups.**
- **All dishes and menus are analysed for nutritional content by a state registered dietitian at the planning stage.**
- **Patient groups are consulted about new menus/dishes before they are introduced.**

Audit Scotland supports this with their recommendation that NHS Board areas must plan their menus in line with recognised menu planning principles and must use a multi-disciplinary group to carry this out.[15]

In theory a standard hospital diet may be designed to meet nutritional requirements, however in practise it may not be eaten by individuals who are unwell or have a suppressed appetite,[28, 31] as such individual nutritional needs will not be met.[28] Menu planning needs to take into consideration the population's dietary needs and factors which affect food intake in order to provide a service which provides choice, flexibility and meals that will be eaten. A multi-disciplinary group working together and planning a menu needs to consider the special nutritional circumstances of hospital patients and allow each member to share specific knowledge and skills regarding the patient population needs and hospital services.[32] In addition, the involvement of senior nursing staff, and indeed a nursing led planning group will provide stronger support to planning decisions and implementation at ward level and should not be underestimated.

The different steps involved in planning a menu are discussed in this section.[7, 32] It is important to remember a menu is a live document and as such should be reviewed and updated regularly in order to continue to meet the dietary needs of a potentially changing hospital population.

4.2 The planning process

Food provision should be planned in order to be responsive to patients' needs not those of medical, nursing and other healthcare staff [7, 31, 32] and should be managed as an integral component of clinical care rather than a 'hotel' function.[22]

4.2.1 Assessment of patient population dietary needs

Before considering menu planning or development of a recipe database, menu planning groups need to consider the wider issues that can affect patient food choice and hence food intakes. Gathering of information about the differing dietary needs of different hospital patient groups can help menu planners develop an appropriate food service that is in a form that is familiar to patients.

Provision of food that is similar to that which is eaten at home has been associated with better food intake and greater enjoyment of meals. Information about individuals likes and dislikes, physical disabilities that may affect their ability to eat and drink, social/environmental mealtime requirements, food allergies and need for therapeutic diet, cultural/ethnic/religious requirements and the need for equipment to help with eating and drinking need to be considered in the menu and food service planning. Assessment of each patient's dietary needs should form part of their individual medical and nursing care pathway (as outlined in section 2.1) and in line with NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard 2.1.[1]

To assess the dietary needs of different patient populations, the following information should be included:[4, 7, 30, 31, 32]

- Age
- Gender
- Cultural, ethnic, social and religious diversity
- Physical and/mental health needs
- Food preferences
- Length of stay
- Nutritional risk

Clinical specialties also need to be considered for provision of therapeutic diets.[4, 30, 31] This information can be collected from NHS health information departments, patient surveys,[4] nutritional screening data, compliments and complaints, other hospital staff and anecdotally.[7] Collated food services data such as menu item uptake and wastage information can also be extremely useful in the initial stages of menu planning.[4]

Hospital patients can be broadly categorised into the following groups:

- **'Nutritionally vulnerable'** (normal nutritional requirements but with poor appetite and/or unable to eat normal quantities at mealtimes; or with increased nutritional needs)
- **'Nutritionally well'** (normal nutritional requirements and normal appetite or those with a condition requiring a diet that follows healthier eating principles)

- **Special or personal dietary needs,** e.g. religious or ethnic dietary requirements
- **Requirement for a therapeutic diet,** e.g. modified texture diet, allergy-free diet, renal diet

It is important to note that some patients will require a combination diet which meets their therapeutic and/or personal or religious needs. It is essential that the hospital is able to provide appropriate food and fluids to meet these individual's needs for example, gluten-free, texture modified diet, renal diet for a vegetarian.

There are some groups of the population whose dietary needs may need to be considered separately when planning a menu:

- Children
- Older people
- End-of-life patients
- People with learning and physical disabilities
- Maternity patients

These groups of patients may have different dietary needs to the younger adult population and if these are not met, then they may end up in a 'nutritionally vulnerable' state (further information is provided in Appendix one).

4.2.2 Cost and resource implications

Hospital catering budgets frequently drive food provision and need to be considered, however, patients' nutritional needs and the menus developed to meet these must not be compromised by budgetary constraints. Appropriate nutrition for hospitalised patients is effective in increasing body weight, reducing complications and mortality;[23] it is hypothesised that this in turn can decrease overall costs in providing care and appropriate nutrition to patients, although there is limited research in this area.[23]

Cost and resource constraints important to consider include:[4, 7, 32]

- Total budget per patient day/week
- Method of production
- Kitchen equipment and related budget
- Existing staff levels and rosters
- Staff skill level
- Food storage facilities
- Procurement and sustainability issues
- Method of distribution

4.3 Food-based menu planning guidance

Different foods provide different nutrients; some nutrients are only found in sufficient quantities if specific foods or food groups are included in adequate amounts in the diet. Thus, in order to meet the nutrient standards specified in section two, patients will need to be provided with a diet that is made up of a combination and **balance of foods** from all of the **five food groups**, namely:

- breads, other cereals and potatoes
- fruit and vegetables
- milk and dairy foods
- meat, fish and alternatives
- foods high in fat, foods high in sugar.

The balance of each of these food groups in the diets of hospital patients will vary depending on the dietary and nutritional needs of the different patient populations. The provision of different types of foods or choices of food items within each food group needs to recognise the differing dietary needs that are to be catered for.

Prevention of undernutrition in patients should focus on delivery of 'ordinary food' via the oral route, and sip feeds or artificial nutrition support must not substitute the adequate provision of food and fluid by a hospital, unless there are clear clinical indications.[22] Patients provided with food that they are familiar with and enjoy are more likely to consume it, ensuring that they receive the nutrition provided on the plate.[32] Provision of **greater choice** is more likely to meet individual food preferences and individuals' dietary needs.

The inclusion, preparation and cooking of a variety of foods specified in the five food groups needs to **remain flexible** if the diverse needs of the hospital population are to be met with 'ordinary food'.[22] In contrast to some other public sector catering services **the exclusive use of low fat/sugar cooking methods and procurement of low fat/sugar products would limit the ability of a catering department to meet the nutritional needs of the 'nutritionally vulnerable' hospital population**. Such patients' meals should still be based on starchy foods with wholegrain choices available, they should have moderate portions of meat, poultry, fish and alternatives, aim for five portions of fruit and vegetables per day, have full-fat foods and avoid low-fat versions, sugary foods can be eaten in moderation, but not at the expense of more nutrient-dense foods. Additional dietary needs, for example the need for a texture modified diet (refer section 5.6) needs to be under-pinned by this menu planning guidance.

4.3.1 Healthy eating advice

For those individuals who have been identified would benefit from a healthy balanced diet, then food provision and menu planning should follow guidance provided in 'The eatwell plate'.[38] The UK eatwell plate model illustrates the proportions of each of the five food groups that make up a healthy balanced diet, irrespective of a healthy individual's energy needs. It applies to healthy individuals (individuals of normal weight and those overweight), individuals from different ethnic minority groups and also vegetarians. It applies to those individuals who have a normal appetite.

The eatwell plate Crown © Copyright.

Healthy eating advice – basic principles[39]

- Plenty of starchy foods such as rice, bread, pasta and potatoes (choose wholegrain varieties when possible).
- Plenty of fruit and vegetables; at least 5 portions of a variety of fruit and vegetables a day.
- Some milk and dairy, choosing reduced fat versions or eating smaller amounts of full fat versions or eating them less often. Children up to two years should use full-fat versions.
- Some protein-rich foods such as meat, fish, eggs, beans and non-dairy sources of protein, such as nuts and pulses.
- Just a little saturated fat, salt and sugar.

4.3.2 Food group menu planning guidance

Tables 5 -10 provide generic food-based menu planning guidance to assist meeting the nutrient and food-based standards for food service in hospitals. Those practices that apply specifically to meeting the healthy balanced diet and those practices that apply specifically to meeting a diet that is more energy and nutrient-dense. Those practices that are common to both clients are not highlighted.

Further and more detailed food-based guidance is provided in sections 5.2 and 5.3, for the provision of higher-energy and nutrient-dense menu choices (table 17) and healthier eating menu choices that are based on the principles that underpin the healthy balanced diet (table 19). For all food groups, foods need to be provided in a way that is suitable to meet the dietary needs of different patient populations. The five food groups should underpin menu planning of therapeutic diets, for example texture modified diets, allergen-free diets, renal diets.

Table 5 Bread, rice, potatoes, pasta and other starchy cereals

Standards	**A selection of extra breads, including brown and wholemeal, must be available as an accompaniment to all meals.** **A selection of wholegrain breakfast cereals must be available at breakfast time.**
Rationale	This food group is an important source of carbohydrate and therefore energy, protein, fibre and vitamins and minerals including folate, folic acid and zinc. Wholegrain varieties are higher in fibre. The provision of extra bread at mealtimes will assist patients meet their overall energy and nutrient requirements and can also assist in prevention of constipation.
Food Options	1. All bread – white, wholemeal, granary, bagels, chapattis, naan, pitta bread and tortilla 2. Potatoes and sweet potato 3. Breakfast cereals, including wholegrain varieties (NSP>3g/100g).[34] 4. Porridge 5. Rice, couscous and semolina 6. Noodles and pasta (including wholegrain varieties)
Menu planning guidance	1. A **variety** and **choice** of foods from this group including bread, potato, sweet potato, rice and pasta should be offered across the menu cycle (meals and snacks). 2. Provide a choice of **at least two** bread/cereal/starch items at each meal – breakfast cereals, bread, rice, pasta, noodles, potatoes. 3. A variety of cooking methods for potato should be used across the menu cycle. Always ensure a low fat alternative to deep fried or roast potatoes is available. 4. Benchmark manufactured products against the Food Standard Agency's Target Nutrient Specifications[13] for manufactured products paying particular attention to salt targets for bread for example (Appendix five). A variety of breakfast cereals should be provided at breakfast time including, **at least two wholegrain** choices, for example, Branflakes, Weetabix, Shredded Wheat (Fibre >3g/100g or at least 3g in a reasonable expected daily intake)[14] and **at least one** choice fortified with folic acid. 5. Introduce alternative sources of bread and cereals such as couscous, tortillas and pitta bread. 6. Consider adding grains such as barley, rice and pasta to home made soups throughout the menu cycle. 7. Offer cereal based desserts such as rice pudding or semolina. 8. Provide small sandwiches, crackers, oatcakes, muffins, tea breads, plain or fruit scones or pancakes as snacks appropriate for the patient group. 9. Bran **must not** be added to foods to increase fibre content – it inhibits the absorption of some minerals.

Table 5 Bread, rice, potatoes, pasta and other starchy cereals *(continued)*

Children 1-16 years	1. This food group should form the base of a children's menu. 2. Provide a choice of a variety of different cereals at breakfast, one of which should be a popular children's cereal. 3. Provide a choice of **at least two** carbohydrate options at each main meal. 4. Bread and cereals can be offered as snacks, including scones, buns, muffins, crackers, cereal bars. 5. **Wholegrain** or **wholemeal** variety bread and cereals must be offered as a **choice**, not the only choice and not at the expense of more energy-dense foods for children <5 years old.
Food safety tips[78]	1. Starchy foods and particularly foods such as grains and rice can contain spores of Bacillus cereus, a bacteria that can cause food poisoning. When the food is cooked, the spores can survive. Then, if it is left standing at room temperature, the spores will germinate, multiply and may produce toxins (poisons) that cause either vomiting or diarrhoea. Reheating will not get rid of the toxin. 2. Low numbers of Bacillus cereus will not make someone ill, but if food contains high numbers of the bacteria, or if a toxin has been produced, it could cause food poisoning. The longer that food is left at room temperature, the more likely it is that bacteria, or the toxins they produce, could make food unsafe. Therefore these types of food should be served directly after cooking, if this is not possible they should be cooled within an hour and kept in the fridge until reheating (for no more than 1 day). Avoid reheating more than once.

Table 6 Fruit and vegetables

Standards	A hospital menu must offer the opportunity to choose **at least five servings (minimum 400g uncooked)**[40] of this group across a day including as wide a variety as possible (can include snacks).
Rationale	This food group is an important source of fibre, folate, potassium and vitamin C. In addition green leafy vegetables provide some non-haem iron.
Food options	1. Fresh, frozen, tinned and dried fruit. 2. Fresh, frozen and tinned vegetables. 3. Pure fruit and vegetable juices.
Menu planning guidance	1. Guidance on portion sizes for a range of fruits and vegetables is available at DoH – 5 A DAY.[41] 2. Provide a fruit option on the menu **at least three times** per day, e.g. fresh fruit, fruit crumble. 3. Provide fresh fruit as a choice **at least once** every day. 4. Provide pure unsweetened fruit juice **daily (100% juice)**. 5. Provide **at least two** vegetable choices at the main meal each day. 6. Provide **at least one** vegetable choice at the lighter meal in each day. 7. Add vegetables to soups and to other appropriate dishes, e.g. casseroles. 8. Use steam cooking in preference to boiling for vegetables if facilities and production allows. 9. Always ensure a low fat alternative to roast or fried vegetables is available. 10. Provide a choice of fresh, uncooked vegetables, e.g. salads at mealtimes (see below). 11. Fresh, stewed or canned fruit could be provided as an accompaniment at breakfast and for dessert. 12. Fruit in syrup should be provided for energy-dense choices, fruit in juice for healthier eating options. 13. Provide soft, easy to eat fruit or prepared fruit salad for elderly patients. 14. Cook or regenerate vegetables in batches to minimise nutrient loss as production allows. 15. Cook vegetables as close to service as practical. 16. **Don't** cook, chill, store, transport, or reheat for unnecessary lengths of times – it results in the loss of heat labile and water soluble vitamins. 17. **Don't** hot-hold for more than 90 minutes to ensure maximal vitamin retention.[42]

Table 6 Fruit and vegetables *(continued)*

Children 1-16 years	1. The opportunity to choose **at least five servings** per day of fruit and vegetables must be available. 2. Fruit and vegetables should be offered in appropriate portion sizes for children. 3. A mixture of smaller fruits and large fruits should be offered, e.g. plums and satsuma in addition to pears and apples. 4. Pure unsweetened fruit juice should be available (100% fruit juice).[43] 5. Fresh or canned fruit should be offered at breakfast. 6. Fresh fruit or fruit in juice can be offered as a snack. 7. A choice of **popular** vegetables should be available at each main meal, e.g. peas, carrots, sweet corn, broccoli, tomatoes, cucumber and baked beans.
Food safety tips[78]	1. Because most fresh fruits and vegetables are grown outdoors in non-sterile environments, it is possible that they may occasionally harbour potential food poisoning organisms that are present in soil, air and water. The number of potentially harmful micro-organisms on fresh produce intended to be eaten raw can be reduced by using hygienic growing practices and careful washing of fruit and vegetables with potable water before consumption. 2. Never use household cleaners/washing up liquid as these products may not be safe for human consumption, and by using them, harmful residues may be left on the food.

Table 7 Meat, fish, eggs, beans and other non-dairy sources of protein

Standards	A hospital menu must offer the opportunity **to choose a meat or meat alternative at both the midday and evening meal**. A hospital menu must offer the choice of **fish a minimum of twice a week**, one choice of which should be an oily fish variety (Appendix four).
Rationale	This group provides a good source of energy, protein, haem iron, vitamin B12 and zinc. Oily fish contributes to omega-3 intakes, while pulses, nuts and seeds contribute to protein, non-haem iron, zinc and fibre intakes.
Food options	1. Meat – all cuts of beef, lamb, pork and meat products such as bacon, ham, corned beef and sausages. 2. Poultry – all cuts of chicken and chicken products. 3. Fish – fresh, frozen, tinned and fish products such as fish cakes and fish fingers. 4. Oily fish includes fresh tuna, salmon, sardines, mackerel and herring (Appendix four). 5. Eggs are a useful source of nutrients. Scrambled eggs may provide a suitable option of a cooked breakfast for a range of patients if required. 6. Beans and pulses – baked beans, butter beans, kidney beans, chickpeas and lentils. 7. Nuts – includes, almond, hazel, walnut, cashew, pecan, Brazil, pistachio, macadamia and Queensland nuts (NB. Refer to section 5.4 for menu planning guidance for allergen-free diets). 8. Vegetarian products such as burgers, sausages. 9. Textured soy proteins such as tofu, and quorn (mycoprotein).
Menu planning guidance	1. A variety of red meat, poultry and pork in different cuts should be provided across the menu cycle. 2. When offering meat, poultry and fish products try to procure leaner cuts. 3. Choose meat products with a higher meat content. 4. Benchmark manufactured products against the Food Standard Agency's Target Nutrient Specifications[13] for manufactured products paying particular attention to salt targets (Appendix three). 5. **Always** include a protein alternative to meat for vegetarian meals such as kidney beans, chickpeas and texture-modified proteins. NB. Cheese can also be used. 6. Meat alternatives for vegetarian dishes should offer a variety of foods from this group. 7. Use eggs as a base for vegetarian meals **regularly** throughout the menu cycle. 8. Try to procure canned beans and pulses with no added salt and sugar. 9. Use pulse-based soups **at least once per week** throughout the menu cycle. 10. Always offer an alternative to fried or roasted meats. 11. Always offer an alternative choice to deep fried fish. 12. For elderly or those requiring a softer texture due to chewing difficulties, offer soft lean cuts of meat or fish, minced meat or served with a sauce. 13. It is recommend that pregnant and breast-feeding females should not consume oily fish more than twice a week.

Table 7 Meat, fish, eggs, beans and other non-dairy sources of protein *(continued)*

Children 1-16 years	1. Offer the choice of **a variety** of meat or meat alternative options at each main meal. 2. Include familiar and palatable choices. 3. NB. It is recommended that children with a parent or sibling with atopic disease should not have peanuts or food containing peanuts until at least 3 years of age.
Food safety tips[78]	1. Always store meat and fish in the fridge, ideally at temperatures between 0°C and 4°C. 2. Always ensure that uncooked meat and ready to eat foods are stored apart. Ideally raw meat and fish should be covered and stored on the bottom shelf where they can not drip onto other foods. Cooked meat and fish should be covered and stored above raw in the fridge. 3. Eating raw eggs or runny yolks, can carry a risk of food poisoning from salmonella bacteria especially in the very young, elderly, pregnant, unwell. Safest option for caterers preparing food for these vulnerable groups is to always use pasteurised egg. 4. At risk groups should avoid all types of paté, including vegetable. This is because paté can sometimes contain listeria. 5. Always ensure that meat is well cooked. This is especially important with poultry and products made from minced meat, such as sausages and burgers. Make sure that these are cooked until they are piping hot all the way through, any juices run clear and no pink meat is left. 6. Vulnerable groups should avoid raw shellfish. This is because raw shellfish can sometimes contain a harmful bacteria and viruses that could cause food poisoning. It is far safer to eat shellfish as part of a hot meal, such as in a curry.

Table 8 Milk and dairy foods

Standards	There must be provision for patients to access a **minimum of 600 mls of milk for each patient every day** (which may include milk used in the cooking process, and teas and coffees). A **choice** of whole milk and lower fat milk (semi-skimmed) must be available at every meal.
Rationale	This food group is a good source of protein, calcium and vitamin B12.
Foods	1. Milk – cows, goats, sheep, soy, rice and dried milk powder. 2. Cheese – can include cottage, soft, cheddar, brie, feta, edam, parmesan, stilton and low-fat varieties. 3. Yoghurt or fromage frais. 4. Sauces and desserts made from milk, e.g. custard, rice pudding.
Menu planning guidance	1. A hospital menu should offer the opportunity to choose **two to three servings** of this group across the day (can include snacks). 2. Use cheese as a base for some vegetarian meals during a menu cycle, with awareness for the high fat and saturated fat content of this product. Use of vegetarian cheeses should be considered.* (Refer to table 7 for alternative sources of protein.) 3. Ensure that there is provision of low fat cheeses for individuals requiring a healthy balanced diet. 4. Provide yoghurt, both low fat and full fat, including thick and creamy varieties, as a snack or accompaniment. 5. Provide milk-based desserts as part of a menu cycle, as appropriate for patient group (whole milk and semi-skimmed milk). 6. Provide 'smooth' yoghurt for texture modified dietary choices as appropriate. 7. Promote the use of hot milky drinks.
Children 1-16 years	1. **Provide 350-500ml**[43] **of whole milk** for each child daily. 2. **Semi-skimmed milk must be available** only **on request for children 2 years** and older. 3. Use whole milk for all milk-based dishes. 4. Offer milk/mousse-type desserts for snacks.
Food safety tips[78]	1. Unpasteurised (raw) milk should be avoided as it may contain micro-organisms harmful to health. 2. Milk and dairy products should always be refrigerated and stored at temperatures below 8°C (ideally at temperatures between 0°C and 4°C). 3. In order to avoid the risk of listeriosis, vulnerable groups, such as pregnant women and older people, are advised to avoid eating ripened soft cheeses of the Brie, Camembert and blue veined types, whether pasteurised or unpasteurised. This is because ripened soft cheeses are less stable than hard cheeses (they are less acidic and contain more moisture) and are therefore more inclined to allow growth of undesirable bacteria such as listeria.

* Vegetarian sources of protein should be varied over the week. Over-use of cheese should be avoided. Vegetarians should be provided with a range of foods not only to provide protein but also other vitamins and minerals. Too heavy reliance on eggs and cheese results in a diet too high in energy and fat, especially saturates.

Table 9 Foods and/or drinks high in fat and/or sugar (and foods high in salt)

Standards	1. Hospital menu **must offer a choice** of butter and spreads that are rich in PUFA or MUFA including those low in fat, at all meals where a spreading fat is offered. 2. Butter or oils and spreads rich in polyunsaturated and monounsaturated fats should be used in cooking. 3. Nutrient standard for salt <6g/day.[33]
Rationale	This food-group increases the palatability of foods. Fats, oils and sugar are important contributors to energy-dense meals for 'nutritionally vulnerable' patients; those patients with small appetites and those with increased requirements. For those individuals who require a diet that is 'healthy eating', the fat and sugar content needs to be modified in line with national targets.
Foods	1. Fat containing foods – butter, margarine, spreads, cooking oils, salad dressings, mayonnaise, cream, chocolate, crisps, biscuits, pastry-based items, cakes, puddings, ice-cream, rich sauces and gravies. 2. Foods containing sugar – soft drinks, sweets, jam and foods such as ice-cream, chocolate, cakes and biscuits. 3. Foods containing salt – soy sauce, gravy mix, bouillon, salt and foods purchased ready-made, e.g. vegetarian products.
Menu planning guidance	A hospital menu should offer a range of foods from this group, some containing higher amounts of fat and sugar as part of a balanced and varied menu. 1. Benchmark manufactured products against the Food Standard Agency's Target Nutrient Specifications[13] for manufactured products paying particular attention to salt targets (Appendix five). 2. Specify a **measured** amount of salt to be used in a recipe. 3. Introduce alternative flavourings in place of salt and bouillon such as garlic, herbs and spices. 4. Don't over rely on convenience foods that may contain large quantities of added salt, e.g. packet soups (and minimal nutrition content). 5. Biscuits, cakes and crisps can be offered as a snack in moderation to the appropriate patient group. (Refer to table 12 for suggestions of substantial snacks.) 6. Offer low fat/low sugar items such as yoghurt or crème fraiche as alternatives to cream and ice-cream with desserts. 7. Offer an alternative choice to cream-based sauces, for example tomato or vegetable-based sauces. 8. Offer an alternative choice to cream soups or use milk in place of cream. 9. Oils rich in monounsaturated and/or polyunsaturated fats are likely to include: olive, rapeseed (canola), safflower, sunflower, corn, soy, walnut, linseed, sesame seed and nut oils for cooking. 10. Fat spreads that are rich in monounsaturated or polyunsaturated fats are likely to include rapeseed, olive oil, sunflower, soy oil. *continued*

Table 9 Foods and/or drinks high in fat and/or sugar (and foods high in salt) *(continued)*

Menu planning guidance *(continued)*	11. Use spreads fortified with folic acid and vitamin D where possible, especially with elderly or those patients hospitalised for a long period of time. 12. Don't over heat deep frying oil or over use before replacing. 13. Make extra margarine portions available at ward level for adding to vegetables where the need exists with 'nutritionally vulnerable' patients. 14. Sugar should be freely available at ward level for patients requiring it to supplement their energy intake. 15. Don't replace sugar in baking with an artificial sweetener.
Children 1-16 years	1. Honey must not be added to foods prepared for infants <12 months old. 2. Use reduced sugar or sugar-free fluids as an alternative to water. 3. Ice-cream is a familiar and popular dessert which may be an appealing and important comfort food for children whilst in hospital. 4. Age-specific nutrient standard for salt should be used.[33]
Food safety tips[78]	• Eggs are a useful source of nutrients but when served to older people and pregnant women they should always be well cooked, until both the yolk and white are solid. This is to avoid the risk of Salmonella, which causes a type of food poisoning.

