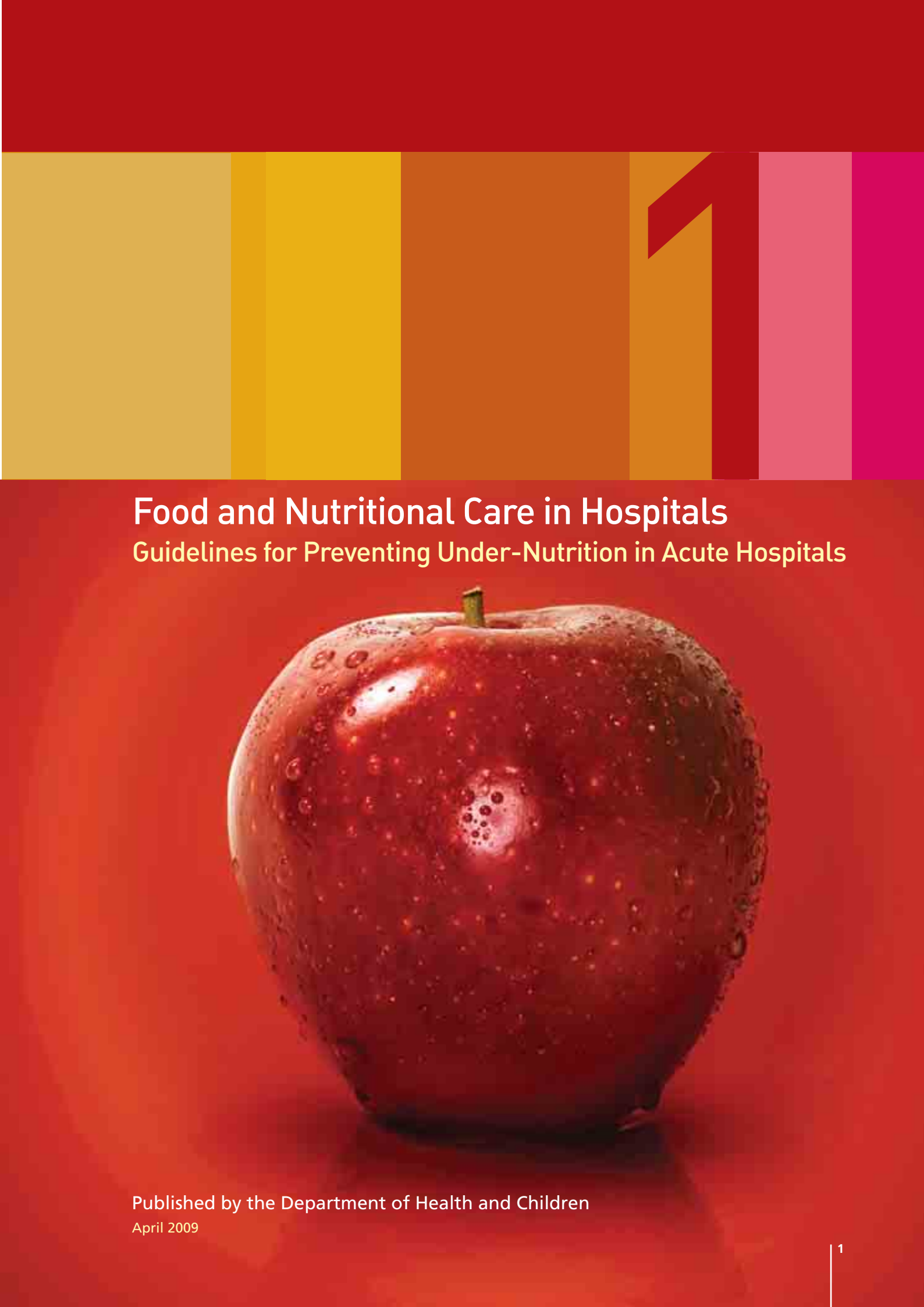
Food and Nutritional Care in Hospitals

Guidelines for Preventing Under-Nutrition in Acute Hospitals



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Foreword

AS Minister for Health and Children, I am delighted to publish these *Guidelines for Preventing Under-Nutrition in Acute Hospitals* which will greatly benefit patients. The guidelines have been developed as part of the Hospital Food Programme and the implementation of key Departmental strategies: the National Health Promotion Strategy, and *Quality and Fairness – A Health System for You.*