Table 10 Fluids

Standards	There must be provision to ensure patients are able to access a **minimum of 1.5 litres of fluid per day**.[7, 44] **Water must be available at all times throughout the 24 hours**, preferably this should be chilled mains water, not from stored water tanks.[44]
Rationale	Fluid and water is a basic nutrient of the human body and is critical to human life.[7, 27] Dehydration is a common problem in hospital patients.[44]
Fluids	1. Water 2. Milk (both plain and flavoured) 3. Pure, unsweetened fruit juice 4. Squash or cordial (choice should include 'no added sugar' variety) 5. Tea, coffee (including all milk coffee) 6. Malted drinks and hot chocolate.

Table 10 Fluids *(continued)*

Menu planning guidance	1. A catering service should provide patients with **free access** to a **range** of drinks throughout the day. 2. Provide a minimum of seven to eight beverages throughout the day (number depends on volume of beverage).[4, 27, 35, 36, 37] (The suggested menu structure shows how this can be achieved – table 11.) 3. Fluid foods are not included as part of a general patients' fluid intake. 4. Provide a wide selection of beverages over a 24-hour period and serve at the acceptable temperature, in suitable and appealing cups, glasses or mugs.[27] 5. Beverages can be served with breakfast but it is recommended they be served following the lunch and evening meal so not to 'fill-up' those patients with small appetites.[27] 6. Water jugs should be changed regularly (it is recommended that a **minimum of three times per day**).[44] 7. It is recommended that water jugs are covered with lids to minimise foreign debris and bacteria contaminating the water. 8. Fluids need to be provided at the correct temperature and texture, and in an appropriate drinking vessel to meet individual needs.[1] 9. Practical tips for encouraging water consumption are provided in 'Water for Health: Hydration Best Practice Toolkit for Hospitals and Healthcare.'[44]
Children 1-16 years	1. A **minimum of seven to eight beverages** must be offered throughout the day.[36] 2. Ensure fluid is available in the appropriate drinking cups for each stage of development. 3. Offer a choice of hot and cold drinks at each meal and snack, including no-added sugar varieties.

4.4 Menu structure

Menu structure will vary between hospitals, affected by the operational issues discussed above, but regardless of the dishes offered; if a menu structure does not suit the patient population it is serving it will not be successful.[7] The menu structure needs to **consider the dietary needs of the population group**, for example, some populations may prefer their main meal in the evening, others may prefer it in the middle of the day. The menu needs to **provide choice for all patients** if it is likely to help patients improve their intakes.

In reality individual food choices are likely to combine a mixture of menu items, some healthier eating options, some energy and nutrient-dense options. It is the skill of the menu planning group to design a menu that provides an appropriate balance of differing dietary needs based on assessment of the patient population at the local level and ensure the menu has the capacity to meet the range of dietary and nutritional needs. Menu planning groups also need to recognise the often-complex needs of specific patient populations to be cared for including 'nutritionally vulnerable' patients and those on specialised therapeutic diets. The prevention of undernutrition begins with good menu planning.

The Council for Europe has made recommendations that mealtimes should be set to cover most of the hours patients spend awake. In doing this, it should allow sufficient time between each meal to allow for in-between snacks[22] that are critical for enabling patients to meet their nutrient requirements.[29]

4.4.1 Catering specification

Table 11 provides a **suggested** structure for hospital menus to enable food service provision to meet the nutrient and food standards set in sections 2 and 3 of the specification, many hospitals may exceed this. It can be used during the planning process, helping to ensure the finalised menu meets the nutritional needs of the population; a template form of this can be found in Appendix six.

Caterers, dietitians, nurses, speech and language therapists (SALT) and patients must work together to plan a service that will meet the needs of 'nutritionally vulnerable' patients. The menu must provide **as a minimum a choice of any two courses** at each mealtime, allowing patients to choose a combination of foods that meets their appetite needs, for instance, some patients may wish to have soup and dessert instead of main course and dessert.

When assessment of local patient populations' needs indicate, menus must provide a **'healthy eating' meal choice** at each eating occasion (which fulfil criteria for total energy, protein, fat, carbohydrate as detailed in table 18) and a **'higher energy and nutrient-dense' meal choice** at each eating occasion (which must fulfil criteria for total energy, protein refer table 16).

In 2001, 4% of the adult population classed themselves as vegetarian, with 33% of the population eating meat only occasionally; that is seven million people in the UK were vegetarian or avoided red meat.[10] Provision must be made for patients who follow a vegetarian or vegan diet. There **must** be a **vegetarian meal choice at each eating occasion** on hospital menus and thought must be given to including more choice for this growing patient group. Sources of protein should be varied over the week. Vegetarians need to get protein from a range of foods not only to supply adequate protein, but also other vitamins and minerals. Over-reliance on cheese as the protein source will result in a diet that is high in total and saturated fat. Table 7 provides suggestions of suitable protein sources. Vegan diets prove more of a challenge and hospitals should develop a protocol for providing food for this group of patients. These diets are discussed further in section 6.

Table 11 Suggested menu structure

		Notes
On wakening	Beverage	
Breakfast	Pure unsweetened fruit juice Cereal (include wholegrain varieties) Porridge oats Milk for cereal (from patient allowance) Cooked breakfast, e.g. scrambled egg/bacon/sausage Bread/bread roll/toast (a choice of white and wholemeal) Butter/low fat spread/PUFA/MUFA spread (e.g. olive-oil based) Preserves (regular and low sugar varieties) Beverage	*Assuming the patient chooses fruit juice, cereal and milk (semi-skimmed – 200mls from daily allowance), bread and butter/spread this meal will provide approximately 380kcal and 8g protein.*[4 Φ] *The option for a cooked breakfast option may be considered an important inclusion on some menus in order to maximise opportunity to meet some patient groups dietary needs, e.g. long-stay wards. It may be that this option is only provided once a week due to associated costs.*

Table 11 Suggested menu structure *(continued)*

		Notes
Mid morning	Beverage Snack Fruit	*One snack must provide > 150kcal.*
Midday meal	**A minimum of two courses provided** Soup and bread roll with butter/ spread portion Pure unsweetened fruit juice Sandwich (choice of vegetarian and non vegetarian fillings) must be offered with soup as one course Main course 1 (meat or fish based) Main course 2 (meat or fish based) Main course 3 (vegetarian) Vegetables (able to choose 2) Carbohydrate/starchy food, e.g. potato, rice, pasta, bread (2 choices) Dessert Fruit (fresh or tinned in light syrup or juice) Yoghurt/pot rice/custard Beverage	*Within the range of choices available the menu should be capable of providing minimum 300 – 500kcal from a main meal (inclusive of main dish, vegetables, and starchy accompaniment). Each main course should provide 18g protein. *φ It is recommended that desserts φ that contain over 300kcal and 5g protein should be included since they are a useful energy source for vulnerable patients.*[4]
Mid afternoon	Beverage *(+/- snack)	**An additional snack may be required by some patient groups, for example children, those with poor appetites or increased requirements.*
Evening meal	**A minimum of two courses provided** Soup and bread roll with butter/spread portion or fresh fruit juice Sandwich (choice of vegetarian and non vegetarian fillings) must be offered with soup as one course Main course 1 (composite** meat or fish based) Main course 2 (composite** vegetarian) Carbohydrate/starchy food as above Vegetables (able to choose 1) Dessert Fruit (fresh or tinned in light syrup or juice) Yoghurt/pot rice/custard Beverage	*Soup and sandwiches should be considered as a combined meal option and therefore together must be capable of providing a minimum of 300kcal and 18g protein.φ (500kcal for energy and nutrient-dense diet). It is recommended that desserts φ that contain over 300kcal and 5g protein should be included since they are a useful energy source for vulnerable patients.*[4]

Table 11 Suggested menu structure *(continued)*

		Notes
Before bedtime	Beverage Snack Fruit	*One snack must provide > 150kcal.*
		An allowance of 400 mls of milk for drinks will provide an additional 264kcal, 13g protein (whole milk); 184kcal, 14g protein (semi-skimmed milk).

(Φ) Nutrient criteria for this standard will not necessarily apply to children; criteria should be determined at the local level for this standard.

* Vegetarian main courses should provide a minimum of 18g protein, however it is recognised that may be difficult to achieve. Achievement of an absolute minimum of 12g protein from a main meal is feasible, however extra protein will need to come from desserts and snacks. Menu planners should avoid excessive reliance on cheese as the meat alternative.[4, 32]

** A **Composite** dish should consist of a **protein** containing food, **vegetables** and a **carbohydrate/starchy** item. Examples would be cottage pie (minced beef, onions, carrots and mashed potato), lasagne (minced beef, tomatoes, onions, mushrooms, peppers and pasta sheets). Caterers should offer a side salad or one vegetable with this type of dish. This would increase the likelihood that patients could meet 5 A DAY targets for fruit and vegetable consumption and would be regarded as good practice. Composite meals will need to meet the specific nutrient criteria if they are to be coded as 'healthier eating' or 'higher energy and nutrient-dense'.

4.4.2 A choice of a hot meal at midday and at the evening meal

Some hospitals are moving towards providing one cooked meal a day, the other meal being a soup and sandwich option or a composite meal. In many cases patients are unable to or do not wish to eat two 'main meals' each day. For example, in one hospital, assessment of the dietary needs of breast-feeding mothers revealed a preference for a soup and sandwich option as opposed to a hot meal in the middle of the day so as to fit in with their need to breast-feed. However, offering the option of a hot meal in the middle of the day and in the evening provides greater choice for patients; greater choices meaning dietary preferences are more likely to be met, food more likely to be eaten and thus nutritional requirements more likely to be met. Hot meals generally lend themselves more readily to texture modification rather than sandwiches. Menu structure and meal types should be based on local assessment on patients' dietary preferences and needs. If soup and sandwiches are provided they must be provided as one course. Whichever type of service is offered menus must meet the nutrient and food standards set out in sections 2 and 3.

4.4.3 Between-meal snacks

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard three – Planning and Delivery of Food and Fluid, states: 'The planning group is responsible for setting mealtimes such that if the evening meal and breakfast are more than 14 hours apart a *substantial* snack is available'.[1]

Snacks provide an essential addition to the menu by adding flexibility, interest and variety. Also, several 'nutritionally vulnerable' patient groups can easily improve their nutritional intake by the consumption of snacks in this way.[62] In order to meet the nutritional needs of many patient groups it will be necessary to supplement the energy consumed from meals with that from snacks. In addition, the provision of fruit as a snack can help patients achieve the 5 A DAY target.

- **Snacks must be provided at a minimum twice per day**
- **One snack must be capable of providing a minimum 150kcal**
- **One choice must be fruit.**

It is recommended snacks be provided at mid-morning and in the evening, however, the exact timings will depend on the mealtimes in each area. Hospitals may wish to move the mid-morning snack to the afternoon if the gap between lunch and evening meal is longer than the gap between breakfast and lunch, this would be considered good practice. The evening snack should not be swapped as the gap between the evening meal and breakfast is frequently long and a snack will prevent patients from feeling hungry between these meals. It would be considered good practice to **offer snacks at least one hour prior** to the next meal being offered, so as to maximise food intakes.[43] A list of a range of suggested snack items suitable for a range of different patient groups, detailing energy and protein content are detailed in table 12.

For those individuals with small appetites and those requiring a more energy and nutrient-dense diet (for example vulnerable patient groups), the **provision of snacks three times per day** can assist them in meeting their energy and nutrient requirements. This would be considered good practice. The types of foods that are made available should again consider the local patient population group and cater to their specific dietary needs.

Table 12 A suggested range of snack items including energy and protein contents[2, 3]

Food group	Food item	Portion size	Energy (calories) approximate	Protein (g) approximate
Breads & Cereals	Slice of toast and butter§	27+10g	143 (69+74)	3
	English muffin, butter and jam§	One (100 +10+18)g	344 (223+74+47)	10
	Malt loaf (snack size)*§	64g	189	5
	Scone with spread and jam§	One (48g)	275-300 (150-175+74+47)	4
	Crackers (cream) and cheese§	Two (2 x 7g)+20g	58+103	6
	Oatcakes and cheese§	Two (2x15g)+20g	85+103	6
	Muesli/ cereal bar§	One (30g)	120-140	2-3
	Flapjack§	60g	296	3.0
	Pancake with spread and jam*§	Two (2x31g) +10+18g	288 (167+74+47)	3-4
	Crumpet and spread§	Two (2x40g)+10g	240 (166 + 74)	5-6
	Small meat or cheese sandwich§	70-100g	150-200	10
Fruit & Vegetables	Fresh fruit§	One piece	50-100	<1
	Diced fruit in a cup*	113g	70	1
	Diced fruit in gel*	128g	60-90	1
	Pureed fruit portion*	120g	60-90	<1.0
	Dried fruit (apricots)§	Eight (50g)	80	2

Table 12 A suggested range of snack items including energy and protein contents *(continued)*

Food group	Food item	Portion size	Energy (calories) approximate	Protein (g) approximate
Milk & Milk Products	Yoghurt (whole milk, fruit)*	150g	160	7
	Thick 'n' creamy yoghurt	175g	190	7
	Yoghurt (low fat milk, fruit)	125g	98	5
	Rice pot (+/- fruit)	200g	200-225	6-7
	Mousse*	60g	90	2-3
	Ice-cream* (choc ice)§	75g	115	2-3
	Flavoured milk*	500ml	320	18
	Cheese§	15-25g	60-105	4-6
Fats, oils, Sugar & Salt	Mini pack of biscuits§	30g	80-200	1-2
	Cake (carrot; fruit)*§	50-60g	210-225	3
	Chocolate biscuit§	20g	100	1-2
	Shortbread§	20g	105	1
	Crisps§	25g	150	2
	Muffin* (chocolate)§	150g	570	9

* Suitable for some texture modified diets if prepared following guidelines provided in tables 23a, 23b, 24.

§ Suitable as finger food snacks.

Individually-packaged snacks would provide improved food hygiene, snack quality and assist with stock control. It is essential that policies and procedures are developed at the local level on how snack availability is communicated to patients, how snacks are delivered to the ward, stored and then how it is ensured that the correct snack reaches the patient.

Lessons to be learned from Better Hospital Food Programme

The Better Hospital Food Programme intended that snacks should be provided to all patients twice per day. The success of this initiative in terms of patient uptake varied greatly. Success was largely dependent on the practical measures that were put in place to ensure that snacks reached the patients. When snacks got to the patients, uptake was good and wastage was low.

Strategies such as ensuring that snack availability and how to order snacks was communicated to patients; snacks being offered alongside the mid-am or mid-pm beverage on the tea-trolley and the use of housekeepers to ensure snacks got to the patient were more successful than when snacks were detailed on the general menu and then practical issues arose around on-ward storage and the correct snack reaching the patient.

(Personal communication, Associate Director of Facilities, NHS Trust England)

4.4.4 Out-of-hours provision

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard three – Planning and Delivery of Food states, 'The planning group must ensure there is appropriate food and fluid provision available out with main mealtimes'.[1]

Although **protected meal times** in hospitals throughout Scotland is growing and should continue to be promoted as this is considered best practice, in some circumstances patients may be away from their bedside during mealtimes, for instance to attend therapy sessions, have tests or x-rays, be recovering from surgery or may have been admitted to hospital between meals. **An 'out-of-hours' service must be provided for all patients who do not have the opportunity to have a meal at the normal mealtime.**

The appropriate meal/meal replacement will depend on the patient group and also on the type of food service system available. For some patients a sandwich and yoghurt may be sufficient until the next mealtime, whilst for others, e.g. those on modified texture food, caterers will need to work with speech and language therapists (SALT) and dietitians to ensure that there is a choice of suitable options available to meet the dietary needs of the patients. **'Out-of-hours' service must provide the minimum 300kcal and 18 grams protein (φ).** Local procedures on how patients and/or nursing staff can order out of hours foods and fluids need to be developed and communicated to the patients.

Throughout Scotland current practices for food provision 'out-of-hours', range from provision of a replacement meal in the ward patients' fridge; these frequently contain a supply of sandwiches, yoghurts, and fruit juices for example. A voucher scheme operates in one hospital; this is where those patients who have missed a meal, can redeem their voucher in the staff and visitors dining room. In England, The Better Hospital Food Programme developed the concept of the Snack Box[45] as a 'meal replacement'; patients who have missed a meal or are admitted out with normal mealtimes could order a Snack Box containing a range of foods sufficient to replace a meal. Its contents were predetermined by the caterer and dietitian. A Snack Box is not for between-meal snacks.

4.4.5 Ward supplies

Some patients may not require a 'meal replacement' but just want something smaller to tide them over until the next mealtime, usually those with a small appetite or recovering from surgery. Ward supplies are an essential part of enabling nursing staff to access food for this group of patients as necessary. This is of particular importance during periods when the hospital kitchen or supplies may be closed. **Food and beverage items considered as a minimum and must be available are detailed in table 13.** Some wards may recognise that the local patient population has increased needs and thus increased ward provisions may be carried to meet local patient dietary requirements for example more protein-based foods such as UHT milk-based puddings, custards, cheese portions, breakfast cereals and instant porridge.

Nursing staff are the health professionals who are directly in contact with patients on a daily basis. Whether patients have been identified to be nutritionally 'at risk' and thus are requiring nourishing drinks and snacks or whether a patient feels hungry and needs something substantial to eat between meals, they should have access to a range of different snacks and beverages. **Increasing the choice, range and variety of food items and beverages available to patients in between meals will mean patients are more likely to eat something and meet their nutritional requirements.**

Policy surrounding ward supplies ordering, storage, stock rotation and management, needs to be developed at the local level, including who takes overall responsibility. Food handling and hygiene practices must be considered in any policy that is developed.

Table 13 List of minimum ward provisions

1. Biscuits (pre packed) sweet and savoury (for cheese)
2. Bread and spread/butter
3. Preserves, e.g. jam, marmalade
4. Salt, pepper, vinegar and other condiments
5. Tea
6. Coffee
7. Sugar/sugar-free sweetener
8. Hot chocolate/malted milk drink
9. Milk (full-fat and/or semi-skimmed depending on local need)
10. Fruit squash or cordial (regular and no added sugar)

4.5 Standard recipes

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard three states: 'All dishes and menus are nutritionally analysed for nutritional content by a state registered dietitian at the planning stage'.[1]

It is **essential to follow a standard recipe in NHS catering**; their use can help to ensure:

- **Consistent quality** – a dish prepared with exactly the same ingredients using the same method should produce the same end product each time
- **Consistent nutritional value** – a nutrient profile of each dish can be established
- **Consistent budgetary control** – clearer planning for budgets and costing of menus
- **Safe provision of therapeutic diets** – coding for therapeutic diets are always reliable

The nutrient profile of a dish will be affected by non-compliance with standard recipes such as missed or incorrect quantities of ingredients and alteration to cooking methods. Although in practice experienced chefs are able to produce palatable dishes without referring to a recipe each time, **it is essential all ingredients be measured** including seasonings such as salt.

It is important that the quality of the presentation of the final dish presented to the patient is not overlooked, if the dish does not look appealing it will not be eaten and thus its nutritional value will be nil. Caterers' artistic culinary skills along with the use of standard recipes will be fundamental to ensure quality food provision for patients.

There are **significant patient health and safety risks** associated with not following standard recipes. The level of clinical risk is highest to patients requiring a therapeutic diet or modified texture food. For example, where an expected nutritional content is part of the patient's treatment and nutritional analysis and menu coding allows these patients to make appropriate choices from the menu. Adaptation of a recipe may affect the coding and render a food unsuitable for consumption as part of these diets without the patients, dietitians, or nurses knowledge. Patients with allergies who receive food which contains the allergen, for example, nut oil used in cooking could cause an anaphylactic shock for someone with a nut allergy; Coeliac disease patients not having access to a choice of gluten-free food; incorrectly thickened foods causing choking in someone with a poor swallow reflex, e.g. after a stroke; where the emphasis is more on healthy eating choices and menus are not sufficiently energy-dense to support malnourished patients. **The importance for the need to follow standard recipes for the food provided in the hospital setting cannot be overemphasised.**

4.5.1 Required information

Creating a standard recipe involves developing, testing, adapting the recipe according to need, and testing again to ensure a consistent product is being produced, no matter who cooks it.[46] They allow a product to be made to the same specification every time. Table 14 details the essential and useful criteria to be included in a standardised recipe.

Table 14 Essential information to be included in a standardised recipe

The following information **must** be included in a standardised recipe:[27, 46]
1. A code number and title which describes the recipe content.
2. All ingredient components of the recipe, including water and seasoning; quantities in **metric** units.
3. Ingredient names clearly stating name of product, product type/form (fresh, frozen, canned), and any preparation technique(s) (peeled, grated, minced, diced). Size for preparation techniques should also be specified.
4. Detailed methodology, directions must be listed in the order the recipe is prepared.
5. Recipe yields, i.e. the amount of the product available for service at the completion of production in weight or volume **and** number of servings.
6. Volume and/or weight of a single portion and the equipment used to serve this portion; portion size and weight/volume should be based on how the particular product fits with a full meal and how it looks on a plate.
The following information is **useful** if included in a standardised recipe:[46]
7. Equipment and utensils used for preparing and cooking. The yield and portion capacity of cooking equipment can change with length, width, and depth of pans.
8. Cooking temperature and approximate cooking time.
9. Different portion sizes and therefore yield.
10. Critical control points as part of Hazard Analysis Critical Control Point (HACCP), e.g. safe thawing, internal cooking, holding, serving, and storage temperatures.

4.5.2 Recipe development

The amount of time needed for this review process will differ depending on the source of the recipe, however, should not be underestimated. When developing a standardised recipe the following process should be followed:[7, 46]

1. RECIPE REVIEW

- Review the recipe and its existing format/content against the required information.

2. RECIPE PREPARATION

Once the recipe is reviewed, it can be prepared (it is recommended the first version is made to yield 25 servings). During this process keep careful and specific notes on:

- Any variations made to the original recipe – record directly onto the working recipe.
- Information noted as missing during the review process.

3. DETERMINATION OF RECIPE YIELD

- Once the recipe preparation is completed either weighing the final product or measuring its volume will determine the yield.
- Ingredient product quality, preparation techniques, and cooking times and temperatures affect yields.