In a European context, these guidelines will help achieve the recommendations outlined in the Council of Europe report, *Food and Nutritional Care in Hospitals: How to Prevent Under-Nutrition* (Council of Europe, 2002).

Making healthy and nourishing food choices easily accessible to patients in acute hospitals can help reduce the incidence of under-nutrition in Irish hospitals. These guidelines are one step in our overall Hospital Food Initiative to improve the nutritional value of hospital food. In 2005, my Department published *Healthy Catering Guidelines for Staff and Visitors in Healthcare Facilities*. Last year, an achievement award, the Healthcare Food Award, was announced. This award acknowledges the implementation of phases in the Hospital Food Initiative. I am delighted to congratulate St Vincent's University Hospital and Naas General Hospital on achieving this award recently.

The next phase will be the development of Food and Nutrition Guidelines for Children's Hospitals followed by Food and Nutrition Guidelines for Long-Stay Institutions.

Caterers play an important role in helping patients to make healthy and nourishing food choices. Together with hospital dietitians, they can create a supportive environment for healthy nutrition. All food staff, by ensuring that patients eat well, help to improve both their physical and mental health, and thus speed up their recovery from illness.

I would like to thank everyone involved in developing these guidelines, particularly the Irish Nutrition & Dietetic Institute, which led out on this initiative, the Catering Managers Association, hospital managers, dietitians, the National Vocational Catering Managers Group, IMPACT, the Health Promoting Hospitals Network, the National Hospitals Office and HSE Population Health. As well, the input of all those who participated in the consultation process will contribute to the successful implementation of the guidelines.

I would also like to thank our colleague Paul Cryer, in the National Health Service, UK, who shared experiences on its Better Hospital Food programme, and Rick Wilson, Director of Nutrition and Dietetics, King's College Hospital, London, who provided additional practical advice on the Council of Europe report (referred to above), which has guided the development of these guidelines.

I would encourage catering and other relevant health professionals in all acute hospitals to embrace these highly comprehensive guidelines and put them into practice, in a step-by-step process over the next two years. By doing so, they will help patients to attain and sustain good health during their hospital stay.

Mary Harney, TD
Minister for Health and Children

Steering group

Philomena Flood	Chairperson, Clinical Nutrition Manager in Charge, 111, St James's Hospital, Dublin.
Sarah Keogh	Researcher, Consultant Dietitian, The Albany Clinic, Dublin.
Anne O'Grady	Secretary, Nutrition Specialist, SHS Ireland, Dublin.
Mary McKiernan	Dietitian Manager in Charge 111, Mater Hospital Eccles Street, Dublin.
Sinead Feehan	Clinical Nutrition Manager in Charge 111, AMNCH, Tallaght, Dublin.
Elizabeth Barnes	Clinical Nutrition Manager in Charge 111, St Vincent's University Hospital, Dublin.
Ursula O'Dwyer	National Nutrition Policy Adviser, Health Promotion Policy Unit, Department of Health and Children.
Breda Hayes	Irish Nursing Association.
Brenda Wheeler	Irish Patients Association.
Marie Branigan	Irish Nutrition and Dietetic Institute (INDI)
Helena O'Brien	Catering Manager, St Stephen's Hospital, Glanmire, Co Cork.
Anne Casey	Catering Manager, Mercy Hospital, Cork.
Vocational Group - IMPACT	Margaret Coughlan, Catering Manager, HSE Dublin. Patricia Farrell, Catering Manager, Our Lady of Lourdes Hospital, Drogheda. Rosemary Bracken, Catering Manager, Cherry Orchard/St Mary's Hospital, Dublin. Yvonne Dowler, Catering Project Manager, HSE Midlands. Margaret Bergin, Catering Manager, HSE South-East. Paul Cruite, Catering Manager, Our Lady's Children's Hospital, Dublin.
Dr Martin Buckley	Medical Consultant, formerly at AMNCH, Tallaght, Dublin.
Anne O'Riordan	National Health Promoting Hospitals Network, National Co-ordinating Centre, c/o JCM Hospital, Dublin.
Mary Mulvihill	Senior Dietitian, Mullingar Hospital, Co Westmeath.