4. PORTION SIZE

Determine the portion size or weight by taking the weight of the total final product and dividing by the number of servings the recipe makes. You must check the portion size:

- Is appropriate for the patient group it is serving.
- Fits well with the rest of the meal.

If it does not achieve the required portion size, changes in the recipe, portioning, or ingredient amounts may be needed.

5. RECIPE EVALUATION

Once the recipe has been trialled it must be tasted and evaluated for its suitability. This should involve the catering manager, dietitian and cook(s) and patients where possible. It is important to consider:

- Product appearance on the plate and in bulk form as appropriate.
- Product taste and taste suitability to consumer group.
- Product texture.
- Product suitability to catering production and distribution type.

NOTES

- If a different yield is needed the recipe will require quantity adjustment and need to be prepared again.
- Notes of any changes or concerns should be recorded on the recipe sheet during the preparation phase.

4.6 Recipe analysis

Standard recipes **as defined in section 4.5** must be in place and in use in a kitchen before a menu can be nutritionally analysed. Nutritional analysis of standardised recipes should only be undertaken and/or supervised by registered, experienced dietitians who can appropriately interpret both the input data and the results produced by software programmes. That is they need to be aware of food regulations and also the limitations of the nutritional analysis software so that results can be interpreted correctly.[27] Nutrient analysis software can vary hugely in terms of functionality. A minimum specification for nutrient analysis software should include the ability to account for nutrient and weight losses associated with cooking.[47]

4.6.1 Analysing menu capacity

NHS hospitals must offer menus with several choices to meet their patients' dietary and nutritional needs and individual preferences in order to comply with NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals relating to choice. Dietitians are required to analyse the menus capability to deliver the nutrients in accordance with the levels detailed in this specification, both for a general menu and any therapeutic menus offered.

A basic methodology for analysing **menu capacity** is described in the BDA's Delivering Nutritional Care through Food and Beverage Services – A toolkit for dietitians (table 15 provides an overview of the method).[4] This method looks first at energy (calories) as the lead nutrient and then if the estimated average requirement (EAR) for energy can be supplied the capacity of the menu to meet protein requirements is assessed. If these standards can be met then it is assumed most other nutrients will be sufficient. This method of analysis, sometimes referred to as maxima/minima method, is at best an approximation.[4]

However, hospitals, especially those who are likely to have longer-stay patients or long-term care wards should be working towards **full analysis of all standard, therapeutic and special diet menus**. This is required to ensure all nutrient specifications are being met, including fibre (NSP) and micronutrient requirements that are set on average over a week.

For example, where the menus include a higher-energy option at each meal occasion, this should be modelled to ensure that patients who consistently require and choose the higher energy option are able to meet the standards for energy, protein and micronutrients over the period of one week. Also, by using the same technique, when offering a healthier eating option at each meal occasion, the menus should be modelled to ensure that if the healthier option is chosen at each meal occasion, the macro and micronutrient standards for a healthy balanced diet are met.

Table 15 Methodology for analysing menu capacity[4]

1. It is practical to calculate the highest and lowest energy content of food choices for the midday and evening meals for a sample of random days over the menu cycle, e.g. days 1, 8, 12 and 20 where there is a 3-week cycle. This will give a good indication of what a menu can deliver nutritionally.[4]
2. Vegetarian and cold options may, by their nature, skew results. Cold protein items – salads and sandwiches – can affect the consumption of starch/vegetables accompaniments; sandwiches and vegetarian choices may have lower protein content. Some dietitians may choose to focus on hot items, and calculate cold separately.[4]
3. Identify the highest and lowest calories for the hot choices available for selection at midday and evening meals, using the dietary coding as a guide.[4]
4. For the same dishes calculate protein delivery.[4]
5. The average contribution to the meal by the various elements i.e. starters, entrées, starches and vegetables and desserts can also be assessed, although this is purely an indicative figure.[4]
6. Should the analysis alert any concerns regarding protein delivery of the menu, the process may be repeated using protein as the lead nutrient, also taking the calorie values of those dishes into account.[4]
7. It is important to include the nutrients provided by breakfast, beverages and snacks throughout the day. For practical purposes, the total of breakfast items, minimum total of two daily snacks and milk allowance of 600 mls per patient (average of full-fat and semi-skimmed milk) equates to approximately 900kcal and 25g protein.

Taken from the BDA's Delivering Nutritional Care through Food and Beverage Services – A toolkit for dietitians.[4]

The timescale to develop, trial and analyse standard recipes and develop menus from these, cannot be underestimated. In one Board in Scotland, the menu planning group have been working on this task for the last four years. A database of over 700 standard recipes has been developed, tested, analysed, adapted and retested by the caterers. Experienced dietitians have carried out nutritional analysis of these recipes. From these 700 recipes, five sets of 3-week cycle menus have been developed. This illustrates the differing dietary needs of the patient groups who are catered for by the Board, including, general hospital population, care of the elderly long-stay wards, learning disabilities, and paediatrics.

4.7 Portion sizes

4.7.1 Introduction

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard four states: 'There is a choice of portion size for all main courses'.

A portion size indicates the weight of food from a particular recipe, which would be served within a meal for example, casserole, potato, or rice.[4] This is generally reported as a weight (grams) or volume (mls) and may also be described in terms of household or serving units.

When defining portion sizes from a recipe it is important to consider the following:

- Portion sizes must look appealing on the plate, in relation to other components of the whole meal.[4]
- Portion sizes must satisfy the relevant patient populations' appetite.[4]
- Portion sizes need to comply with specific tender recommendations, but this should not compromise meeting patient needs.[4]
- A choice of different portion sizes for patients can be achieved in a number of ways, for example by defining a single standard portion size for protein components of meals and defining additional larger servings of carbohydrate and vegetable components.
- Current advice regarding the appropriate portion size including that set by government agencies such as Food Standards Agency, for fruit and vegetables for example 5 A DAY.[41]

There are several studies that have shown that many patients in hospital do not eat all the food they are served.[28, 29] This may be due to a number of factors including poor appetite. Reducing portion size and increasing the energy and nutrient-density of meals can encourage oral intake for patients with decreased appetite.[29] This can ensure patients are not over-whelmed by a large meal and thus are more likely to eat what is provided, in turn increasing energy and nutrient intakes.[29] This can also help to reduce plate wastage,[27, 31] but is not appropriate for all patient groups, for example those requiring the healthy balanced diet.

4.7.2 Essential criteria

Portion sizes must be set in order that they can deliver the required nutrition (as specified in this document) to the relevant patient population in a size that can be eaten.[1]

At a local level, ingredient and therefore nutrient content, of individual recipes will vary from hospital to hospital. Therefore the appropriate portion sizes for individual meal items must:

- Be set locally and in agreement between dietitian(s) and catering.
- Have their nutrient content and size in relation to serving and food wastage audited annually.[22]

Providing a choice of portion size for patients is essential. The way this is achieved at the local level will depend on the method of food service in use either plated or bulk food service. Both methods have their advantages and disadvantages: tighter portion control for the plated method but staff do not know who they are serving, whilst food choice can take place at the bedside for the bulk food service and there is greater flexibility in portion sizes served. Guidance and training at the local level of which utensils should be used for serving different recipes, dishes and food items is necessary.[27] Relevant NHS standards such as food wastage standards[48] need to be considered.

Guidance on portion sizes for fruit and vegetables is available from the Department of Health and through the link highlighted below.[41] Increased prescription of portions sizes at national level for other food group items would need to accompany a national recipe database and requires further consultation.

5 A DAY Food Portions Tables
[http://www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/FiveADay/FiveADaygeneralinformation/DH_4001494]

⑤ THERAPEUTIC DIET PROVISION

5 THERAPEUTIC DIET PROVISION

5.1 Introduction

A therapeutic diet is modified from a 'normal' diet and is prescribed to meet a medical or special nutritional need.[4] It is part of a clinical treatment and in some cases can be the principle treatment of a condition. Whenever a patient has a therapeutic diet prescribed by a dietitian or by medical staff, all hospitals and Health Boards must be able to provide this.

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard 3.9 states: **'There is protocol for the provision of all therapeutic diets...'** standard four states: **'Patients are given a choice for all food and fluid provided, including therapeutic and texture modified diets and food and fluid is provided at the correct temperature and texture'**.[1] In addition, when planning therapeutic diets it is essential to have accurate knowledge of the nutrient and ingredient composition of all dishes and individual menu items to determine their suitability.[27] This makes the use of standardised, analysed recipes crucial in the delivery of appropriate food.

5.1.1 Criteria

Menus should reflect local population needs and healthcare organisations need to develop their own protocol for the requirement and provision of therapeutic diets for their population.[4]

- There must be a hospital protocol for the provision of all therapeutic diets.[8]
- Patients must be given **choice** for all food and fluid options provided, including therapeutic and/or texture modified diets.[1]
- Hospitals whose populations require certain therapeutic diets irregularly and in minimal numbers must include in their policy a formal contingency for the provision of these diets in the event they are required, for example an a la carte menu.
- Therapeutic diets must be capable of meeting the dietary requirements of patients using them.[4]
- Where relevant, catering service contracts must be sufficiently detailed and cover the provision of both therapeutic and special diets.[22]

This section specifies the therapeutic diets commonly prescribed in hospital settings and comments on the practical implications for planners and caterers in putting together meals and menus incorporating therapeutic diets. The criteria for the coding of therapeutic diets are also explained.

5.1.2 Dietary coding

Dietary coding provides information for patients, carers and staff to enable them to make an informed food choice whilst in hospital. It is important to consider, when coding a menu that:[4]

- There must be an up-to-date nutritional and content analysis of the menu item.
- A standard recipe is followed each time the dish is made.

- Too many letters/codes on a menu can appear confusing to a patient, and can be irrelevant to the majority of the hospital population.
- Nutrition education for nursing and catering staff must accompany dietetic codes so that patients receive consistent messages.
- Suitability of any one particular dish needs to be considered in the context of the whole diet.[4]

This specification endorses the BDA recommendation that dietary codes should be kept to a minimum on hospital menus. The key dietetic codes displayed on a hospital menu should be **Healthier Eating** and **Higher Energy nutrient-dense**.[4] **Vegetarian options** should also be coded. Dietitians may deem it appropriate for other therapeutic diets to be coded on the hospital menu: this needs to be determined at the local level with consideration of the above points noted. An a la carte menu can be useful in the effective delivery of any additional therapeutic diets required by a hospital, as it will enable caterers to provide patients with more choice.[4] Not all dishes will necessarily be coded.

5.1.3 Kitchen space and equipment

When planning any facilities and purchasing contracts, health facilities and catering departments should consider the provision of any therapeutic diets and set targets to ensure the environment allows them to be met.[40] Therapeutic diets may require additional preparation, storage or distribution space and equipment, especially if isolation from production of other diets is required, e.g. in the case of allergen-free diets and risk of cross-contamination of food items.

The presence of even the smallest amount of allergenic food can be a risk for an individual who has a food allergy. Minimising the risk of cross-contamination is as important as ensuring intentional ingredients do not include the allergen(s). The Food Standards Agency's advice to minimise cross-contamination include thoroughly clean work areas, surfaces, serving areas, utensils, equipment, chopping boards and hands, the table, crockery, cutlery, and trays to remove traces of food allergens.[49] Further details are provided in section 5.4 table 21.

Food hygiene laws, with respect to cross-contamination of different food groups are an important part of a number of different faiths' dietary practices. Ensuring these 'laws' are respected and adhered to including how different foods need to be prepared ensuring separate storage, separate cooking utensils and equipment are used for particular foods needs to be considered in the planning stages. Further guidance on particular faith's beliefs is provided in section 6.0.

5.2 Higher energy and nutrient-dense diet

Energy and nutrient-dense diets are indicated for patients with a small or poor appetite who find it difficult to eat sufficient foods to meet their energy and nutrient requirements.[31] These diets are also indicated for those patient groups with increased energy and protein requirements, including those who have had a major trauma such as a head injury; burns patients; cancer patients and undernourished patients. These individuals require additional energy and protein to meet their increased needs or to enable them to replace lost body weight and improve their nutritional status. The provision of substantial snacks three times a day is likely to be necessary to meet individual requirements.

A diet higher in energy and nutrient-dense can be achieved by increasing the overall amount of food eaten by:

- Increasing portion sizes. It can also be achieved by:

Increasing the size of portions offered is unlikely to improve intake in those individuals with poor appetites.

- Increasing the number of foods offered, for example increasing the number of times snacks are provided between meals.
- Providing greater choice of energy and nutrient-dense foods on the menu.
- Increasing the energy and nutrient content of foods already consumed (fortification).

5.2.1 Coding criteria

Table 16 Criteria for higher energy code (per portion)[4]

Option	Energy (kcal) 4, 32	Protein (g) 4, 32	Sodium (mg) 11, 33	Salt equivalent (g) 11, 33
Snacks	≥ 150	≥ 2		
Nourishing soup	≥ 150	≥ 6		
Protein, e.g. meat/fish/ chicken/alternative	~ 300	12 – 14	≤ 600	≤ 1.5
Total meal, e.g. protein + vegetables + starch + condiments	≥ 500	≥ 18	≤ 800	≤ 2.0
Dessert (including accompaniments)	≥ 300	5		

- It would be considered good practice that snacks are available **three times a day**.[4]
- Additional whole milk should be provided daily for those patients wanting it.[4]

5.2.2 Catering guidelines

If a hospital menu is to provide a diet that is higher in energy and more nutrient-dense then there must be provision at each eating occasion of a **'higher energy and nutrient-dense' choice** that meets the specific criteria outlined in table 16. Caterers and dietitians need to work together to meet this requirement and **must ensure that the overall weekly menu has the capacity to meet the nutrient standards for the higher energy and nutrient-dense diet**, detailed in section 2. Food-based guidance is provided in table 17.

Table 17 Higher energy diet menu planning guidance

Aims	Rationale	Practical Applications
• Improve nutritional status or achieve a normal nutritional status.[4] • Meet the target nutrient specifications for 'nutritionally vulnerable' hospital menus (outlined in section 2).[4] • Meet the needs of patient groups who require increased intakes of energy and protein. • Promote energy and nutrient intake with modest portion sizes and food presentation which is appealing and easy to eat.[4]	One in four adult patients admitted to hospital are undernourished.[20] Many patients present with small or poor appetites, have difficulty with chewing and swallowing and thus have difficulties eating sufficient food to meet their nutrient requirements.[50]	Increase energy and nutrient-density of foods and meals by: • Providing a wide choice of breakfast items, including a choice of high calorie breakfast cereals, e.g. frosties, sweetened muesli, porridge made with milk, a cooked option. • Using whole milk and full-fat milk products, e.g. yoghurts. • Adding spreading fat or butter to sandwiches, mashed vegetables and baked potatoes. • Providing milk-based sauces to accompany vegetables or meats, e.g. mustard sauce, white sauce or cheese sauce. • Adding fat and cream to milk puddings and soups. • Offering cream/ice-cream to accompany dessert. • Making cream-based sauces for use with pasta or rice. • Adding gravy and sauce fortified with a protein powder to meat dishes. • Add glucose polymers or protein powders to dishes as appropriate. • Fortifying milk with increased milk powder to volume. • Add sugar to stewed fruit. Food preparation which allows food to be more easily consumed includes: • Pureed, stewed or juiced fruit. • Vegetables well cooked to a manageable texture, but not overcooked. • Meat cut into small pieces and cooked to ensure it is tender, e.g. casseroles and stews. • Removal of all bones from meat before cooking or serving. • Foods with added sauce or gravy. • During texture modification, water should never be used to liquidise foods, as it contains no energy or nutrients. Promote and offer calorie-containing fluids such as fruit juice, milk and flavored milk, fizzy juice, diluting juice, hot chocolate, tea and milky coffee. Offer small, energy and nutrient-dense easy to eat snacks as appropriate for patient group: • Cakes and biscuits • Small sandwiches • Crisps • Full fat custard pot or yoghurt

5.3 'Healthier eating' diet

The healthy balanced diet is recommended for the general population but it is also recommended for the dietary management of a number of medical conditions and in such situations it can be interpreted as a therapeutic diet, for example:[4]

- Patients with Type 1 or Type 2 diabetes
- Patients with dyslipidaemia and cardiovascular risk
- Patients who are managing their weight
- Patients with hypertension
- Patients suffering from constipation or irregular bowel movements.

As outlined in section 2, the healthy balanced diet is designed to meet specific nutrient criteria with reference to levels of fats, sugar and salt as well as overall dietary balance over a week. This is to account for the day-to-day variation in individual's food intakes and recognition that these targets are unlikely to be met on a daily basis.[11] The Food Standards Agency have produced guidance to caterers on what proportion of the overall daily energy, protein, fibre, fat, saturated fat, sugar, salt and micronutrient intakes should be provided by the different meals and snacks in the day for the healthy balanced diet.[39] This may prove useful when modelling menus to meet nutrient standards.

As indicated in section 5.1.2, dietary coding of menu choices is primarily used to enable patients and staff to make informed choices in their food selection. As such, nutrient criteria have been proposed by the British Dietetic Association (BDA) that define meals, or components thereof as 'healthier options'. This is to enable dietary coding of menu items to inform those patients who require this diet for therapeutic purposes.[4] It is important to note that some dishes may meet the criteria specified for a 'healthier eating' option, but these may not fully support the overall healthy balanced diet messages. In contrast some foods will meet the overall dietary principles of a healthier diet, but do not meet the coding criteria presented in table 18 (for example, oily fish). Therefore, care must be taken when using the criteria suggested in table 18 to ensure that the overall nutrient targets set in section 2 for the 'nutritionally well' patient (healthy balanced diet) and section 3 (food-based standards) are met over a week when modelling the menu. The food-based guidance provided in table 19, supplements the information provided in tables 5-10 and should assist caterers to meet the nutrient standards for a healthy balanced diet.

NB. In some instances a healthier eating diet may be inappropriate for individuals within this group due a separate condition, associated co-morbidities or additional factors affecting their overall nutrition requirements. The assessment of individual patient's dietary needs in the first day of their admission to hospital should ensure that these individuals' needs are identified and thus can be met.

5.3.1 Coding criteria

- A standard main meal must provide a **minimum of 300kcal per meal**, this is inclusive of potatoes, pasta and vegetables.[4, 32]
- A standard main meal must provide a **minimum of 18g protein per meal** inclusive of potatoes, rice, pasta and vegetables.[4, 32]

Table 18 Criteria for healthier eating code (per portion)[4]

Meal Component	Energy (kcals) [4, 32]	Protein (g) [4, 32]	Fat (g) [4, 32]	Added Sugar (g)[4]	Sodium (mg) [11, 33]	Salt equivalent (g)[11, 33]
Protein, e.g. meat/ fish/chicken/ alternative		12-14	< 15g total < 5g saturated		600	≤ 1.5
Total meal, e.g. protein + vegetables + starch + condiments	≥300	≥18	Not specified		800	≤ 2.0
Dessert (including accompaniment)			< 5g total < 2g saturated	≤ 15		

- Overall, total fat, salt and added sugar should be low and fats added should be poly- and mono-unsaturated rather than saturated.[4]
- Wholegrain foods should be offered daily.[4]
- Fruit should be offered as a choice of snack.

5.3.2 Catering guidelines

Catering and dietetic departments **must** work together to offer a balanced menu incorporating **a healthier eating** option at each eating occasion (main course and dessert), this is with the back-drop of an individual being able to choose a healthy balanced diet overall. It is the responsibility of the dietitian and catering department to ensure all food items coded as a healthier eating option continue to meet the criteria. Ultimately, they must ensure that the overall weekly menu has the capacity to meet the nutrient and food-based standards for the healthy balanced diet, detailed in sections 2 and 3.

An extension of the practical advice provided in table 19 can be found in the FSA and Scottish Executives Catering for Health – A guide for teaching healthier catering practises.[51]

The Scottish Consumer Council's Healthy Living Awards[14] provides additional practical guidance on providing and coding for healthier meal choices, including healthier breakfasts, healthier sandwiches and healthier soups.

Table 19 Healthier eating menu planning guidance

Aims	Rationale	Practical Applications
• Maintain or achieve normal nutritional status.[12] • Meet the target nutrient specifications for hospital menus (outlined in section 2).[4] • Meet the needs of patient groups who may benefit from the promotion of healthier eating.[4] • Support the clinical management of relevant patient groups.[4] • Maintain normal blood sugar levels and other indices of diabetes control. • Maintain normal bowel function.	Some patients' nutritional requirements, appetites, food intake and nutritional status are not affected by their illness or treatment. The NHS is well placed to provide fundamental education in healthy eating for some patients.[40] A healthy diet for people with diabetes or those with dyslipidaemia, hypertension or cardiovascular disease is often used as the main treatment and is beneficial in preventing further co-morbidities. High blood sugar levels can impair wound healing and recovery from illness.	Healthier breakfast items include:[34] • High-fibre breakfast cereals >3g per 100g, e.g. porridge, unsweetened muesli, fruit and fibre, shredded wheat, bran flakes. • Scrambled eggs, grilled mushrooms, tomatoes, baked beans (ideally lower salt varieties), grilled sausages. Use a variety of low fat or no-added fat cooking methods as often as practical: • Discard poultry skin and trim visible fat from meat. • Drain visible fat from cooked meat dishes as production allows. • Braise, steam or bake as production allows. • Use thick-cut chips when deep-frying. • Strong cheese, e.g. parmesan adds flavour to cheese dishes and sauces in smaller amounts. • Don't add butter or spread to vegetables before service. Use appropriate low-fat options in place of standard products where palatable, e.g: • Tomato-based sauces for pasta dishes. • Yoghurt, milk, cheese. • Bakery products, e.g. tea breads, plain/fruit scones, oatcakes. • Low fat mayonnaise and salad dressings. Healthier sandwiches should consist of:[14] • Lower-fat filling + high-fibre bread and/or salad or vegetables. Use salt sparingly: • If you use stock or bouillon, do not add salt. • Try to source lower-salt-content bouillon. Use a variety of no-added sugar cooking methods as often as practical: • Add alternative flavours to stewed fruit in place of sugar, e.g. cinnamon to apple. • Offer a higher proportion of fruit-based puddings to jam/syrup-based puddings. Use appropriate low-sugar options in place of standard products where palatable, e.g: • Sugar-free jelly. • Sugar-free diluting juice and other drinks. • Fruit canned in natural juice. *(continued)*

Table 19 Healthier eating menu planning guidance *(continued)*

Aims	Rationale	Practical Applications
		Artificial sweeteners must be available at ward level for those patients choosing to use them. Suitable healthy eating snacks for patients on diabetes medication, e.g. insulin, must be available for example; • Fresh and dried fruit. • Low-fat yoghurts. • Fruit bread, malt loaf, oatcakes, crumpets. Special 'diabetic foods' are not recommended.

5.4 Allergen-free diets

5.4.1 Food allergy

True food allergy is an immune reaction to food that triggers the release of histamines and other substances into the tissues. Food allergy is estimated to affect 1.5-3.5% of adults and 2-8% of children; although infants may sometimes outgrow their allergies by the age of 3.[7] Food allergy may be caused by numerous different foods or additives and symptoms can be triggered by minute amounts of these. Allergic reactions may range in severity from relatively short-lived discomfort through to anaphylactic shock, which may be fatal. Therefore, there are significant risks to patients if allergen-free diets are not provided when required.

5.4.2 Food intolerance

Food intolerance differs from food allergy in that it does not involve the immune system. Food intolerances may arise in a number of ways, e.g. by dietary components acting as irritants or due to enzyme deficiencies which may result in an inability to digest or metabolise certain food components. Reactions due to food intolerance may be severe but they are not generally life-threatening. However, they can affect long-term health and do represent a health risk if not taken into account when required and thus these patients' dietary needs should be catered for in the hospital setting.

Coeliac disease is strictly an intolerance to gluten. Food labelling legislation surrounding wheat, rye and barley, gluten-containing cereals is provided in this section, along with generic practical catering guidance for providing foods that are free from specific allergens. However, as its prevalence affects one in one hundred individuals, more specific catering guidance has been covered separately in section 5.5.

The NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals standard three states **'Planning needs to ensure food and fluid provided meets the requirements of the individual';**[1] this is inclusive of people with allergies.

5.4.3 Catering guidelines

It is difficult to define the number of hospital patients requiring an allergen-free diet at any given time; however, hospital-catering departments must work in conjunction with dietitians to meet these patient groups' needs. The Food Labelling Regulations 1996 (as amended) set out the requirements for the labelling of 14 potential allergens and their derivatives whenever they are used in pre-packed foods.

The following are those potential allergens to be listed: cereals containing gluten – wheat, rye, barley, oats, spelt, and kamut, eggs, fish, peanuts, soybeans, crustaceans, celery, mustard, sesame seeds, tree nuts – almonds, hazelnut, walnut, cashew, pecan, Brazil, pistachio, macadamia and Queensland nut and sulphur dioxide and sulphites with molluscs and lupin added to the list in December 2007.[5] (table 20).

The allergen labelling rules do not apply to non pre-packed foods, e.g. the type of unwrapped and pre-packed for direct sale foods that are served by caterers.

The Food Standards Agency has produced advice for caterers on food allergy and intolerance,[34] which can be accessed through the following website: http://www.food.gov.uk/safereating/allergyintol/guide/caterers/

Catering departments need to assess the cost efficiency and safety of producing allergen-free food onsite compared to purchasing it from suppliers. If food is prepared on site the importance of standardised recipes, designated kitchen space and equipment, specific storage areas and careful audit can not be underestimated in preventing cross-contamination during preparation, storage and transport.[49] The Food Standards Agency has recently published best practice guidance aimed to help caterers and other food businesses to provide sufficient and accurate allergy information to their customers.[49] Table 21 provides guidance for food service provision for patients who require diets that are free from specific allergens.

5.4.4 Food labelling – food allergen and food intolerance

People who suffer from food allergies and food intolerances need to know the exact ingredients in the food that they eat as even a small amount of allergen can make them very ill or in some cases could be fatal. The use of food product labels is fundamental to identify foods appropriate for patients' diets when exclusion of specific foods is required due to an allergy or food intolerance. The allergen-labelling Directive 2003/89/EC, which is implemented in Scotland through an amendment to the Food Labelling Regulations 1996, specifies:[5]

- All of the 14 listed allergens and ingredients derived from allergens have to be listed on the label with a clear reference to the name of the allergenic ingredient whenever they are intentional ingredients in a food product.
- Where an allergenic ingredient or its derivative is not clearly identified in the name of the food, e.g. malt vinegar, the allergenic ingredient should always be clearly identified in the labelling, for example 'malt vinegar (from barley)'.
- All added ingredients and components of added ingredients are covered by the new labelling regulations if they are present in the finished product, even in an altered form. This includes carry-over additives, additives used as processing aids, solvents and media for additives or flavouring and any other substance used as a processing aid.

Guidance notes have been produced with the aim of providing informal non-statutory guidance on these regulations that apply to pre-packed foods. These can be accessed through the following website:
http://www.food.gov.uk/multimedia/pdfs/labelamendguid21nov05.pdf

Table 20 Scope of allergenic ingredients required on food labelling[5]

Food allergen	Guidance what is included
Cereals containing gluten	Wheat, rye, barley, oats, spelt, kamut or their hybridised strains. Other types of cereal are not included. **NB.** There is no requirement for gluten itself to be indicated in the ingredient list.
Fish	Includes fish from all species of fish and fish products. In common species, e.g. cod, mackerel, that name could be used to indicate the fish content of a product.
Eggs	Refers to eggs from laying hens and eggs from other birds, e.g. broiler chicken, duck, turkey, quail, goose, gull, and guinea fowl.
Crustaceans	Includes all species, e.g. crab and prawns.
Peanuts	Commonly referred to as groundnuts or monkey nuts, but must be labelled as peanuts.
Soybeans	Can be labelled as 'soy' or 'soya'.
Milk	From sheep, goats, etc. Sales names such as, 'cheese', 'butter' and 'yogurt' is considered to refer clearly to the milk base.
Nuts	Listed as almond, hazelnut, walnut, cashew, pecan nut, Brazil nut, pistachio nut, macadamia nut and Queensland nut. Pine nuts and chestnuts, which are known to cause allergy, are not listed as they are not 'nuts' as botanically defined.
Celery	Includes celery seeds and celeriac.
Mustard	Mustard plant and other forms which originate from it.
Sesame seeds	Products deriving from it such as tahini and sesame oil must also be clearly labelled.
Suphur dioxide and sulphites	Refers to levels above 10mg/kg or litre.
Molluscs	Squid, octopus, cockles, mussels, periwinkles and snails.
Lupin	Seeds and flour used in some breads and pastries.

Some people may be allergic to foods that are not included in the Regulations, but all ingredients have to be listed on the label of pre-packed foods (apart from a few exceptions). The foods that people are allergic to may be avoided by reading the label.

The Regulations do not apply to 'may contain' or nut trace warnings to indicate possible allergen cross-contamination. However, many manufacturers provide this information voluntarily in order to indicate the possible presence of unintentional ingredients that people may be allergic to in pre-packed food.

Table 21 Allergen-free food guidance

Aims	Rationale	Practical Applications
• Patients are provided with food safe for them to consume. • Food provided meets the target nutrient specifications for hospital menus (outlined in section 2).[4] • Food prepared for an allergen-free diet is done in a safe environment.[49] • Catering and ward staff must understand the importance of providing a diet which is safe for someone with an allergy.[49]	Following ingestion of a food allergen, symptoms experienced by a patient who is allergic can include rashes, diarrhoea, vomiting, stomach cramps, and difficulty in breathing. It can also cause anaphylaxis.[49] Someone with a food intolerance may show similar symptoms, diarrhoea, bloating but these tend to develop more slowly and generally require greater amounts of foods to have been eaten.[7] In a busy kitchen the risk of non-allergic foods getting contaminated by potentially allergic foods is very high.[49]	• When catering for patients with food allergies there is a list of ingredients to guide them.[49] • **Ingredients information must be read for all food that is being used.** **Eggs** Foods likely to contain eggs include: • Cakes, mousses, sauces, pasta, quiche, mayonnaise, some meat products, foods brushed with egg. • In some products eggs can be substituted by raising agents, e.g. baking powder, baking soda, cream of tartar, baked goods where they only play a lifting or setting role. They cannot be replaced where the egg provides texture and flavour as well, e.g. sponge cake. • There are a number of egg-free products available on the market including sponge cakes mixes, egg-free mayonnaise and egg-free fresh or dried pastas. • Cornflour and arrowroot can be used in place of eggs to make custards but need to be well flavoured. • Batters are still feasible without egg but not as good a product. **Milk** Foods likely to contain milk and that need **to be avoided** include: • Milk in all forms, including fresh, canned and dried • Milk-products, including, butter/margarine, cheese, yoghurt, custard, cream, ice-cream, soured cream • Some processed meats • Chocolate • Some canned fish **NB.** Goat and sheep milk and milk products cannot replace cows' milk.[39] Soy-based milk products can be used in some individuals, although some individuals who are allergic to cows' milk may also be allergic to soy-milk. *(continued)*

Table 21 Allergen-free food guidance *(continued)*

Aims	Rationale	Practical Applications
		Peanuts (groundnuts) Foods most likely to contain peanuts include: • Cakes, biscuits and toppings/icing • Ice-cream desserts • Breakfast cereals and cereal bars • Peanut butter and satay sauce • Confectionery • Vegetarian products • Salad dressings • Groundnut oil **NB.** Manufacturers may use peanuts in place of other nuts to make a cheaper product. **Tree nuts – almonds, hazelnuts, Brazil nuts** Foods most likely to contain nuts include: • Cakes, biscuits and toppings/icing • Ice-cream desserts • Breakfast cereals and cereal bars • Nut spreads • Confectionery • Vegetarian products • Pesto • Cakes and desserts with marzipan (made from almonds) or praline (made from hazelnuts) • Indian dishes may be thickened with ground almonds **Soybeans** Products which are made from soybeans include: • Tofu, textured vegetable protein, soy sauce • Soybeans flour used in cakes, biscuits, pasta, burgers and sausages, confectionery • Dairy products made from soybeans including soy milk, some ice-creams **Celery**[49] • Found in stock cubes, celery stalks, leaves, soups, salads, celery salt, celeriac, some meat products. **Preventing cross contamination:**[49] • Keep food items in original containers or keep a copy of the ingredients' information. Ensure what you receive is what you have ordered (different brands can have different ingredients). • Keep foods stored in sealed containers, especially peanuts, nuts, seeds, milk powder and flour. • When a meal that needs to be allergen-free is being prepared surfaces, and all equipment and utensils (including, chopping boards, knives, pans, mixing bowls) must be thoroughly washed down prior to use. • Person hygiene and hand-washing standards must be adhered to. • Foods that need to be free from a particular allergen must not be fried in oil that has previously been used to cook food that contains the particular allergen. • Separate serving utensils must be used for serving dishes that are allergen-free to prevent potential cross-contamination, in the kitchen and on the ward.

5.5 Gluten-free diet

Coeliac disease is caused by an auto-immune reaction to a component of gluten, which is a protein that is found in certain cereals, namely wheat, barley and rye. Some individuals with coeliac disease are also sensitive to oats.[7] A gluten-free diet is used as the sole treatment for coeliac disease and the skin condition dermatitis herpetiformis (DH).[7, 52] Consumption of even a minute quantity of gluten by someone with coeliac disease can result in malabsorption, gastro-intestinal symptoms and fatigue. Approximately 1 in 100 people need to avoid gluten in their diet.[49]

Regulations define gluten-containing cereals as wheat, rye, barley, oats, spelt, kamut or their hybridised strains.[5] It is found in a wide range of manufactured and processed foods, and imposes considerable restriction of food choice and variety.[7]

There are significant patient health risks associated with eating a food allergen for those patients who are allergic. A menu item should never claim to be gluten-free unless this has been confirmed. Coeliac UK (the charity of people with coeliac disease and dermatitis herpetiformis) produce an annual food and drink directory containing 11,000 gluten-free foods and gluten-free checklist.[52] It is important to note that food manufacturers and supermarkets can voluntarily identify gluten-free products; some manufacturers use the Crossed Grain symbol and this can be regarded as a safety net as it is only licensed to manufacturers who can guarantee their foods are gluten-free.[52]

5.5.1 Oats

Until recently oats were thought to have the same harmful effect as other gluten-containing cereals and therefore have traditionally been excluded from a gluten-free diet.[7] 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 therapeutic diet.

5.5.2 Catering guidelines

If a hospital menu item is coded as gluten-free it is the responsibility of caterers to ensure the ingredients used in a recipe are gluten-free **at all times** and the final product is gluten-free. This will need to be updated with any changes to ingredients or recipes. Caterers must work with dietitians to ensure this is achieved and maintained. Of particular importance is communication regarding any ingredient changes within recipes coded as gluten-free. Table 22 provides guidance for the provision of a gluten-free diet.

It is essential that ingredients that are gluten-free do not become contaminated with gluten during their storage, preparation, transportation or during serving. Further advice to minimise the risk of cross-contamination is provided in table 22.

Catering departments may wish to consider the cost efficiency and safety of producing gluten-free food onsite compared to purchasing it from suppliers. If food is prepared on site the importance of standardised recipes, designated kitchen space and equipment, specific storage areas and careful audit can not be underestimated in preventing cross-contamination during preparation, storage and transport.[5, 52] Further advice is available from the Food Standards Agency 'Advice for Caterers on Allergy and Intolerance'[49] and also Coeliac UK's resource 'Catering Toolkit – Food Without Fear' **http://www.coeliac.co.uk**.

Table 22 Gluten-free food guidance

Aims	Rationale	Practical Applications
• Exclude all dietary sources of gluten.[7, 52] • Ensure gluten-containing foods are substituted with a suitable alternative to maintain dietary balance.[7, 52] • Meet the nutrient specifications for hospital menus (specified in section 2).	Ingestion of gluten by people with coeliac disease results in malabsorption of nutrients and is attributed to the following symptoms:[7, 52] • Abdominal discomfort • Mild gastrointestinal upsets • Tiredness • Irritability • Breathlessness • Anaemia • Unexplained weight loss Adherence to a gluten-free diet for people with coeliac disease reduces the risk of some intestinal malignancies.[7] Maintain optimal nutritional status.	**Gluten-free foods include:**[7, 52] • Fresh fruit and vegetables (most canned and frozen) (**NB** Standard fruit or vegetable pies, fruit or vegetables in crumb, batter or sauces will not be gluten-free). • (**NB** Chips may not be gluten-free; they may also have been cooked in oil where crumbed or battered products have previously been cooked). • Nuts, seeds and pulses (plain) (**NB** Dry roasted nuts may be gluten-containing; canned baked beans may be gluten-containing). • Fresh meat (**NB** some processed and tinned meats may contain gluten, labels need to be checked), poultry, fish (fresh or canned in oil or brine) and eggs. • Tofu and quorn. • Soy, goats and cows milk (includes dried, evaporated, condensed and UHT), cream, coconut milk/cream (**NB** artificial cream, coffee and tea whiteners may be gluten-containing). • Cheese and cottage cheese. • Most yogurts and fromage frais (check label). • Manufactured gluten-free muesli. • Rice, corn (maize), tapioca, polenta, millet, buckwheat, sago, arrowroot, cornflour, gram flour, potato flour, soy flour. • Bicarbonate of Soda, cream of tartar, gelatine, yeast. • Butter, margarine and cooking oils. • Golden syrup, jam, honey, treacle, marmalade, peanut butter. • Wine, cider, malt and balsamic vinegar. • Modified starches (**NB** modified wheat starch is not appropriate). • Tea, coffee, clear fizzy juice, fruit juice, cocoa. **It is advised that all food labels are checked prior to use.** **NB** – cornflakes and rice krispies gluten-free status will depend on the brand name and the Food and Drink Directory[53] should be checked. *(continued)*

Table 22 Gluten-free food guidance *(continued)*

Aims	Rationale	Practical Applications
		Gluten-containing foods **to be avoided** include:[7, 52] • Bulgar and durum wheat. • Semolina and couscous. • Any flour derived from wheat, rye, barley and any products made from these. • Foods coated with batter, breadcrumbs or flour, this can include vegetables, fruit, fish, meat. • Sweet/savoury pies and pastries. • Bread and bread products including croissants, naan bread, chapatti and pizza bases. • Noodles and pasta. • Wheat-based breakfast cereals, e.g. weetabix and muesli. • Potato products. • Haggis, sausages, meat pies, some beefburgers. • Bouillon, packet sauces and gravies, baking powder. • Mayonnaise, mustard. • Soy sauce, mixed seasonings and spices. • Stuffing and stuffing mixes. • Biscuits and cakes. • Malted milk drinks and cloudy fizzy juice. • Beer, lager and stout. There are a number of gluten-free replacements available; Coeliac UK has an up-to-date database of manufactured foods free from gluten and publishes an annual handbook for its members 'Food and Drink Directory'.[52, 53] **Preventing cross contamination** with gluten during the storage, preparation, transport and serving of gluten-free foods:[49] • Gluten-free foods must be prepared in a separate kitchen area or surfaces must be washed down prior to use. • Person hygiene and hand-washing standards must be adhered to. • Separate utensils, breadboards, containers for butter, margarine, chutney, pickle, jam, etc. and serving plates must be used. • Gluten-free foods must be cooked in separate dishes. • Gluten-free foods must not be fried in oil used for gluten-containing foods such as batters or breadcrumb coatings. • Providing gluten-free foods in containers that are sealed by the caterer can help minimise the risk of cross-contamination during transportation.

5.6 Texture-modified diets

The requirement for texture modified or modified consistency food and fluid, usually results from difficulties in chewing and/or swallowing food (also known as dysphagia).[7] It is generally the result of a disease process and may be caused by either a mechanical, neurological or psychological problem which may include:[7, 50]

- Oesophageal stricture
- Head, neck or oesophageal cancer
- Severe mouth or throat infections
- Maxillo-facial surgery
- Brain injury or stroke
- Degenerative diseases, e.g. motor neurone disease, Parkinson's, Huntington's, multiple sclerosis
- Complex needs learning disabilities
- Dementia (especially later stages)

An older person's ability to adapt and compensate for an inadequate swallow is further reduced by less saliva or chewing difficulties, inadequate lip seal causing dribbling of liquids. A reduced ability to manipulate food in the mouth can cause loss of sensation and poor tongue control.[50]

Providing food and fluid of an inappropriate consistency increases the risk of food or fluid going into the lungs, a major cause of chest infection, lung abscesses and aspiration pneumonia in hospitalised patients; it can also cause asphyxiation.[7] Aspiration can be silent, causing no outward signs of distress but still capable of causing pulmonary complications.[7] There are significant patient health risks associated with the provision of incorrect food and fluid textures to an individual who has been assessed unsafe for normal hospital diet.

5.6.1 Criteria

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals[1] and the BDA[4] set standards for the delivery of modified textured food and fluid:

- **The menu must be capable of meeting the nutrient specification for all stages except A.**
- **Patients admitted to hospital must have any physical difficulties with eating/drinking identified and recorded within one day.**[1]
- **Hospital catering services must be capable of providing a range of modified texture foods and fluids as recommended by speech and language therapists (SALT), to meet their patient population needs.**[4]
- **There is a protocol for the provision of all therapeutic diets.**[1]
- **Food and fluid must be provided at the correct texture.**[1]
- **Patients are given a choice for all food and fluid, including therapeutic and texture-modified diets.**[1]

5.6.2 Coding criteria

The BDA and Royal College of speech and language therapists (SALT) produced National Descriptors for Adults[6] to guide local implementation and interpretation of different food and fluid consistencies. The six textures are described with food examples in table 23a.

Although adoption of these descriptors at local level is not mandatory previous differing nomenclature between disciplines resulted in patients receiving inappropriate food or fluid and thus increasing the risk of complications due to aspiration. Use of the national descriptors would be considered best practice as it would reduce this occurrence and provide uniformity between hospitals when patients are transferred.[6]

Modification of the texture of foods generally requires the addition of fluid and in many instances dilutes the energy and nutrient-density of the food. This coupled with the fact that many of these patients have poor appetites makes this population group highly 'nutritionally vulnerable'. Comparison of the energy and nutrient intakes of older people consuming a texture-modified diet with a normal diet shows significantly lower intakes of energy and protein.[54] Many of these patients will also require a diet that is energy and nutrient-dense and the provision of suitable high energy snacks between meals will be essential to enable the individual to meet their requirements.

5.6.3 Catering guidelines

Dietitians and caterers must work together to develop and adapt suitable recipes for modified consistency food and fluid for the relevant hospital population. Caterers are responsible for ensuring all modified consistency food items provided to patients meet local protocol and descriptors at all times. Table 24 provides guidance on the provision of modified consistency foods and fluids. This should be used in conjunction with reference to tables 23a and 23b that provide descriptors for each of the six stages and also tables 5-10 which provide guidance on the overall balance of foods from the five food groups. Menu planning groups may consider that in order to provide appropriate foods for this particular patient population that it may be more cost-effective to source texture modified foods from a specialist supplier.

Table 23a National descriptors for texture modified food[6]

Texture	Description	Food Examples
A	A smooth pouring, uniform consistency A food that has been pureed and **sieved** to remove food particles A thickener may be added to maintain stability Cannot be eaten with a fork, e.g. tinned tomato soup, thin custard	• Tinned tomato soup • Thin custard
B	Smooth uniform consistency A food that has been pureed and **sieved** to remove food particles A thickener may be added to maintain stability Can be eaten with a spoon or fork Drops rather than pours from a spoon but cannot be piped and layered Thicker than A	• Soft whipped cream • Thick custard
C	Smooth uniform consistency A food that has been pureed and **sieved** to remove food particles A thickener may be added to maintain stability Can be eaten with a spoon or fork Will hold its own shape on a plate and can be moulded layered and piped No chewing required	• Mousse • Smooth fromage frais
D	Food that is moist with some variation in texture Has not been pureed or sieved May be served coated with a thick sauce or gravy Foods should be able to be easily mashed with a fork – except for meat, which should be prepared as texture C (unless soft, mashable tinned meat) Should not need much chewing	• Flaked fish in thick sauce • Stewed apple and thick custard
E	Dishes consisting of soft moist food Foods can be broken into pieces with a fork Dishes can be made up of solids and thick sauces and gravies Avoid foods which cause a choking hazard – see list of high-risk foods	• Tender meat casseroles (approx. 1.5cm diced pieces) • Sponge and custard
Normal	Include all foods	Include all foods from high risk food groups (highlighted in Modified Consistency Catering Guidance table 24)

Table 23b National descriptors for texture modified fluid[6]

Texture	Description of fluid	Texture fluid example
Thin fluid	Still water	Water, tea, coffee without milk, diluted squash, spirits, wine
Naturally thick fluid	Product leaves a coating on an empty glass	Full-cream milk, cream liqueurs, Complan, Build Up (made to instructions), Nourishment, commercial sip feeds
Thickened fluid	Fluid to which a commercial thickener has been added to thicken consistency.	
Stage 1 =	• Can be drunk through a straw • Can be drunk from a cup if advised or preferred • Leaves a thin coat on the back of a spoon	
Stage 2 =	• Cannot be drunk through a straw • Can be drunk from a cup • Leaves a thick coat on the back of a spoon	
Stage 3 =	• Cannot be drunk through a straw • Cannot be drunk from a cup • Needs to be taken with a spoon	

Table 24 Modified texture food guidance[6, 7]

Aims/Essential Criteria	Rationale	Practical Application
• All consistencies must be provided according to Speech and Language Therapists (SALT) and/or dietetic advice.[4] • The menu must be capable of meeting nutrient specifications for all stages of modified texture foods except texture A; this can be achieved through the provision of appropriate meals, snacks and drinks. • Food must be provided in small energy and nutrient-dense portions.	Patient health and safety risks associated with provision of inappropriate texture foods and fluids are high and could be fatal. Patients with dysphagia are at risk of becoming or may already be nutritionally compromised due to difficulty eating sufficient foods to meet their nutritional needs, this includes risk of undernutrition, dehydration and also constipation.[4, 11, 50, 54] It is unlikely that patients requiring 'stage A' will be able to consume enough food to meet energy and nutrient requirements. These patients may require additional nutritional support that should be advised by the dietitian. Patients may have small appetites or not be physically able to consume the quantity of food and fluids required to maintain good nutritional status. Fortifying foods can significantly increase patients' energy intakes.[29] Patients often consume a limited diet due to restrictions caused by modified consistency or self-limitation to foods they know they can tolerate.[48, 50] The process of modifying the texture or consistency of food will involve the addition of fluid that in turn increases the portion size and generally dilutes nutritional content.	**High Risk Foods to be avoided** in a consistency modified diet:[6] • Stringy, fibrous texture, e.g. pineapple, runner beans, celery • Husks, e.g. sweetcorn, granary bread • Vegetable and fruit skins including peas, grapes, baked beans, soy beans and black eye beans • Mixed consistencies, e.g. cereals which do not blend with milk (e.g. Muesli), mince and thin gravy, soup with lumps • Crunchy foods, e.g. toast, flaky pastry, dry biscuits, crisps • Crumbly items, e.g. bread crusts, pie crusts, crumble, dry biscuits • Hard foods, e.g. boiled sweets, chewy sweets, toffees, nuts, seeds **Fortifying foods** • The addition of extra energy and/or protein and nutrients to normal food without increasing the volume of food to be eaten. • Addition of milk powder, cream, butter, margarine, oil, and jam to recipes can significantly increase energy and protein content of foods eaten. This should be built into the standard recipes when being developed. **Liquid added to modify texture should contain energy,** for example: • Béchamel or cheese sauce • Gravies with added butter • Commercial nutritional supplements as advised by dietitian. *(continued)*

Table 24 Modified texture food guidance[6, 7] *(continued)*

Aims/Essential Criteria	Rationale	Practical Application
• Fluids must be provided at the appropriate consistency and served in a suitable drinking container at all times. • A minimum of 7 to 8 drinks should be provided per day. • Modified consistency menu items must be described and presented in an appetising form;[7] avoid words such as sloppy; words such as pureed, soft-easy chew are acceptable.	Dehydration is not uncommon in patients requiring a modified consistency diet.[7] Re-textured foods can sometimes be unrecognisable and unappetising.[7]	Consistency modified foods and fluid may require a thickening agent to achieve the correct consistency, the appropriate product must be chosen in conjunction with the dietitian and Speech and Language Therapists (SALT). The preparation of consistency-modified fluids is more suitable at ward level as consistency of some products can change over time. Consistency should be as determined safe by the Speech and Language Therapists (SALT) and preparation should be consistent with the fluid descriptors provided.

5.7 Renal disease diets

Diet therapy plays a crucial role in the management of individuals with renal disease.[7] Patients with renal disease can be at an increased risk of becoming nutritionally compromised due to their clinical management, for example, dialysis increases a patient's calorie and protein requirements; but also because they experience decreased appetite and therefore decreased oral intake.[7, 55, 56] In addition progression or exacerbation of renal disease can be managed by dietary change.

This patient group usually has higher energy and protein requirements. Sodium, phosphate, potassium, and/or fluid intakes sometimes require restriction, in such instances these will be determined locally on an individual patient basis.[7, 55]

5.7.1 Coding criteria

Table 25 Criteria for Renal Diet Code[8]

Nutrient	Total Daily Amount	Amount per Main Course*	Amount per Dessert
Potassium	≤ 70mmol/day (274 mg)	≤ 12mmol (47 mg)	≤ 8mmol (31mg)
Phosphate	≤ 35mmol/day (108 mg)	≤ 8mmol (25 mg)	≤ 7mmol (22 mg)
Sodium	≤ 100mmol/day (230 mg)	≤ 26mmol (60 mg)	≤ 7mmol (16 mg)
Protein	60-80g/day	≥ 20g	At least 1 option to provide ≥ 5g
Energy	EAR **	Not specified ***	At least 1 option to provide ≥ 200kcal

* These amounts are for the main protein component only – nutrients from potatoes, vegetables or side dishes are not included; but are estimated to provide approximately 12-14 mmol (47 – 55 mg) potassium per meal.

** Energy requirements range from 30-35kcal/kg/day.

*** Recommended energy content of main courses not specified,[8] however provision of energy–dense choices will be critical to ensure requirements can be met.[56]

The specifications above assume an option of two cooked meals every day. If this is not offered, amounts for the 'main' meal may be increased and those for the 'snack' meal decreased accordingly to meet overall requirements.

The provision of energy-dense snacks and high-protein desserts will be necessary to ensure protein and energy requirements are met.[56]

5.7.2 Catering guidelines

Caterers must work with dietitians to provide and maintain a nutritionally-balanced menu which meets the very specific criteria set by the Renal Nutrition Group of the British Dietetic Association (BDA)[8]. If a hospital menu item is coded, as low potassium, low phosphate or both it is the responsibility of caterers to ensure these menu choices meet the criteria **at all times**. Catering guidance is provided in table 26.

Table 26 Renal diets food guidance

Aims	Rationale	Practical Application
• Meet the increased energy requirements of patients with renal disease.[8] • Ensure specifications for hospital menus of renal patients[8] are met. • A minimum 2-week menu cycle is required for this patient population.[8] • The menu identifies foods suitable for low potassium or low phosphate diet, or both.[4]	Energy requirements are 30-35kcal/kg ideal body weight/d.[55] Protein requirements range from 0.6g/kg/day – >1.2g/kg/day.[55] Patients with renal failure frequently suffer from malnutrition. Renal patients are likely to have a longer hospital stay than other acute admissions.[8] High potassium in the body can cause irregular heart rhythms and in some cases cardiac arrest.[7] High phosphate levels in the body are involved in the development of renal bone disease and soft tissue calcification. Excess intake of sodium and fluid intakes can lead to fluid overload and hypertension.	**Foods high in potassium which need to be restricted** include:[7] • All bran, muesli and other cereals containing nuts or dried fruit • Fruit – bananas, apricots, avocados, rhubarb, kiwi fruit, mango, dried fruits, fruit juices • Vegetables – jacket potatoes, chips, crisps and roast potatoes, sweet potato, mushrooms, beetroot, tomato juice • Pulses including lentils, baked beans • Chocolate, cocoa and chocolate flavoured products • Coffee and coffee flavoured products • Malted milk drinks • Yeast extracts and spreads, stock cubes, bottled sauces and ketchups • Chutneys and pickles • Tinned and packet soups, packets of instant desserts • Cream of tartar, salt substitutes **Foods also contributing potassium to the diet** that need **to be restricted** include milk and cheese.[7] Meat and fish should be provided in appropriate portion sizes to ensure that protein requirements are met.[56] Vegetables should be cooked by boiling instead of steaming to help reduce their potassium content.[4, 7] 1 serving daily of (3 egg-sized equivalent) potatoes that are boiled, mashed or parboiled chips or roast potatoes can be included in a menu. Rice and pasta provide a good low potassium alternative to potatoes. **Phosphate** in the diet is generally associated with the intake of protein-containing foods. **The following foods need to be restricted:** • Hard and soft cheeses, cheese spread • Condensed and evaporated milk • Offal, kidney, liver, sweetbreads[7] • Oily fish, herring, kippers, mackerel, pilchards, sardines, salmon • Chocolate, fudge, toffee • Malted milk drinks • Nuts, peanut butter • Foods containing baking powder **Salt** should not be added to foods during preparation or cooking.[4] Salt substitutes can be high in potassium and should not be used. Alternative specifications and arrangements will need to be made at a local level for the provision of vegetarian meals for renal patients.

5.8 Clean diet

A clean diet, sometimes referred to as a 'neutropenic diet' is one with a low microbial content;[7] it is not the same as a sterile diet. It is used for patients who are immuno-suppressed and therefore at increased risk of infection from ingested micro-organisms such as campylobacter, listeria and salmonella. Such patients include:[7]

- Haematology patients
- Some cancer patients
- Organ transplant patients
- Patients with Acquired Immunodeficiency Syndrome (AIDS)

Dietary restrictions to reduce the risk of infection need to be balanced against ensuring patients' nutritional needs can be met. This will be important to ensure that patients can benefit from the treatment they are receiving.

5.8.1 Catering guidelines

Caterers and dietitians must work together in planning and implementing a 'clean diet' menu for patients. A graded system of dietary restriction where the level of restriction is based on the severity of immunosuppression is recommended in clinical practice.[7] Using a graded system will help maximise food choice and minimise the use of unnecessary restrictions.

- **Grade 1 Neutropenia Diet**[7]
  (Neutrophil count 0.5-2.0 x 10^9/l, and other neutropenic 'at-risk' groups)
- **Grade 2 Neutropenia Diet**[7]
  (Neutrophil count < 0.5 x 10^9/l)

A menu based on an a la carte structure may be beneficial in meeting the food preferences of those patients that sometimes require this restrictive therapeutic diet for long periods of time.

In general, inappropriate foods are those that have been exposed to the 'air' in some way or are under/un-cooked.[7] Good food safety and food handling practices are imperative. Recommendations by the Food Standards Agency for good food safety, handling and hygiene practices should underpin food service to prevent food contamination. Health boards should have local food safety policies for the handling and provision of food. Guidance on the minimum points that should be included in food handling policies is provided by the Hospital Caterers Association.[27] Additional catering guidance for the provision of a clean diet is provided in table 27. The generic food safety guidance outlined, should be followed for all those requiring a clean diet (i.e. avoidance of 'high-risk' foods, that is foods that potentially have a high microbial content and thus may cause infection in the patient who is immuno-compromised).

Table 27 Clean diet food guidance

Aims	Rationale	Practical Applications
• Meet the target nutrient specifications for hospital menus (as specified in section 2). • Provide well-cooked food or food with minimal potential pathogen-forming organisms.[7]	Maintain optimal nutritional status. Immuno-suppressed patients can be extremely ill and therefore nutritionally compromised.[7] Some patients experience side-effects of treatment such as:[7] • Nausea • Vomiting • Loss of appetite • Sore mouth and throat • Taste changes • Chewing and swallowing problems	**Generic guidance**[7] • Ensure foods are thoroughly cooked. • Avoid reheating food. • Ensure safe and adequate food preparation, cooking and storage practices, including adequate washing of fruit and vegetables: washed, peeled and cooked fresh or frozen vegetables, washed, peeled and cored fresh or canned fruit, fresh vegetable soup, boiled soup, build-up soup and tinned soup – reheated according to manufacturer's instructions. • Fruit juice in small individual, sterilised cartons/bottles. • Pasteurized milk in small individual, sterilised cartons. • Use all foods within their sell by/best before dates. • Cereals in individual boxes without dried fruit. • Avoid use of microwave ovens for cooking foods; they can be used for defrosting when followed by conventional cooking methods. • Fats and oils, nuts and seeds need not be restricted. Small individually contained portions, e.g. margarine/butter should be used. • *Drinking water* – Freshly run mains tap water is considered the safest option. A jug of water intended to cater for the patient for a number of hours should not be provided. Boiled water is at risk of contamination when left to cool. There is no evidence to suggest need for sterile or filtered water. Bottled mineral water should be avoided, as there are no control or safety standards for bottling at source. *(continued)*

Table 27 Clean diet food guidance *(continued)*

Aims	Rationale	Practical Applications
		Grade 1 Neutropenia diet[7] High-risk foods which **must be avoided**: • Live/bio yoghurts, probiotics. • Soft-ripened cheese (e.g. Brie and Camembert; blue-veined cheese (e.g. Stilton)). • Raw/undercooked eggs (pasteurised eggs should be used). • Shellfish, pate/fish paste. • Raw meat and fish. Additional foods permitted: • Pasteurised hard cheese and yoghurt portions. • Pasteurised eggs, omelettes, scrambled egg, 8-minute boiled egg. • Canned and dried milk pudding and custard. • Pasta/rice – freshly cooked and served **hot**; canned pasta/rice. **Grade 2 Neutropenia diet**[7] As guidelines for Grade 1 Neutropenia diet with the following additional restrictions: • Eggs – avoid all egg-containing products, e.g. Quiche, meringue, egg-custard. • Meat and fish – avoid reheating meat/fish dishes. Avoid cold meats. • Beans, peas and lentils – ensure they are all well cooked. • Fruit and vegetables – avoid salad, raw vegetables, and berries. Ensure produce is of good quality (no damage or over-ripeness), washed well, cored/peeled and well cooked. • Processed foods – ensure they are cooked adequately according to manufacturer's instructions. • Herbs, spices and pepper – avoid if uncooked. • Miscellaneous – avoid using foods from large packages (multi-portions) to minimise risk of airborne bacterial contamination.

5.9 Monoamine oxidase inhibitors diet

Monoamine oxidase inhibitors (MAOIs) are a set of drugs that are used in the management of chronic depression and phobic patients.[57] However, their use has declined significantly over the past few decades due to the development of newer generation antidepressants, that do not have the same drug-food interactions and also have fewer side effects.[57]

MAOI drugs compromise the body's normal metabolism of a substance called tyramine which is found in a number of foods (table 28). Build-up of tyramine levels in the blood can result in significant rises in individuals' blood pressure to dangerously high levels. Individuals present with a sudden severe headache, palpitations, nausea which can result in a stroke. As such, individuals who are prescribed MAOIs must be provided with a diet that does not contain foods that have a high concentration of tyramine in them.

Over the past few years, research has been carried out that shows that the diet for individuals prescribed MAOIs need not be as restrictive as previously thought in the 1960s.[9] Tyramine content of foods varies with maturity of the food and also length of storage and also individual patient's tolerance levels vary. As such it is difficult to provide a clear diet sheet which will be appropriate to all patients.[9]

5.9.1 Catering guidelines

Table 28 shows those foods that should be avoided.

Table 28 Dietary recommendations for individuals taking MAOI drugs (adapted[7, 9])

Food Type	Foods to be avoided
Dairy products	• All types of cheese except cottage cheese and curd cheese • Cheese spreads • Ready-made meals containing cheese, e.g. lasagnes
Meat and fish	• Ready-made meat pies • Salami, air-dried sausage • Black pudding • Pickled or soused herrings • Traditionally-smoked fish • Game
Meat alternatives	• Flavoured meat substitutes based on soy (texturised vegetable protein) or mycoprotein • Fermented soy products, e.g. Tofu, soy sauces • Ready-made vegetarian meals containing cheese or yeast extract
Stocks and gravies	• All yeast extracts, e.g. Marmite • All meat extracts, e.g. Oxo, Bovril • All gravy granules • Most gravy powders • Most meat stock cubes • Most meat soup powders
Fruits and vegetables	• Sauerkraut • Pods of broad beans
Foods high in fat and foods high in sugar	• Savoury products containing cheese or meat/yeast extract, e.g. cheese-flavoured biscuits, Twiglets • Flavoured savoury products, e.g. flavoured crisps

VEGAN
VEGETARIAN
KOSHER
HALAL

⑥ SPECIAL AND PERSONAL DIETS

6 SPECIAL AND PERSONAL DIETS

6.1 Introduction

Ethnic minority groups, faith or religious groups, as well as those individuals with disabilities, older people and children are often considered not to have equal access to health services.[25] NHS Boards and menu planning groups must gather sufficient information on the diverse dietary needs of the populations they are serving and ensure inclusive attitudes and practices to food service provision to ensure all individuals' needs are met.[1]

Special diets refer to those meeting cultural or religious needs, while personal diets are those meeting personal preferences.[27] Any organisational structures, policies, procedures and practices are required to treat ethnic minorities fairly and equally.[25, 58] This applies to all public bodies including the NHS, and is therefore applicable to the hospital catering service.[25] Although a standard hospital menu meets the majority of patients' cultural and religious food needs, there are some patient groups with alternative needs. A patient's personal dietary needs must be met when they also require a therapeutic diet.

6.1.1 Religious and ethnic groups in the UK and Scotland

The 2001 census data showed minority ethnic groups made up 7.9% or 4.6 million of the total UK population, 2% of which lived in Scotland.[59] These groups are concentrated in the four large cities, with almost half being of South Asian origin (from India, Pakistan, Bangladesh and Sri Lanka) and the next largest community are Chinese people (0.3% of total population).[7] Other groups include; Black Caribbean, Black African or Other Black.[59] In addition the population of people migrating from the European Union countries has been increasing.[58] Other ethnic minority groups may be identified at the local level.

Although there is a more culturally diverse population, it remains predominantly Christian, with other large faith groups encompassing Muslims, Hindus, Sikhs, and Jews.[59]

6.1.2 Essential criteria

NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals[8] specify the criteria for meeting the alternative needs of hospital patients:

- **There must be a protocol for the provision of any diets required outwith the planned menu.**[1]
- **On or prior to admission to hospital, patients must be provided with information regarding the meal service.**[1] This information needs to be delivered in a form accessible to the patient population with consideration for literacy, visual impairments and language barriers.
- The provision of special and personal diets must be set locally, with individual health boards responsible for defining their patient population needs.
- Menus must reflect local population needs.
- Some special dietary needs may be best met using a la carte menus.[27]

It is important to never assume what an individual's dietary practices are just because they belong to a particular faith or religious group. Dietary practices between and within the different cultural groups can be quite diverse. For many these are influenced by religious practices and beliefs, for example fasts and festivals and food restrictions and laws. Many individuals will follow the culturally defined practices whereas other individuals will have diets that are more Westernised, especially younger generations. The Shap Working Party on World Religions in Education, produces an annual calendar of dates of festivals for 12 major religions which may help guide provision for special diets.[60]

Menu planning groups and catering departments should consider how the ageing population may have different needs to those currently being provided for. It is likely that there will be growing numbers of older people requiring culturally adapted modified texture food for example.

It is also important to acknowledge that a proportion of patients from these populations may not speak or read English. Communication to patients regarding the menu, food service provision and also obtaining patient feedback may need to be provided in different languages and steps to ensure that these can be translated correctly and available in the relevant language will be key in meeting NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals.[1] Also issues surrounding potential cross-contamination of certain food-stuffs may need to be considered in relation to crockery and utensil provision where certain food items must be kept separate.

6.2 Vegetarianism and veganism

There are approximately 3 million vegetarians in the UK (5% of the population) and approximately 300,000 vegans.[10] People from a variety of backgrounds adopt vegetarian dietary practices for a number of reasons including religion and culture, for example Hindus and Buddhists;[7] moral or ethical beliefs, health, environment, ecological and economical concerns.[7] Also about one-third of the UK population regularly eat vegetarian dishes, thus provision of a menu that provides variety and choice for this section of the population is vital if these individual's dietary and nutritional needs are to be met.

Vegetarian dietary practices can vary quite considerably in terms of what foods will be eaten and what foods are excluded. The extent to which foods are excluded needs to be determined with the individual patient. Many of the principles of a vegetarian diet follow national targets for healthy eating, that is higher intakes of complex carbohydrates, fibre and fruit and vegetables.[16] If well planned the vegetarian diet can be nutritionally adequate. However, exclusion of certain foods or food group items requires careful planning to ensure that alternative foods are included in the diet to prevent any nutritional inadequacies. A hospital menu has traditionally provided a lacto-ovo vegetarian option for patients. Any variants of this diet must be planned for the individual patient by the catering department in conjunction with a dietitian as per the local protocol.[1] Tables 5-10 provide examples of suitable food alternatives for inclusion in vegetarian and vegan diets, further information can be sought from the Vegetarian Society.[10]

6.2.1 Common dietary variations

The different dietary practices of vegetarians and vegans are summarised in the table below.

Table 29 Criteria for vegetarian and vegan diets[10]

Dietary Type	Characteristic
Lacto-ovo vegetarian	Eats both dairy products and eggs. Excludes all red meat, poultry, fish and shellfish and ingredients derived from them, e.g. gelatin and rennet. Excludes: • All meat, poultry, game, fish, shellfish, crustaceans. • Cheese produced using animal rennet. Vegetarian cheese is made from rennet from a microbial source. • Slaughterhouse by-products, e.g. gelatine, animal fats. It is often found in confectionery, low fat spreads and desserts, and other dairy products. • Animal fat refers to carcass fat and may be present in a wide range of foods, including biscuits, cakes and margarines. Suet and lard are types of animal fats. Certain food additives (E numbers) may be derived from animal sources. • Generally prefer free-range eggs. • Generally not happy to eat foods that have come in contact with animal products, e.g. utensils and chopping boards that have not be cleaned thoroughly after preparation of animal products, also, cooking vegetables in oil that has been used to cook meat.[54]
Lacto-vegetarian	Eats dairy products but not eggs. Excludes all red meat, poultry, fish and shellfish and ingredients derived from them, e.g. gelatine and rennet.
Vegan	Excludes all animal meat and products, derived ingredients and additives; no eggs, milk, dairy products (may or may not eat honey).[10]

6.3 Halāl diet

A Halāl diet is followed by people of the Muslim faith, originating from Pakistan, Bangladesh, Middle East, Malaysia, Indonesia, Sri Lanka and Africa.[7] The first language of Muslims of Asian origin who live in the UK is generally not English. Their first language will often be Punjab, Urdu, or Hindi (Mimun, Bengali, Gujarati may also be spoken).

Halāl food refers to a food that is lawful to consume, while harām refers to foods which are unlawful.

6.3.1 Food laws

Unlawful foods are:[7, 61]

- Food and food products from the pig.
- Meat not slaughtered by proper halāl methods,[7] (kosher meat **may** be acceptable).
- Foods containing ingredients or additives from a pig or from either of the above sources. Foods containing gelatin, animal fats or emulsifiers from animal derivatives must be avoided.
- Blood and its byproducts.
- Shellfish or seafood without fins and scales.
- Alcohol both for consumption as a drink and in foods.

Food and cooking hygiene is an important part of Islamic dietary laws, and harām and halāl foods must be cooked using separate cooking utensils, and ideally kept in separate kitchens. A patient may refuse to eat a food if they are not fully confident that the food has been produced in the correct way. The Muslim Food Board (UK) produces a list of manufactured food items available in the UK which have been certified as meeting Islamic Food Laws (Halāl).[62]

6.3.2 Festivals and fasting

Muslims are required to fast from sunrise to sunset during the month of Ramadan;[7, 60] this involves **abstinence from all food and drink** between this time, with the intake of a heavy meal before sunrise and one again after sunset. Those exempt from fasting are:[7]

- Older people and children under 12 years old
- Pregnant, breastfeeding or menstruating women
- Chronically ill people where fast is physically harmful to them, e.g. people with diabetes
- Acutely unwell people

In addition some devout Muslims may fast once or twice a week in addition to Ramadan.[7]

A number of resources have been produced by the Scottish Diet and Nutrition Resource Initiative (SNDRi) for example 'Balance of Good Health' plate model that have been tailored to represent the dietary practices of South Asian ethnic minority groups and also produced in languages other than English.[61]

6.4 Hindu diet

The Hindu diet is followed by people from the Gurajat and Punjab areas of India, and also via East Africa. Kujarati and Kacchi is likely to be their first language.[7]

6.4.1 Food restrictions

Dietary practices and food restrictions of the Hindu diet tend to vary depending on the degree of orthodoxy of the individual. The diet is largely a vegetarian diet, high in plant-based foods, fruit and vegetables and pulses (lentils and beans), with varying degrees of dietary restrictions or inclusions. The general principles are as follows:

- The cow is considered sacred, and the consumption of beef is rare.[7]
- No specific prescriptions against consumption of meat but most Hindus are lacto-vegetarian.[7]
- Eggs are not usually eaten as they are potentially a source of life.[7]
- Mutton (goat or sheep), lamb, chicken and fish can be eaten by less strict Hindus, usually men.[7]
- Animal derived fats, e.g. dripping and lard are not acceptable; ghee (clarified butter) and vegetable oil should be used in cooking.[7]
- Milk and milk products are acceptable to consume.
- Strict Hindus like to know equipment used in food preparation has not been in contact with meat or fish.[7]

6.4.2 Festivals and fasting

Festivals and religious days are based on the lunar calender, thus the exact dates can vary from year to year.[60]

Devout Hindus may fast several times a week in addition to on religious days. Fasting occurs from sunrise to sunset. Some individuals will forego all foods and may only have fluids. Others will eat 'pure' foods, for example, yoghurt and fruit.[7]

6.5 Kosher diet

Kashrut dietary laws define which foods are 'fit' (Kosher) for consumption by Jewish consumers who observe these laws.[7, 63] They are Biblical in origin, but are interpreted and extended over the years to address new issues and technologies.[63] Again the degree to which each indivdual will adhere to food laws will vary. It is important to find out each individuals' dietary needs and not assume these.

The Kashrut Division of the London Beth Din provide licensing and certification to food producers whose practices are Kosher.[63] They also produce a food guide which lists all those foods which have been certified as Kosher.[63]

6.5.1 Food laws

Maintenance of health and food hygiene underlie these laws. Probably the strictest Kashrut law is the **prohibition of mixing**, i.e. the cooking and/or consumption of **meat and milk products**.[63] Keeping meat and milk separate requires the processing, handling and storage of all materials and products to fall into being a meat product, a milk product or a neutral product (which doesn't carry either milk or meat characteristics). Neutral products can be eaten directly before or after both meat and milk, and include:

- Fruits and vegetables
- Salt and other non-organic foodstuffs
- Fish
- Eggs

In addition utensils, crockery, pots and pans used for milk or meat must be kept separate, this includes storage, washing and drying.[7, 63]

There are variations in the length of time needed between the consumption of meat and milk products depending on the individual's origin. For most Anglo-Jewish individuals this is 3 hours.[63]

Food permitted includes:[7, 63]

- Meat from ruminant animals with split hooves that chew their cud, e.g. cattle, goats, sheep and deer. Pig is forbidden.
- Traditional domestic birds, e.g. domestic chicken, duck, turkey and goose.
- Animals and birds must be slaughtered by the Jewish method, by a trained professional.
- Fish with fins and removable scales, e.g. tuna, salmon, cod, plaice (**not** monkfish, shark or shellfish).
- Eggs from Kosher birds.
- Honey.
- Unprocessed cereals and grains.
- Fruit and vegetables that have been thoroughly cleaned and free from insects, although fruit from a tree less than 3 years old is not Kosher.
- Processed products are permissible if they have the Kosher label.[63]
- Milk and milk-derived products from Kosher animals are always Kosher, **except** cheese made with rennet derived from a non-Kosher animal.
- Bread and cakes must be certified.
- Margarines must be certified as being produced under rabbinical supervision.

6.5.2 Festivals and fasting

The Sabbath begins at sundown on Friday and ends when the first star is visible on Saturday night. Food is not permitted to be prepared on the Sabbath, but food can be prepared in advance to be eaten during this time.[7]

The Day of Atonement in September is a fast day; no food or drink is to be consumed for 25 hours, sundown until sunset.[7]

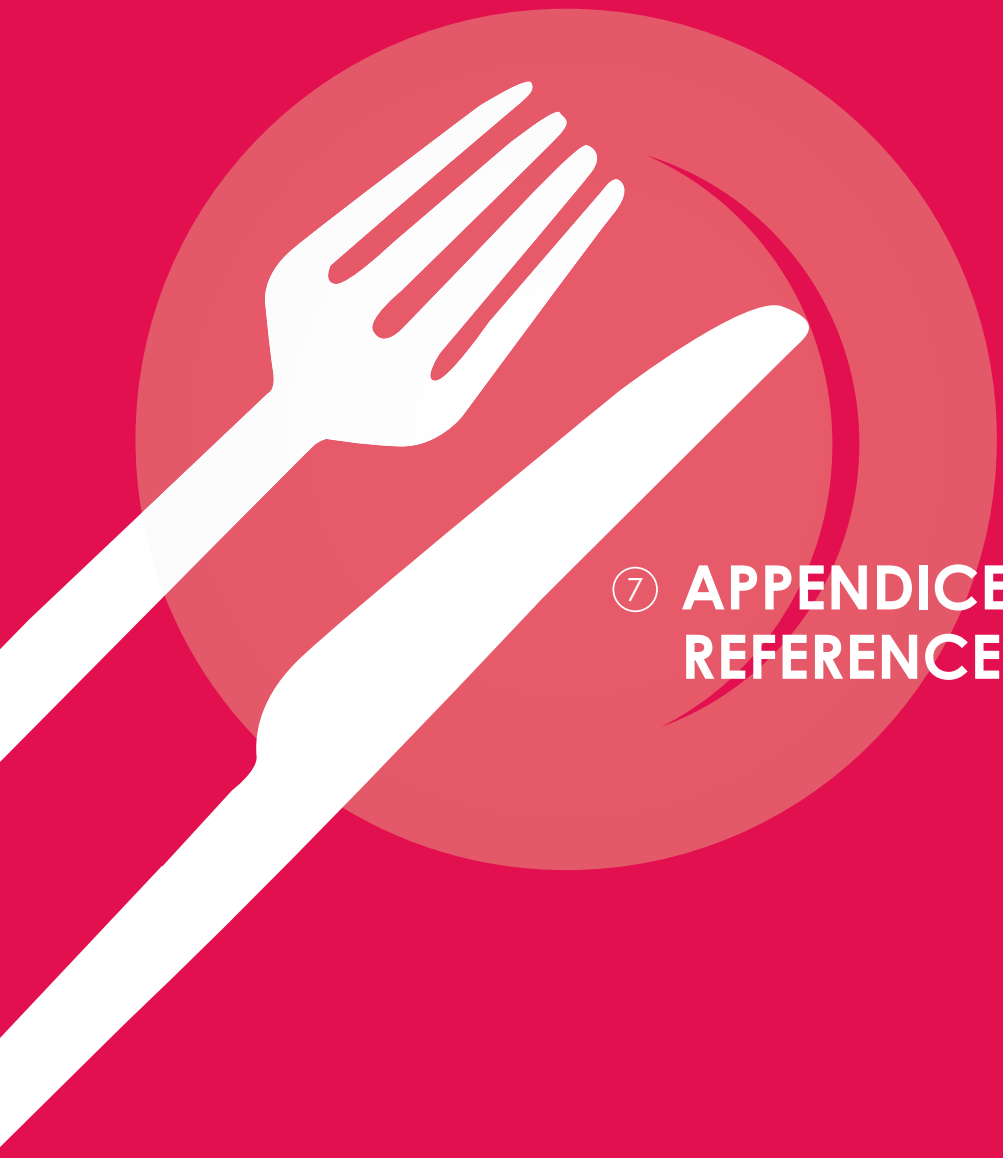
Passover is over eight days during April and during this time Jews are forbidden to eat any leavened product, or any product made from wheat, rye, barley, oats or spelt. Observant Jews use separate sets of cutlery, dishes and pots for Passover in addition to those used for meat and milk products.[63]

6.6 Chinese people

Chinese people form the second largest ethnic community in Scotland, next to Pakistani and other South Asians.[59] They may come from China, Taiwan, Hong Kong, Singapore and Malaysia. There are quite significant differences between the dietary practices of Chinese people due to their place of origin; different climates and hence different food availability for example, predominately rice growing regions in the south and central parts of China and wheat-producing regions in the north.[7]

Table 30 Characteristics of Chinese diets

Food group	Characteristics of diet
Cereals	• Rice predominates in the southern regions; wheat-containing foods in the north. • Rice – boiled, made into flour, noodles, cakes. • Wheat flour – dumplings, noodles and bread. • Maize may be used to make noodles, corncakes.
Vegetables and fruit	• Green leafy vegetables – cabbage (brassica family), paak choi, spinach, aubergine, tomato, chilli peppers and Chinese mushrooms. • Melons, peach, apricots, apples, pears, cherry, star fruit, citrus fruits are all popular.
Meat, poultry, fish and alternatives	• Pork and poultry most common meats eaten; mutton by people from the north. • Fish and seafood widely eaten. • Soybeans are widely used, bean-curd and soy sauce. Red beans (adzuki, kidney) used in soups. • Nuts play a minor role in the diet.
Milk and dairy products	• Do not generally feature in Chinese people's diet.
Fats and oils	• Vegetable oil used (rapeseed or peanut).



⑦ APPENDICES AND REFERENCES

APPENDICES AND REFERENCES

APPENDIX ONE

Dietary needs of significant patient groups

Older adults

In common with other age groupings of the population there will be fit and well older people who may benefit from adoption of healthier eating principles recommended for the general population. However, in hospitals the older patient can be more 'nutritionally vulnerable' than younger adults,[20] energy requirements are lower due to a decrease in lean body mass and a reduction in physical activity, but other nutrient requirements do not fall. Several studies have shown that intakes of several nutrients are lower than is desirable. [19, 28, 29, 64] The nutrients most likely to be lacking are:

- Energy
- Protein
- Non Starch Polysaccharides (NSP) – fibre
- Vitamin C
- Iron
- Folate/Folic Acid
- Potassium
- Magnesium
- Riboflavin
- Vitamin D
- Calcium
- Fluid

Smaller appetites – There is frequently a drop in appetite as a result of the ageing process therefore careful menu planning will be required to ensure that nutrient requirements are provided at the correct level within an energy and nutrient-dense diet. The use of modest portion sizes and substantial snacks is imperative. There is often a preference for sweet foods.

Need for softer options – Some patients may not have any difficulties swallowing; however, they may require a diet that is soft and easy to chew due to poor dentition or ill-fitting dentures for example. When menu planning for older adults, consideration to the provision of soft and easy chew meal options in line with the guidance provided for modified textures stage D and above should be included in the core menu.[65] Soft snacks must also be available for such patients to enable them to maximise energy and nutrient intakes.

Oral Health – Poor oral health can be a contributory factor to older people becoming 'nutritionally vulnerable'. High-sugar-containing snacks, regular squashes, fizzy drinks are frequently used to improve overall food and hence energy and nutrient intakes, however, this is at odds with advice for good oral and dental health. In such cases, adequate day-to-day oral care and regular oral health checks are paramount to prevent further dental erosion.

Finger foods – Some patients with physical disabilities, e.g. severe arthritis may find it difficult to use cutlery and thus have difficulties feeding themselves. Also, some patients with Parkinson's disease or dementia may find it difficult to sit down for long enough periods of time to eat a full meal. To meet the dietary needs of such individuals may require the development of a finger foods menu. This should enable continued independence in eating and allow individuals to eat at their own pace, hopefully maximising food intakes. Guidance on both high energy and nutrient-dense food options and also food choices that are lower in fat and higher in NSP are provided in National Association of Care Caterer's Guidance on 'Menu Planning and Special Diets in Care Homes'.[65]

A number of factors must be considered when planning a menu for hospitals with a long-stay older population:

- The patients in such hospitals are more likely to be the 'frail elderly' with increased nutritional vulnerability.
- It is important to involve patients and/or their carers in the menu planning process to ensure that dishes are familiar to the age group and include traditional choices.
- Hospitals should consider what times food is served for this patient group. A survey done by NHS Estates for the Better Hospital Food Program showed that most people in a general population prefer to eat their main meal of the day in the evening. Whilst this reflects the majority of the (working) adult population it may be that older people prefer having their main meal of the day at lunchtime. Assessment of the population's dietary needs should include any preferences for timings of meals.
- The provision of a snack type meal or composite dish style meal may be more appropriate than a full meal for patients with a reduced appetite. Substantial snacks will need to be provided two to three times a day to ensure maximum food intake and thus energy and nutrient requirements are met. It is a challenge for menu planners to ensure that this type of meal meets the guidance for the nutritional content of meals shown in sections 3 and 5.
- Communication of the menu needs to consider the timing, e.g. asking individuals at time of service what they would like so that they can see what is on offer, or two meals prior if using menu cards. In terms of format of the menu card, consideration to the size of font used and perhaps the use of photographs.

Children

Healthy eating is fundamental for proper growth and development in childhood and essential for good health and well-being in later life.[43] Excess energy intakes combined with low physical activity levels can lead to obesity whilst poor energy intakes can lead to poor growth and development. Children become nutritionally compromised more quickly than adults as they have less nutrient stores initially and this can result in decreased immune function leading to infections and increased length of stay.

For most children, the average length of hospital stay is two days. Most children and adolescent patients will benefit from eating a diet that follows healthy eating principles during their hospitalisation. Guidance has been provided for hospital catering services for children and young adults.[43] However, diet low in fat and high in fibre-rich carbohydrate may be too bulky and low in energy to satisfy a young child's (< 5 years) nutritional requirements. Diets must be tailored to suit young children's nutritional and energy needs and also their stage of development. Guidance has been produced for early years childcare settings.[77] It is best to provide young children with smaller, more frequent meals. Snacks such as bread, fruit, sandwiches, and yoghurts are preferred to those high in fat, sugar and salt. The provision of foods high in sugar should be kept to a minimum, especially between meals and the use of highly salted foods and addition of salt to foods should be discouraged. However, if food is to have any nutritional value then it must be eaten; children should be presented with a variety of foods and fluids that are tempting and familiar to them.[43] In some cases this may mean foods such as fish fingers, chicken gougons, baked beans, burgers, fries, ice-cream. Emphasis should be placed on the **provision of popular and familiar foods**.[43]

The main hospital menu may meet the needs of many children with traditional choices such as roast meats, vegetable and potatoes and cottage pie as well as more 'modern' choices such as mild curry, pizza, pasta, jacket potato, and a filling. Menu planning groups should work closely with children, parents and carers in planning the menu for children taking into account likes and dislikes and making sure that suitable choices are available for the different ages and stages of development of the children being catered for. Menu Planning Groups and hospitals should consider producing a specially designed menu for children and also allow them to make their food choice as close to the point of service as possible.

In a general hospital it would be good practice to have a separate children's menu with child friendly familiar dishes as well as access to the main hospital menu for those who wish to have more choice (particularly for older children).

Maternity

Most patients in maternity units will be in-patients for a short period of time and have normal deliveries with little complications; however, there will be a small number of patients whose admissions will be longer. Patients in this group requiring special consideration include:

- Prenatal admissions – some women may require to be hospitalised during their pregnancy due to complications. The advice of the Food Standards Agency with regard to safe foods **must** be adhered to.[66]

- Lactating women – in order to support women breastfeeding their babies the catering service must be flexible in meeting their needs. Consideration should be given to more flexible mealtimes, snack availability, and suitable meal replacements for mothers who may miss a meal whilst feeding their baby.
- The standard hospital menu should be adequate to provide for most pregnant women but may need supplementing, in terms of additional snacks or provision of additional food items at mealtimes, for example bread and milk in order to meet the increased nutritional requirements of lactating women.[11] The eat well plate model for healthy eating should be core.

Individuals with physical and learning disabilities

Physical disabilities may be present at birth (e.g. cerebral palsy, spina bifida) or may result later in life as a result of an accident or disease (e.g. stroke). The disability may affect physical movement and/or sensory function (communication); individuals may also present with learning difficulties.[7]

Learning disability is 'the presence of a significant reduced ability to understand new or complex information or learn new skills (impaired intelligence), along with a reduced ability to cope independently (impaired social functioning), which started before adulthood.'[67] Learning disabilities are often classified based on an individual's IQ, but also on the amount of support an individual may require, where severe and profound learning disability will need significant if not total help with daily living. In Scotland, estimates of 20 in every 1000 individuals have mild to moderate learning disability, with three to four people in every 1000 having severe learning disability.[68] Individuals with learning disabilities may also present with physical disabilities both are likely to affect an individual's food and fluid intakes.[67]

Generally individuals with physical or learning difficulties are at greater nutritional risk than the general population. This will vary according to the severity and nature of a person's disability but also with the presence of other physical and health difficulties which impact on their ability to eat and drink.[7, 67] Factors that are likely to affect food choice, dietary needs and dietary intakes include:[67]

- Communication – this includes, hearing, visual and oral communication, e.g. communicating likes, dislikes.
- Physical difficulties – restricted mobility (may cause chronic constipation), motor skills, posture, drooling, swallowing (dysphagia), chewing and eating difficulties.
- Medications – may affect appetite and thirst, cause nausea, loss of taste, dry mouth, alter bowel habits (constipation or diarrhoea), drowsiness that may cause meals or snacks to be missed.

In common with other groups of patients there will be individuals in this group who are 'nutritionally vulnerable', but also those who would benefit from a diet that follows general healthier eating principles where weight management may be more of a problem, for example Prader-Willi syndrome and Down's syndrome.[67]

The assessment of each individual's dietary and nutritional needs is fundamental to ensure appropriate provision can be made to meet individual's food and fluid requirements. Consideration needs to be given to the foods that need to be provided. Assessment of those with dysphagia and guidance from a speech and language therapist (SALT), is needed to ensure appropriate textures of foods and fluids are provided (refer to section 5.6 Texture Modified Diets). Risk of chest infections through the provision of inappropriate food and fluid textures to individuals with difficulties in swallowing poses a serious health and safety risk. The provision of a diet largely based on finger foods can assist those individuals who cannot hold or use cutlery, or who do not sit down long enough to eat a meal. Provision of food in this format can help to preserve eating independence.[67, 69]

Consideration needs to be given to the appropriate format and timing of communication of menus, for example, photographs or point of service. Communication is needed with other health professionals including, physiotherapists regarding appropriate positioning of individuals for eating and drinking and occupational therapists regarding appropriate feeding and drinking aids including adapted cutlery, dishes and cups to assist the individual with eating and drinking.

For some individuals, the length of stay in hospital may be weeks if not months. As such Menu Planning Groups should involve patients and carers in any planning relating to the provision of food and fluid with particular attention paid to any repetition of dishes on the menu to prevent menu fatigue, provision for special occasions, celebrations.

The Mental Health Group of the British Dietetic Association has produced a professional consensus statement relating to 'The Nutritional Care of Adults with a Learning Disability in Care Settings'.[70] The consensus statement echoes the NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals.[1] The Caroline Walker Trust (2007) has recently published nutritional and practical guidelines for children and adults with learning disabilities.[67] The National Association of Care Catering (NACC) have produced guidelines for menu planning and Special Diets in Care Homes.[69] These documents provide further detailed guidance on menu planning for individuals with learning disabilities, including further examples of modified texture diets and also finger food diets.

APPENDIX TWO

Dietary reference values[11]

Table 31 Energy requirements for males and females[11]

Age	Ears MJ/d (kcal/d)	
	Males	Females
0 – 3 months	2.28 (545)	2.16 (515)
4 – 6 months	2.89 (690)	2.69 (645)
7 – 9 months	3.44 (825)	3.20 (765)
10 – 12 months	3.85 (920)	3.61 (865)
1 – 3 years	5.15 (1,230)	4.86 (1,165)
4 – 6 years	7.16 (1,715)	6.46 (1,545)
7 – 10 years	8.24 (1,970)	7.28 (1,740)
11 – 14 years	9.27 (2,220)	7.92 (1,845)
15 – 18 years	11.51 (2,755)	8.83 (2,110)
19 – 49 years	10.60 (2,550)	8.10 (1,940)
50 – 59 years	10.60 (2,550)	8.00 (1,900)
60 – 64 years	9.93 (2,380)	7.99 (1,900)
65 – 74 years	9.71 (2,330)	7.96 (1,900)
75 + years	8.77 (2,100)	7.61 (1,810)
PREGNANCY		+0.80* (200)
LACTATION:		
0 – 1 month		+1.90 (450)
1 – 2 months		+2.20 (530)
2 – 3 months		+2.40 (570)
*Group 1***		
4 – 6 months		+2.00 (480)
> 6 months		+1.00 (240)
*Group 2****		
4 – 6 months		+2.40 (570)
>6 months		+2.30 (550)

* Last trimester only

** Group 1 mother whose breast milk supplies all or most of the infant's food only for the first 3 months.

*** Group 2 mothers who supply all or nearly all the infant's energy and nutrient needs for 6 months or more.

Table 32 Reference nutrient intakes for protein[11]

Age	Reference Nutrient Intake* g/d
0 – 3 months	12.5**
4 – 6 months	12.7
7 – 9 months	13.7
10 – 12 months	14.9
1 – 3 years	14.5
4 – 6 years	19.7
7 – 10 years	28.3
MALES	
11 – 14 years	42.1
15 – 18 years	55.2
19 – 50 years	55.5
50+ years	53.3
FEMALES	
11 – 14 years	41.2
15 – 18 years	45.0
19 – 50 years	45.0
50+ years	46.5
PREGNANCY* **	+6
LACTATION* **	
0 – 4 months	+11
4+ months	+8

* These figures based on egg and milk protein assume complete digestibility.

** No values for infants 0-3 months are given by WHO. The RNI is calculated from the recommendations of COMA.

*** To be added to adult requirement through all stages of pregnancy and lactation.

Table 33 Reference nutrient intakes for vitamins[11]

AGE	Thiamine mg/d	Riboflavin mg/d	Niacin mg/d	Vitamin B6 mg/d†	Vitamin B12 µg/d	Folate µg/d	Vitamin C mg/d	Vitamin A µg/d	Vitamin D µg/d**
0 – 3 months	0.2	0.4	3	0.2	0.3	50	25	350	8.5
4 – 6 months	0.2	0.4	3	0.2	0.3	50	25	350	8.5
7 – 9 months	0.2	0.4	4	0.3	0.4	50	25	350	7
10 – 12 months	0.3	0.4	5	0.4	0.4	50	25	350	7
1 – 13 years	0.5	0.6	8	0.7	0.5	70	30	400	7
4 – 16 years	0.7	0.8	11	0.9	0.8	100	30	400	–
7 – 10 years	0.7	1.0	12	1.0	1.0	150	30	500	–
MALES									
11 – 14 years	0.9	1.2	15	1.2	1.2	200	35	600	–
15 – 18 years	1.1	1.3	18	1.5	1.5	200	40	700	–
19 – 50 years	1.0	1.3	17	1.4	1.5	200	40	700	–
50+ years	0.9	1.3	16	1.4	1.5	200	40	700	–
FEMALES									
11 – 14 years	0.7	1.1	12	1.0	1.2	200	35	600	–
15 – 18 years	0.8	1.1	14	1.2	1.5	200	40	600	–
19 – 50 years	0.8	1.1	13	1.2	1.5	200	40	600	–
50+ years	0.8	1.1	12	1.2	1.5	200	40	600	–
PREGNANCY	+0.1***	+0.3	*	*	*	+100	+10***	+100	10
LACTATION									
0 – 14 months	+0.2	+0.5	+2	*	+0.5	+60	+30	+350	10
4+ months	+0.2	+0.5	+2	*	+0.5	+60	+30	+350	10

* No increment

** RNI is 10µg/d after 65 years for men and women

*** For last trimester only

Table 34 Reference nutrient intakes for minerals[11]

AGE	Calcium mg/d	[1] Phos-phorus mg/d	Mag-nesium mg/d	[2] Sodium mg/d	[3] Potas-sium mg/d	[4] Chloride mg/d	Iron mg/d	Zinc mg/d	Copper mg/d	Selenium µg/d	Iodine µg/d
0 – 3 months	525	400	55	210	800	320	1.7	4.0	0.2	10	50
4 – 6 months	525	400	60	280	850	400	4.3	4.0	0.3	13	60
7 – 9 months	525	400	75	320	700	500	7.8	5.0	0.3	10	60
10 – 12 months	525	400	80	350	700	500	7.8	5.0	0.3	10	60
1 – 3 years	350	270	85	500	800	800	6.9	5.0	0.4	15	70
4 – 6 years	450	350	120	700	1,100	1,000	6.1	6.5	0.6	20	100
7 – 10 years	550	450	200	1,200	2,000	1,800	8.7	7.0	0.7	30	110
MALES											
11 – 14 years	1,000	775	280	1,600	3,100	2,500	11.3	9.0	0.8	45	130
15 – 18 years	1,000	775	300	1,600	3,500	2,500	11.3	9.5	1.0	70	140
19 – 50 years	700	550	300	1,600	3,500	2,500	8.7	9.5	1.2	75	140
50+ years	700	550	300	1,600	3,500	2,500	8.7	9.5	1.2	75	140
FEMALES											
11 – 14 years	800	625	280	1,600	3,100	2,500	14.8[5]	9.0	0.8	45	130
15 – 18 years	800	625	300	1,600	3,500	2,500	14.8[5]	7.0	1.0	60	140
19 – 50 years	700	550	270	1,600	3,500	2,500	14.8[5]	7.0	1.2	60	140
50+ years	700	550	270	1,600	3,500	2,500	8.7	7.0	1.2	60	140
PREGNANCY	*	*	*	*	*	*	*	*	*	*	*
LACTATION											
0 – 4 months	+550	+440	+50	*	*	*	*	+6.0	+0.3	+15	*
4+ months	+550	+440	+50	*	*	*	*	+2.5	+0.3	+15	*

* No increment

[1] Phosphorus RNI is set equal to calcium in molar terms

[2] 1 mmol sodium = 23mg

[3] 1 mmol potassium = 39mg

[4] Corresponds to sodium 1 mmol = 35.5mg

[5] Insufficient for women with high menstrual losses. Iron supplements advised.

APPENDIX THREE

Rationale and considerations for provision of nutrients to hospital patients

Table 35 Rationale and considerations for the provision of nutrients

Nutrient	Essential Criteria	Rationale	Special Considerations
Energy	A menu must provide: For the 'nutritionally vulnerable' patient on a daily basis: • Adults: 2250-2625kcals [31, 11] For the 'nutritionally well' patient, the EAR for energy on a daily basis: • Adults 1800-2550kcal.[11, 31, 32] • Children (1-18 years) 1200-2750kcal.[11]	Acutely ill, undernourished patients or those with poor appetites energy requirements are 30-35kcal/kg/day. For a 60kg individual 1800 – 2200kcal/day; for a 75kg individual 2250-2625kcal/day.[11, 31] Hospital patients can have increased energy requirements due to wound healing, infection and sepsis, trauma, and the catabolic effects of disease.[7, 11, 31] A hospitalised patient confined to bed will still require at least 80% of their usual energy intake,[32] sometimes up to 1.3 times resting metabolic rate for weight maintenance.[71]	
Protein	• A menu must provide ≥ RNI for the relevant patient group on a daily basis. • A menu must be able to provide increased protein requirements of 1.0g/kg/day through provision of nutrient-dense choices and/or protein containing snacks. • Each main meal (including accompaniments) should provide a minimum of 18g protein.	Protein is required by hospitalised patients to promote wound healing, e.g. in burns or surgery; maintain the immune system; aid recovery from critical illness.[7, 11, 31]	For vegetarian main meals that are based on beans or pulses, it may be difficult to achieve 18g protein. Extra thought needs to be given to the provision of protein from desserts and snacks and the use of dairy products, however excessive use of cheese should be avoided.[32]

Table 35 Rationale and considerations for the provision of nutrients *(continued)*

Nutrient	Essential Criteria	Rationale	Special Considerations
Fat	No nutrient standard has been set for total fat intake for the 'nutritionally vulnerable' hospital population. For the 'nutritionally well' patient population, a menu must provide the DRV (adjusted for no alcohol)[11] averaged across a week: • Total Fat < 35% total energy • Saturated fatty acids < 11% total energy	Setting a standard for percentage energy from fat, conflicts with the provision of an energy-dense diet. Dietary Targets for Scotland, include reducing the percentage energy from total and saturated fat by the year 2010.[16] Hospitals play an important role in educating patients on healthy eating through provision of healthier choices but energy-dense foods for those with poor appetites or higher energy requirements are equally important.[30]	Fat, as the most concentrated form of energy, is crucial in providing adequate energy for patients with poor intakes/appetites or higher requirements and increases the palatability of foods.[7, 32] High fat products, **as much as possible** should provide additional fat from unsaturated sources, not saturated sources.
Omega-3	• A menu must provide oily fish, high in omega-3, at least once per week.[27, 72] • A menu must provide fish at least twice per week.[27]	Consuming higher levels of omega-3 aids in the prevention of Coronary Heart Disease due to their anti-thrombotic effect.[7, 72]	This recommendation is accepted for pregnant and lactating women with consideration for restrictions on fish containing unsuitable levels of toxins.[72] Groups of the population who do not eat fish (e.g. vegetarians and vegans) do not have a specific recommendation regarding the use of supplements due to insufficient evidence to conduct a risk assessment.[72]

Table 35 Rationale and considerations for the provision of nutrients *(continued)*

Nutrient	Essential Criteria	Rationale	Special Considerations
Carbohydrates	No nutrient standard has been set for carbohydrate intake for the 'nutritionally vulnerable' hospital population. For the 'nutritionally well' patient population, a menu must provide the DRV (adjusted for no alcohol)[11] averaged across a week: • Total carbohydrate ≥ 50% of total energy. Guidance has been provided on an upper limit for added sugars to desserts that are to be coded for the 'healthier diet'.[32] A menu must provide a healthier eating dessert option each time dessert is offered: Appropriate sweeteners available at ward level for patients' use as chosen.	Like fat, carbohydrate and sugar are an important source of energy for hospitalised patients with poor oral intakes or increased energy requirements.[32] NMES are not directly related to the development of CVD, essential hypertension, diabetes mellitus or behavioural abnormalities[11] therefore reducing the amount of sugar on the menu for the general hospital population is not essential.[32]	Diabetes UK states the population DRV, eaten as part of a healthy diet, distributed throughout the day, is appropriate for people with diabetes.[73] Patients' overweight or with hypertriglyceridaemia should avoid NMES where possible, and be encouraged to choose the healthier eating option.[30, 73] Unwell diabetic patients should be encouraged to choose energy and nutrient-dense options. Diabetic control will require involvement of the diabetes care team in such instances.

Table 35 Rationale and considerations for the provision of nutrients *(continued)*

Nutrient	Essential Criteria	Rationale	Special Considerations
Non-starch polysaccharide (NSP)	• For the 'nutritionally vulnerable' hospital population, a menu should aim to provide 12-18g of NSP per day. For the 'nutritionally well' hospital population, a menu must provide 18g per day averaged across the week.[11, 32] • Young children's menus must be developed with consideration for their lower-fibre requirements.	High-fibre foods are generally less energy dense and can increase satiety compared with low fibre foods, reducing the energy intake of patients with a small appetite or increased requirements.[11, 32] Providing a diet high in NSP is in line with principles of a healthy balanced diet. Fibre slows the release of post-prandial blood glucose[7], useful for people with diabetes. It is thought to have a role in decreasing the risk of high cholesterol, bowel disorders, cancer and gallstones;[11, 32] and passes through the digestive tract largely unabsorbed, helping prevent constipation if consumed with adequate fluids.[32]	Children require proportionately lower NSP intakes relative to body size and those under two years old should not take high-fibre foods at the expense of energy-dense foods required for growth.[11]
Salt	• A menu must not provide more than 6g/day of salt (or age-specific RNIs for menus developed for children).[32, 33]	Most sodium in the diet is derived from salt. Sodium intake is an important determinant of high blood pressure,[7, 32, 33] therefore reducing the hospital population salt intake would be beneficial. The RNI for salt is 4g per day for adults[11, 33] and a recommended reduction in the average intake for the adult population from 9g/day, to 6g/day is considered achievable.[11, 32, 33]	

Table 35 Rationale and considerations for the provision of nutrients *(continued)*

Nutrient	Essential Criteria	Rationale	Special Considerations
Vitamin A (Retinal equivalents)	• A menu must provide 700μg per day (or age-specific RNIs for menus developed for children) averaged across a menu week.	Vitamin A is important for hospital patients as deficiency can decrease integrity of skin and mucous membranes, increasing risk of infection.[11]	Women who are pregnant or may become pregnant are advised against eating liver or liver products that are high in vitamin A[11] and will require an alternative choice if offered on a menu.
Calcium	• A menu must provide ≥ 700mg per day averaged across a menu week.	As 99% of the body's calcium is deposited in the bones and teeth, patients hospitalised with fractures require adequate calcium for fracture healing. It is also thought calcium aids wound healing.[32] Inadequate calcium intakes in children can result in stunted growth and failure to meet peak bone mass.[7]	For pregnant and lactating women the percentage of calcium absorbed increases, therefore the RNI remains the same as that of the adult population.[11] Patients 11-18 years old must be capable of meeting their higher RNI of 1000mg/day for males and 800mg/day for females.
Potassium	• A menu must provide ≥ 3500 mg per day averaged across a menu week.	Potassium is necessary to maintain fluid and electrolyte balance within the body and may have a role to play in lowering blood pressure. Potassium intakes have been shown to be marginal in a proportion of the adult and older UK populations.[19, 64, 74]	Dietary supplements are not advocated unless under medical advice as high intakes can cause harm in older adults and individuals with renal impairment.
Magnesium	• A menu must provide ≥ 300 mg per day averaged across a menu week.	Magnesium is largely found in the bones in the body and has a role to play in bone health and also a role in the functioning of enzymes involved in energy utilisation. Magnesium intakes have been shown to be marginal in a proportion of the adult and older UK populations.[64, 74]	

Table 35 Rationale and considerations for the provision of nutrients *(continued)*

Nutrient	Essential Criteria	Rationale	Special Considerations
Iron	• A menu must provide ≥14.8mg/day of iron averaged across a menu week.	Iron carries oxygen in the body and plays a central role in energy metabolism.[7] Iron deficiency can lead to fatigue, poor concentration and anaemia. In children iron deficiency can permanently impair mental or motor development.[7]	During pregnancy, lactation and growth or following acute blood loss, increased requirements are usually offset by the body's ability to increase its absorption of iron,[7, 11] therefore the RNI is unchanged in this patient group. If catering solely for an older patient population, then the RNI for individuals 50+ years should be used (9mg/day).[11]
Vitamin B12	• A menu must provide ≥ 1.5µg/day averaged across a menu week.	Vitamin B12 is an important component in a number of metabolic processes.[7, 11]	Older people have increased risk of B12 deficiency but the adult RNI remains the same for the healthy older population.[50] Diet-related B12 deficiency can occur but requires supplementation to treat, it cannot be resolved by increased dietary intake.[7, 11]
Folate and Folic Acid	• A menu must provide ≥ 200µg/day averaged across a menu week.	Folic acid is important for the normal production of haemoglobin.	Women planning a pregnancy or in the first trimester are advised to eat foods rich in folic acid to reduce the risk of Neural Tube Defects. Supplements of folic acid should be taken by this group (400µg/day).[11, 75]
Vitamin C	• A menu must provide ≥ 40mg/day averaged across a menu week.	Vitamin C is important for hospitalised patients as adequate levels are required to assist in wound healing and the prevention of pressure sores in the context of adequate energy intakes.[32, 38, 76] Levels of vitamin C are commonly low in long-stay patients, but symptoms of scurvy are not always apparent.[30, 31]	Pregnant women require an additional 10mg/day from their hospital menu. Lactating women require an additional 30mg/day which if not met by the hospital menu should be provided as a supplement.

Table 35 Rationale and considerations for the provision of nutrients *(continued)*

Nutrient	Essential Criteria	Rationale	Special Considerations
Zinc	• A menu must provide ≥ 9.5mg/day averaged across a menu week.	Adequate zinc is important for hospitalised patients as it is required for optimal wound healing for patients who have suffered trauma, had surgery or have a wound or pressure ulcer.[76]	
Fluid	• There must be the provision of ≥ 1.5 litres of fluids per day (7 to 8 beverages).[7, 27, 35]	For adults, fluid requirements are 30-35mls/kg/day.[7] Fluid balance and the mechanisms controlling this can be affected by illness: increased fluid losses due to a raised body temperature, other significant fluid losses through vomiting and diarrhoea, wound exudates.[35, 37] A better-hydrated patient can use fewer medicines, e.g. laxatives.[27] The body's correct fluid balance can also be compromised by certain illnesses and medication use causing thirst and excess salivation, increasing requirements.[7, 27]	The minimum fluid provision is also applicable to patients requiring modified thickness fluids.

APPENDIX FOUR

Omega-3 (ω-3) polyunsaturated content (g/100g edible portion) of selected fish[12]

Type of Fish	Total ω-3
Herring	2.0
Mackerel	2.0
Pilchard/Sardine	2.2
Tuna (fresh)	1.6
Salmon	2.3

APPENDIX FIVE

Food Standards Agency target nutrient specifications for salt in manufactured foods

All specifications are 'as served'

	Maximum salt* (mg/100g) (Maximum sodium)
Bread	900 (350)
Garlic bread	900 (350)
Chips and roast potatoes (including jacket wedges and similar products)	150 (50)
Potatoshaped products, e.g. potato croquettes, waffles, spirals	250 (100)
Vegetable products used as accompaniments to salads, baked potatoes and as sandwich fillings (such as coleslaw, potato salad and pasta salad)	500 (200)
Vegetable and meat-based soups	700 (280)
Products in tomato sauce such as baked beans and tinned spaghetti	750 (300)
Poultry products (burger/pieces/shapes in batter or breadcrumbs). Includes whole muscle and chopped/shaped products	1000 (400)
Sausage	1400 (550)
Burgers, grillsteaks, and meatballs (no gravy)	1000 (400)
Bolognaise sauce (including meat), chilli con carne, cobbler, curry, goulash, hotpot, meatballs (in gravy/sauce), mince in gravy, poultry in white sauce, ragout, stew, sweet and sour, tandoori and tikka	650 (250)
Breaded or battered fish shapes, fish burgers, fish cakes, fish fingers, fish in batter, fish in crumb and fish pie with pastry – white fish including products containing a combination of oily and white fish, but predominantly white fish	650 (250)
Breaded or battered fish shapes, fish burgers, fish cakes, fish fingers, fish in batter, fish in crumb and fish pie with pastry – oily fish including products containing a combination of oily and white fish, but predominantly oily fish	650 (250)
Fish pasta bake and potato topped fish pie	650 (250)
Cannelloni, lasagne, mousakka, ravioli, and meat-based pasta bake	750 (300)
Cheese and vegetable/potato shaped products, macaroni cheese, other composite dishes with cheese as main protein source, cauliflower cheese	750 (300)
Pizza (any variety)	1000 (400)

All specifications are 'as served'

	Maximum salt* (mg/100g) (Maximum sodium)
Vegetarian burger, hot dog, lentil loaf, 'meat' grill, and sausage	1250 (500)
Vegetarian mince	1000 (400)
Vegetarian bean hotpot, casserole, chilli, curry, stew, sweet and sour and tikka	750 (300)
Vegetarian cannelloni, lasagne, mousakka, and risotto	750 (300)
Vegetarian pakora, pancake roll, samosa and spring roll	1000 (400)
Frankfurter and hot dog	1400 (550)
Cottage pie, shepherds pie and stovies	1000 (400)
Battered sausage, bridie, cold pork pie (melton mowbray), meat/ cornish pastie, meat pie with pastry, sausage roll, scotch egg and scotch pie	1000 (400)
Quiche	650 (250)
Vegetarian pastie, flan, nut cutlets, loaf and roast	1000 (400)
Ready to use sauce for addition to meat/TVP and/or vegetables, e.g. bolognaise or curry, or dried sauce when made up ready for use	750 (300)
Ready to use sauce for addition to pasta/potatoes/other vegetables, e.g. cheese and/or cream and/or milk-based sauces, or dried sauce when made up ready for use	750 (300)
Gravy	1000 (400)
Salad cream	2500 (1000)
Mayonnaise	1000 (400)
Tomato ketchup and brown sauce	2500 (1000)
Pickle and relish	1250 (500)
Fruit pies and fruit crumble	250 (100)
Sponge puddings including jam roly poly, spotted dick	750 (300)
Ice-cream	–
Savoury snacks and crisps made from potato, rice, wheat, oats or corn	1550 (600)

Key:

*The use of 'salt' in this Appendix means sources of sodium expressed as salt equivalents. Reduction in other sodium salts (e.g. bicarbonates) can also contribute to achieving these targets. 1g of sodium is equivalent to 2.55g of salt, but salt equivalents have been rounded to the nearest 50mg for the finalised target nutrient specifications.

'–' = no target set

APPENDIX SIX

Template for suggested menu structure

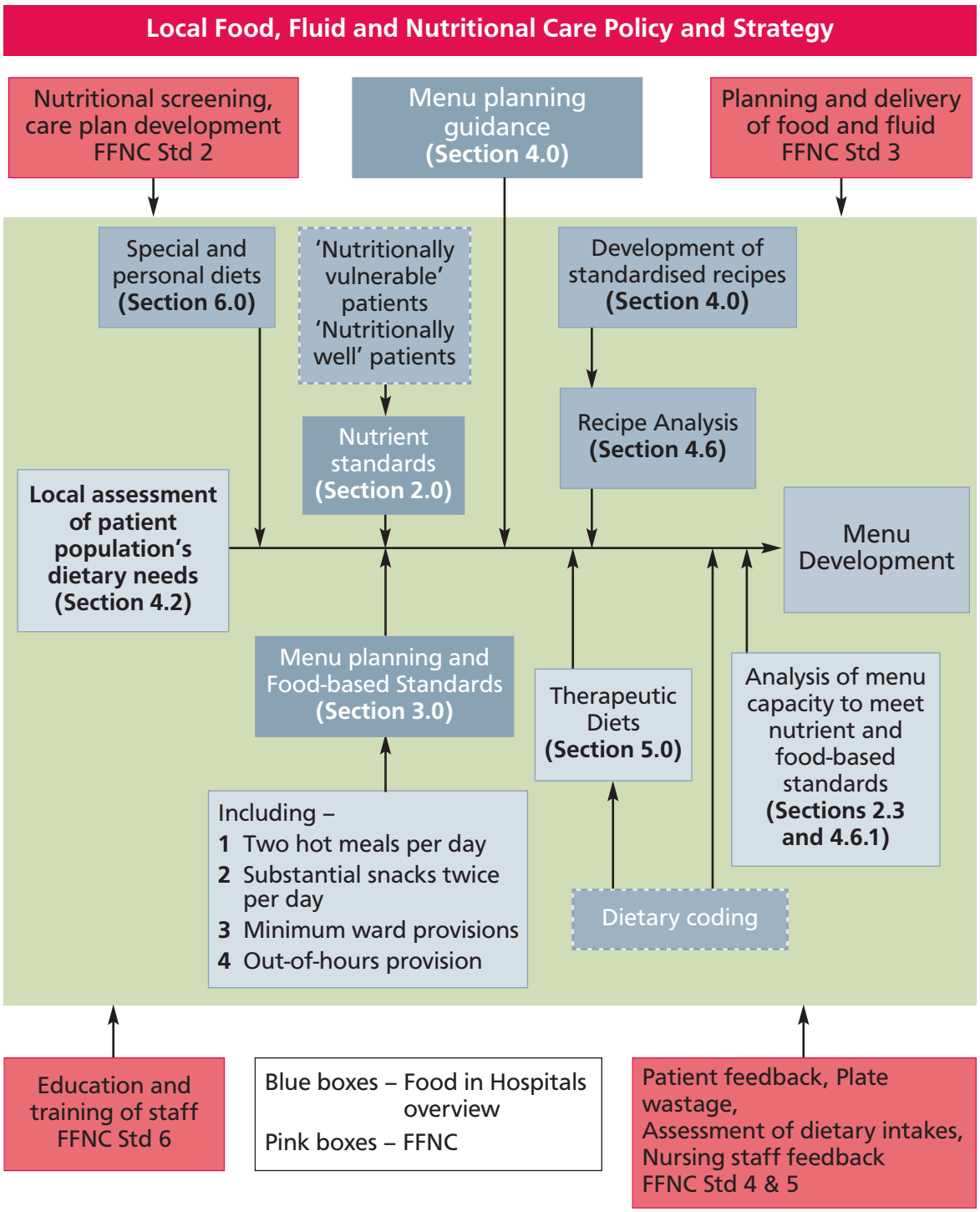
Meal	Meal Item	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
On wakening	Beverage							
Breakfast	Cereal (to include low sugar and wholegrain varieties)							
	Cooked option: Porridge oats/scrambled eggs/sausage/grilled tomatoes/grilled mushrooms							
	Bread/bread roll/toast (a choice of white and wholemeal)							
	Fresh fruit juice/prunes							
	Butter/low fat spread/PUFA/MUFA spread (e.g. olive-oil based)							
	Preserves (regular and low sugar varieties)							
	Beverage							
Mid morning	Beverage							
	Snack including fruit as choice							
Main meal (minimum of 2 courses provided)	Soup and bread							
	Fresh fruit juice							
	Sandwich 1 (meat filling)							
	Sandwich 2 (vegetarian filling)							
	Main course 1 (meat or fish)							
	Main course 2 (meat or fish)							
	Main course 3 (vegetarian)							
	Vegetable 1							
	Vegetable 2							
	Carbohydrate/starch 1							
	Carbohydrate/starch 2							
	Dessert							
	Fruit (fresh or tinned)							
	Yoghurt/pot rice/custard							
	Beverage							

Template for suggested menu structure *(continued)*

Meal	Meal Item	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Mid afternoon	Beverage							
	(+/- Snack including fruit as choice)							
Lighter meal (Minimum of 2 courses provided)	Soup and bread roll							
	Fresh fruit juice							
	Sandwich 1 (meat filling)							
	Sandwich 2 (vegetarian filling)							
	Main course 1 (meat or fish based)							
	Main course 2 (vegetarian)							
	Vegetable							
	Carbohydrate/starch							
	Dessert							
	Fruit (fresh or tinned)							
	Yoghurt/pot rice/custard							
	Beverage							
Before bedtime	Beverage							
	Snack including fruit as choice							

APPENDIX SEVEN

Food in Hospitals: An overview and how it fits within achievement of the wider NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals



FFNC NHS QIS Clinical Standards Food, Fluid and Nutritional Care in Hospitals

APPENDIX EIGHT

Food, fluid and nutritional care in hospitals

Cross reference between NHS QIS Clinical Standards for Food, Fluid and Nutritional Care[1] in Hospitals and National Catering and Nutritional Specification

Standard 1		Catering Specification
Essential 1.1	Each NHS Board has a policy on nutritional care and a strategic plan to improve the provision of nutritional care, food and fluid. These: i) are patient-focused, follow the patient journey of care and ensure that a comprehensive and co-ordinated nutritional care service is provided; ii) are based on a health population needs assessment, which considers local ethnic, religious and cultural patterns and which recognises the need for equity of access; iii) recognise patient groups with particular needs, e.g. children; iv) are risk-assessed and managed; v) are discussed annually at NHS Board level to evaluate progress and produce a plan for further action, based on: • reports from operational nutritional care group(s); • any need for re-design; and • the need for managing change of attitude and behaviour; vi) include a financial framework to underpin the implementation of the action plan; and are published in a format easily understood by and accessible to the public.	2.2 – 'Nutritionally vulnerable' hospital patients 4.2.1 – Assessment of patient population dietary needs 4.2.2 – Cost and resource implications
1.2	Each NHS Board area has at least one operational nutritional care group responsible to the NHS Board for overseeing the implementation of: • NHS QIS Clinical Standards for Food, Fluid and Nutritional Care in Hospitals; and • the NHS Board's strategic plan. The nutritional care group produces an annual written report, detailing progress made and action taken/required. The core membership of this group includes a senior manager reporting to the chief executive, a senior dietitian or dietetic manager, a lead doctor appointed by the medical director, a senior nurse appointed by the nursing director, a catering manager, a dentist, lay representation and co-opted specialist expertise appropriate for the population.	

Standard 1 *(continued)*		Catering Specification
1.3	Where complex nutritional techniques are employed, the patient has access to the services of a clinical nutritional support team responsible for the clinical aspects of intravenous and enteral tube feeding. The core membership of this team includes a doctor, a dietitian, a specialist nutrition nurse and a pharmacist. Clinicians should be part of the Scottish Managed Clinical Network for Home Parenteral Nutrition.	
Standard 2		**Catering Specification**
Essential 2.1	When a person is admitted to hospital as an in-patient, the following are identified and recorded within **1 day** as part of the medical/nursing assessment: • Height and weight; • Eating and drinking likes/dislikes; • Food allergies and need for a therapeutic diet; • Cultural/ethnic/religious requirements; • Social/environmental mealtime requirements; • Physical difficulties with eating and drinking; and • The need for equipment to help with eating and drinking.	2.2 – Recognising patient needs
2.2	The initial assessment includes screening for risk of undernutrition. This screening is carried out using a validated tool appropriate to the patient population, and which includes criteria and scores that indicate action to be taken.*	2.2 – Recognising patient needs
2.3	Repeat screenings are undertaken in accordance with clinical need and at a frequency determined by the outcome of the initial and subsequent screenings.	2.2 – Recognising patient needs
2.4	The outcome of screening is recorded in the medical notes.	2.2 – Recognising patient needs
2.5	The assessment process identifies the need for referral to specialist services, e.g. dietetic, dental.	2.2 – Recognising patient needs
2.6	Patients have access to specialist services: • within agreed timescales; and • 7 days a week for urgent cases.	2.2 – Recognising patient needs
2.7	A multidisciplinary care plan is followed, reviewed and refined, and includes the: i) outcomes of the initial assessment; ii) outcomes of the screening for risk of undernutrition; iii) frequency/dates for repeat screenings; and iv) actions taken as a consequence of repeat screenings.	

* The use of the Malnutrition Universal Screening Tool (MUST) for adults and the calculation of body mass index, in association with appropriate centile charts for children, would be appropriate.

Standard 2 *(continued)*		**Catering Specification**
2.8	The discharge plan is developed with the patient and, where appropriate, carer, and includes information about: i) the patient's nutritional status; ii) special dietary requirements; and iii) the arrangements made for any follow-up required on nutritional issues.	
Desirable 2.9	Patients referred to the dietetic service are seen within **2 days**.	
Standard 3		**Catering Specification**
Essential 3.1	There is a planning group responsible for the implementation of a local protocol or protocols for the provision of food and fluid for patients. The core membership of this group includes a senior member of catering staff, a senior nurse, a doctor, a senior dietitian and allied health professionals and patient representation. The group will also have others appropriate to patient groups (as identified in the population assessment) and to the food delivery system.	4.1 Menu planning guidance
3.2	The planning group is responsible for: i) overseeing a local assessment of need; ii) producing a local 'food chain' protocol/protocols; iii) menu planning, including the use of standard recipes; iv) ensuring the food and fluid provided meets the requirements of the individual, the catering specification is appetising, and is presented with consideration; v) setting main mealtimes appropriate for patient groups; vi) setting mealtimes such that if the evening meal and breakfast are more than 14 hours apart, a substantial snack is available; vii) ensuring there is appropriate food and fluid available outwith main mealtimes; viii) ongoing monitoring and review of the food and fluid provided for patients; and ix) reporting to, and implementing issues devolved from, the Nutritional Care Group.	2.3 – Nutrient specification 3.1 – Menu planning standards 4.3 – Food-based menu planning guidance 4.3.1 – Eating for health 4.4 – Menu structure 4.4.3 – Between meal snacks 4.4.4 – Out-of-hours provision 4.4.5 – Ward supplies 4.5 – Standard recipes 4.6.1 – Analysing menu capacity 5.1.1 – Therapeutic diet provision (criteria)

Standard 3 *(continued)*		Catering Specification
3.3	All dishes and menus are analysed for nutritional content by a state-registered dietitian at the planning stage.	3.1 – Menu planning standards 4.3.2 – Food group menu planning guidance 4.4.1 – Catering specification 4.5.1 – Standard recipes (required information) 4.5.2 – Recipe development 4.6.1 – Analysing menu capacity
3.4	Patient groups are consulted about new menus/ dishes before they are introduced.	
3.5	There is a procedure: • for the delivery of the correct meals/dishes to the ward; • for responding when an incorrect meal/dish is provided; and • to ensure that when a patient misses a meal he/she is then provided with a meal that meets his/her needs.	3.1 – Menu planning standards 4.4.4 – Out-of-hours provision
3.6	The nurse with responsibility for the ward is responsible for having in place a protocol which ensures that: i) correct meals/dishes are received on the ward; ii) meals are delivered to the correct patients at the correct temperature; iii) there is adequate time for patients to eat or drink; staff assist and support patients as required; and iv) patients' intake of food and fluid is monitored, and the necessary action is taken if this intake is inadequate.	
3.7	All non-essential staff activity (clinical and non-clinical) is stopped during patient mealtimes.	
3.8	There is an adequate number of staff available at mealtimes to provide food and fluid to patients and, where necessary, to provide individual assistance with eating and drinking.	

Standard 3 *(continued)*		Catering Specification
3.9	There is a protocol for the provision of all therapeutic diets, including oral nutritional supplements, and for high-energy and high-protein food and fluid.	5.1.1 – Therapeutic diet provision (criteria) 5.2 – Higher energy and nutrient-dense diet 5.3 – 'Healthier eating' diet 5.4 – Allergen-free diets 5.5 – Gluten-free diet 5.6 – Texture modified diet 5.7 – Renal disease diets 5.8 – Clean diet 5.9 – Monoamine oxidase inhibitor diet
3.10	There is a protocol for the provision of any requirement outwith the planned menu, e.g. vegan meals.	3.1 – Menu planning standards 6.1.2 – Special and personal diets (essential criteria) 6.2 – Vegetarianism and veganism 6.3 – Halāl diet 6.4 – Hindu diet 6.5 – Kosher diet 6.6 – Chinese people
Standard 4		**Catering Specification**
Essential 4.1	Patients are given a choice for all food and fluid options provided, including therapeutic and texture-modified diets. There is a choice of portion size for all main courses.	2.3 – Nutrient specification 3.1 – Menu planning standards 3.2 – Food-based standards 4.7 – Portion sizes 5.3 – 'Healthier eating' diet 5.4 – Allergen-free diets 5.5 – Gluten-free diet 5.6 – Modified consistency diets 5.7 – Renal disease diets 5.8 – Clean diet 6.1.2 – Special and personal diets (essential criteria) 6.2 – Vegetarianism and veganism 6.3 –Halāl diet 6.4 – Hindu diet 6.5 – Kosher diet 6.6 – Chinese people

Standard 4 *(continued)*		Catering Specification
4.2	Patients are given the opportunity to choose their own food and fluid. Where required, they are given help in doing so from a member of staff who is aware of their nutritional needs and preferences.	
4.3	Patients select their menu choice as close to the serving of the meal as possible, and no more than two meals in advance.	
4.4	Food and fluid are provided to patients at the correct temperature and texture. Where required, patients are given assistance with eating/drinking while the food/fluid is at the correct temperature.	
4.5	Meals/dishes provided for patients are appetising. Consideration is given to presentation, including the colour balance of dishes and when different courses are provided.	
4.6	Patients are provided with the equipment/utensils for eating/drinking that meet their individual needs.	Appendix one – Individuals with physical and learning difficulties
4.7	Accompaniments/condiments are available for patient use.	
4.8	Where clinically appropriate, patients have access to fresh drinking water at all times.	3.2 – Food-based standards 4.3.2 – Food group menu planning guidance (table 10)
Desirable 4.9	Where clinically appropriate, patients are given the opportunity to choose whether to eat/drink at or away from their bed.	
Standard 5		**Catering Specification**
Essential 5.1	On, or prior to, admission to hospital, patients are provided with information on: • how to order their meals; • mealtimes; • the content of meals and choices available; • facilities available for eating meals, and where meals are served; • the opportunities available for preparing/consuming food and fluid; • assistance with eating and drinking if required; • special equipment/utensils for eating and drinking if required; • the procedure for obtaining a meal if one is missed; and • how to make a comment or compliment about the nutritional care, food and fluid provided.	5.1.2 – Dietary coding

Standard 5 *(continued)*		Catering Specification
5.2	Patients and, where appropriate, carers, are given information about the: • food and fluid that relatives and carers can provide for them; and • patient's nutritional needs, including any food/fluid to avoid.	
5.3	Patients are encouraged to give their views on the food and fluid provided. These views are collected and trends are reported regularly to the relevant planning group.	
Standard 6		**Catering Specification**
Essential 6.1	All staff should be aware of the importance of nutritional care for the patients' health and quality of life. Staff in contact with patients at any point in the 'food chain' are aware of: • the local protocol(s) or processes for ordering and delivering food/fluid; • meal and snack times; and • procedures for ordering missed meals.	
6.2	All staff in contact with patients and their food and fluid receive training in health and safety issues and food hygiene commensurate with their duties.	
6.3	There is a programme of nutrition education for staff, commensurate with their duties, which ensures that all staff with a specific responsibility at any point in the 'food chain' are given appropriate guidance and training, e.g. in the preparation of texture-modified diets, in the use of the screening tool and appropriate alternative measures, and in the recognition of physical difficulties with eating and drinking.	

APPENDIX NINE

Membership of Hospital Food Reference Group

Over the development of the report membership has evolved. The following list includes members over the period.

David Bedwell	Health Facilities Scotland
Kenneth Birrell	Chair, West of Scotland Hospital Catering Association
Marjory Chirnside	NHS Lothian
Janice Gillan, MIH	NHS Argyll and Arran
Paul Kingsmore	Health Facilities Scotland
Lisa McLaren	NHS National Support Services
Heather Peace, RPhNutr	Food Standards Agency Scotland
Morag Mackellar, FBDA, RPhNutr	NHS Forth Valley
Anne Milne, MSc	Food Standards Agency Scotland
Brian Robb, MIH	NHS Lothian
Joyce Thompson	NHS Tayside
Gillian Kynoch	Public Health and Wellbeing Directorate, Scottish Government
Christine McGregor	Analytical Services, Scottish Government
Janet McVea	Public Health and Wellbeing Directorate, Scottish Government
Linda Miller	Public Health and Wellbeing Directorate, Scottish Government
Authors	Helen Davidson, BSc (April 06 – April 07)
	Lauren Scott (December 06 – March 07)
	Dr Elaine Bannerman, PhD, RD (April 07 – to completion)

REFERENCES

1. NHS Quality Improvement Scotland Clinical Standards 2003. Food, Fluid and Nutritional Care in Hospitals. [http://www.nhshealthquality.org/nhsqis/files/Food,%20Fluid%20Nutrition.pdf]
2. Food Standards Agency. McCance and Widdowson's The Composition of Foods. Sixth Summary Edition. Cambridge: The Royal Society of Chemistry. (2002)
3. MAFF Food Portion Sizes Second Edition. London: HMSO. (1998)
4. The British Dietetic Association and Hospital Caterers Association. Delivering Nutritional Care through Food and Beverage Services – A Toolkit for Dietitians (2006). www.bda.uk.com
5. Food Standards Agency. Guidance Notes on the Food Labelling (Amendment) (No. 2) Regulations 2005 (as amended). [www.food.gov.uk/multimedia/pdfs/labelguidederived.pdf]
6. British Dietetic Association and Royal College of Speech and Language Therapists. National Descriptors for Texture Modification in Adults (2002). http://members.bda.uk.com/Downloads/dysphagia.pdf
7. Thomas B, Bishop J. British Dietetic Association. Manual of Dietetic Practice 4th Edition. Oxford: Blackwell Publishing. (2007).
8. Renal Nutrition Group of the British Dietetic Association (2001). Specifications for Hospital Menus of Renal Inpatients.
9. Merriman SH. 'Monoamine oxidase drugs and diet' Journal of Human Nutrition and Dietetics. (1999) 12: 21-28.
10. The Vegetarian Society. Gallup Poll for RealEat 2001. [http://www.vegsoc.org/info/realeat.html].
11. Department of Health. Dietary Reference Values for Food Energy and Nutrients in the United Kingdom. Report of the panel on Dietary Reference Values of the Committee on Medical Aspects of Food Policy. Report on Health and Social Subjects. London: HMSO (1991).
12. Kris-Etherton PM, Harrish WS, Appel LJ. Fish Consumption, Fish Oil, Omega-3 Fatty Acids and Cardiovascular Disease. American Heart Association Circulation (2002). 106 (21): 2747.
13. Scottish Executive. Hungry for Success – A Whole School Approach to School Meals in Scotland (November 2002). [www.scotland.gov.uk/Resource/Doc/47032/0023961.pdf]
14. Scottish Consumer Council (2008) 'Healthy Living Award' [http://www.healthylivingaward.co.uk/index.asp]
15. Audit Scotland. Catering for Patients – A follow-up Report (November 2006). [http://www.audit-scotland.gov.uk/docs/health/2006/nr_061130_catering_patients_followup.pdf]

16. Scottish Executive. Eating for Health – Meeting the Challenge (2004). [http://www.scotland.gov.uk/Publications/2004/07/19624/39995]

17. Scottish Executive. Improving Health in Scotland – The Challenge (2003). [www.scotland.gov.uk/library5/health/ihis-00.asp]

18. McWhirter J, Pennington C. Incidence and Recognition of Malnutrition in Hospital. British Medical Journal. (1994); 308 (6934): 945-948.

19. Walker J, Higginson C, The Nutrition of Elderly People and Nutritional Aspects of their Care in Long-Term Care Settings. Final Audit Report 1997-2000. Edinburgh: Clinical Resource and Audit Group (CRAG) (2000). [http://www.crag.scot.nhs.uk/topics/nutrition/report.PDF]

20. BAPEN (2007) 'Nutrition Screening Week 2007 – Factsheet.' [http://www.bapen.org.uk/pdfs/nsw/nsw_07_factsheet.pdf]

21. NHS ISD Scotland [www.isdscotland.org/isd/3348.html]

22. Council of Europe (2003) Resolution ResAp (2003)3 Food and Nutritional Care in Hospitals: How to prevent undernutrition. Report and recommendations of the Committee of Experts on Nutrition, Food Safety and Consumer Protection. Council of Europe Publishing.

23. National Institute for Health and Clinical Excellence. Nutrition Support in Adults – Oral Nutrition Support, Enteral-tube Feeding and Parenteral Nutrition. CG32 (February 2006). National Collaborating Centre for Acute Care, London. [http://guidance.nice.org.uk/CG32]

24. Food Standards Agency Strategic Plan 2005 – 2010 Putting Consumers First. [http://www.food.gov.uk/multimedia/pdfs/stratplan0510.pdf]

25. NHS QIS 'Fair for All' (2007) [http://www.nhshealthquality.org/nhsqis/3764.html]

26. The Scottish Office. Eating For Health: A Diet Action Plan for Scotland (1996). [http://www.scotland.gov.uk/library/documents/diet-00.htm]

27. Hospital Caterers Association. Good Practice Guide – Healthcare Food and Beverage Service Standards, A guide to ward level services. (2006) Lansdowne. http://www.hospitalcaterers.org/publications/

28. Barton AD, Beigg CL, Macdonald IA, Allison SP. High Food Wastage and Low Nutritional Intakes in Hospital Patients. Clinical Nutrition. (2000) 19(6): 445-449.

29. Gall MJ, Grimble GK, Reeve NJ, Thomas SJ. Effect of providing fortified meals and between-meal snacks on energy and protein intake of hospital patients. Clinical Nutrition. (1998) 17(6): 259-264.

30. South East Thames Regional Health Authority Service Standards. Nutritional Guidelines – Menu Planning (1993).

31. Allison S. Hospital Food as Treatment. A Report by a Working Party of BAPEN. Maidenhead: BAPEN (1999).

32. Department of Health (1995) Nutrition Guidelines for Hospital Catering; The Health of the Nation, Nutrition Task Force; DH, Wetherby.

33. Scientific Advisory Commission on Nutrition. Salt and Health Report (2003). London: The Stationery Office. **www.sacn.gov.uk/pdfs/sacn_salt_final.pdf**.

34. Regulation (EC) No 1924/2006 of the European Parliament and of the Council on nutrition and health claims made on foods.

35. British Nutrition Foundation. Liquids for Life. (2006) [**http://www.nutrition.org.uk/upload/LIQUIDS%20FOR%20LIFE%202006.pdf**]

36. Denby N. Fluid – Why you need it and how to get enough. Food Fact Sheet. British Dietetic Association (2007). [**http://www.bda.uk.com/foodfacts/070606_fluid.pdf**]

37. Water UK – Water for Health. [**www.water.org.uk/home/water-for-health/**]

38. Food Standards Agency **www.eatwell.gov.uk/healthydiet/eatwellplate**

39. Food Standards Agency. FSA Nutrient and Food Based guidelines for UK Institutions. (2007) [**http://www.food.gov.uk/multimedia/pdfs/nutguideuk.pdf**]

40. The Scottish Office. Eating for Health – a Diet Action Plan for Scotland. Edinburgh: HMSO (1996). [**www.scotland.gov.uk/library/documents/diet-00.htm**] [Accessed 30/08/07]

41. Department of Health. 5 A DAY portion information. (2007) [**http://www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/FiveADay/FiveADaygeneralinformation/DH_4001494**]

42. Williams PG Vitamin retention in cook/chill and cook/hot-hold for hospital food services. Journal of the American Dietetic Association 1996 96(5): 490-498

43. Department of Health (2003). Better Hospital Food Catering Services for Children and Young Adults. **http://195.92.246.148/nhsestates/better_hospital_food/bhf_content/introduction/home.asp**

44. Water UK. 'Water for Health: Hydration Best Practice Toolkit for Hospitals & Healthcare.' [**http://www.water.org.uk/home/water-for-health/healthcare-toolkit/download/hydration-toolkit—entire-and-in-order.pdf**].

45. NHS Estates. Better Hospital Food. [**http://195.92.246.148/nhsestates/better_hospital_food/bhf_content/introduction/home.asp**]

46. U.S. Department of Agriculture, Food and Nutrition Service and National Food Service Management Institute. (2002). Measuring success with standardized recipes. University, MS: National Food Service Management Institute. [**http://www.olemiss.edu/depts/nfsmi/Information/stdrecipes/complete.pdf**]

47. Food Standards Agency McCance and Widdowson's The Composition of foods, sixth summary edition. Cambridge: Royal Society Chemistry (2002).

48. Department of Health. NHS Estates Managing Food Waste in the NHS. [**http://195.92.246.148/nhsestates/better_hospital_food/bhf_downloads/managing_food_waste_in_NHS.pdf**]

49. Food Standards Agency. Guidance on Allergen Information Management. The provision of Allergen information for non-pre-packed foods: Voluntary Best Practice Guidance. (2008) [**http://www.food.gov.uk/multimedia/pdfs/loosefoodsguidance.pdf**]

50. Webb GP, Copeland J. The Nutrition of Older Adults. Hodder Arnold (1996).

51. Scottish Executive and Food Standards Agency Scotland. Catering For Health – A guide for teaching healthier catering practices (2006).

52. Coeliac UK [**http://www.coeliac.co.uk/food_business/default.asp**]

53. Coeliac UK. Gluten-free Food and Drink Directory (NB this is regularly updated)

54. Wright L, Cotter D, Hickson M, Frost G. Comparison of energy and protein intakes in older people consuming a texture modified diet with a normal diet. *Journal of Human Nutrition Dietetics,* (2005). 18:213-219.

55. Kidney Disease Outcomes Quality Initiative (K/DOQI). Clinical practice guidelines for nutrition in chronic renal failure. American Journal of Kidney Disease (2000). 36 (suppl 2): S17-S104.

56. Rai EM, and Hartley GH. An evaluation of renal inpatient meals against renal nutrition group standards. Journal of Human Nutrition and Dietetics. (2006) 19: 369-374.

57. British National Formulary (2007) 'BNF 53' London: BMJ Publishing Group Ltd.

58. Hartley B, Hamid F. Investigation into the suitability and accessibility of catering practices to inpatients from minority ethnic groups in Brent. Journal of Human Nutrition and Dietetics (2002). 15 (3): 203-209.

59. General Register Office for Scotland. Scotland's Census 2001. [**http://www.gro-scotland.gov.uk/census/censushm/index.html**]

60. The Shap Working Party on World Religions in Education [**http://www.shap.org/index.php**]

61. The Scottish Nutrition and Dietetic Resource Initiative (SNDRi) [**http://www.caledonian.ac.uk/sndri/primary_current.html**]

62. The Muslim Food Board UK [**http://www.tmfb.net/js/intro.html**]

63. The Kashrut Division of the London Beth Din [**www.kosher.org.uk**]

64. Finch S, Doyle W, Lowe C, Bates C.J, Prentice A, Smithers G, Clark P.C. The National Diet and Nutrition Survey of people aged 65 years and over. Volume 1. Report of the Diet and Nutrition Survey. (1998) London, The Stationery Office.

65. National Association of Care Catering (2006) Menu Planning and Special Diets in Care Homes.

66. Food Standards Agency. Eating while you are Pregnant (2002). [**www.food.gov.uk/multimedia/pdfs/life02eatingwhenpregnant.pdf**]

67. Crawley H. (2007) 'Eating Well: children and adults with learning disabilities' The Caroline Walker Trust.

68. NHS Health Scotland (2004) 'Health Needs Assessment Report – Summary. People with Learning Disabilities in Scotland.' Glasgow: NHS Health Scotland.

69. National Association of Care Caterers. Menu Planning and Special Diets in Care Homes Manual (2006).

70. DiMasco F, Hamilton K & Smith L. (2004) 'Professional Consensus Statement. The Nutritional Care of Adults with Learning Disability in Care Settings.' Mental Health Group of the British Dietetic Association. Birmingham: BDA. [http://www.bda.uk.com/resources/Adults_learning_disability_statement.pdf]

71. Kondrup J, Stenbaek Hansen B, Ipsen B, Ronneby HH. Outcome from Nutritional Support using Hospital Food. Nutrition (1998). 14: 319-321.

72. Scientific Advisory Committee on Nutrition Advice on Fish Consumption: benefits and risks (2004). [http://www.food.gov.uk/multimedia/pdfs/fishreport200401.pdf]

73. Nutrition Subcommittee of the Diabetes Care Advisory Committee of Diabetes UK. The implementation of nutritional advice for people with diabetes. Diabetic Medicine (2003). 20: 786-807.

74. Hoare J, Henderson L, Bates CJ et al. The National Diet and Nutrition Survey: adults aged 19 to 64 years. Summary Report. Volume 5. Report of the Diet and Nutrition Survey. (2004) London, The Stationery Office.

75. Scientific Advisory Committee on Nutrition Folate and Disease Prevention (2006). [http://www.sacn.gov.uk/pdfs/folate_and_disease_prevention_report.pdf]

76. Casey G. The importance of nutrition in wound healing. Nursing Standard (1998). 13(3): 51-56.

77. Scottish Executive(2005) Nutritional Guidance for Early Years: Food Choices for Children aged 1-5 years in Early Education and Childcare Settings.

78. Food Standards Agency. Guidance on food served to adults in major institutions. (2007). [http://www.food.gov.uk/multimedia/pdfs/institutionguide.pdf]

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