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- the Health Service Executive - Corporate and Population Health
- IMPACT
- those who participated in the national consultation
- those who read and commented on the draft documents

Definitions

Alternative diets	Diets prescribed by alternative practitioners for treating illnesses or maintaining health.
Anthropometrical measurements	The assessment of a person's nutritional state and body composition. It may consist of measurements of body height, body weight, skin-fold thickness, and arm and calf circumference.
Artificial nutritional support	Administration of specially formulated liquid nutrients through a tube directly into the gut (enteral nutrition) or into a vein (parenteral nutrition).
Body mass index (BMI)	Weight (in kilograms) divided by height^2 (in meters). Body mass index is used to define underweight, normal or healthy weight, overweight and obesity in adults. However, patients with a normal BMI can still be undernourished. It should be noted that oedema always falsely increases weight.
Clinical nutrition	The application of scientifically based nutritional methods in medical and dietetic practice. This includes nutritional disease prevention and the treatment of nutritional disorders.
Clinical nutritionist/ dietitian	A health professional specialised in clinical nutrition and dietetics who is responsible for nutritional disease prevention and nutritional treatment of individuals in institutions and the community. Clinical nutritionists/dietitians also prescribe and oversee the use of artificial nutritional support and are responsible for the nutritional care of patients in hospital.
Cost-benefit analysis	This extends the cost-effectiveness analysis by placing a monetary value on the outcomes (see cost-effectiveness).
Cost-effectiveness analysis	This compares the cost and outcomes of two or more different ways to achieve the same end in order to find the one that is most effective relative to its cost.
Disease-related under-nutrition	A state of insufficient intake, use or absorption of energy and/or nutrients due to individual or systemic factors. It results in recent or rapid weight loss and change in organ function and is likely to be associated with a worse outcome from the disease or treatment. Undernourished patients can be overweight or obese according to their BMI.
Drug-nutrient interactions	An event that occurs when nutrient availability is altered by a medication, a drug effect is altered, or when a concurrent nutrient intake causes an adverse reaction.
Energy- and protein-dense menu	A menu which has high levels of protein and energy (calories) in small amounts of food due to the use of foods and/or food products with a high fat and protein content.

Enteral nutrition	Nutrition provided through a tube, catheter or stoma that delivers nutrients directly to the gut, bypassing the mouth.
Food service	A system in which meals are produced and served for hospital patients in a professional context. The system includes the food service premises, the production and distribution technology and human resources involved in management, production, distribution and serving.'
Hospital food	The meals served in hospitals, including special diets.
Macronutrients	Nutrients that are used or can be used to supply energy to the body: carbohydrate, protein and fat.
Micronutrients	Essential nutrients required by the body in small quantities: vitamins, minerals and oligoelements.
Nutritional assessment	A comprehensive evaluation of a person's nutritional status, including: medical history, dietary history, physical examination, anthropometrical measurements and laboratory data.
Nutritional care	The basic duty of providing to the patient adequate and appropriate food, drinks and/or artificial nutrition.
Nutritional counselling	Advising patients on nutrition.
Nutritional risk	The risk of nutrition-related complications in a disease or treatment.
Nutritional risk screening	The process of identifying characteristics associated with nutrition-related complications. The purpose is to detect patients at risk who may experience an improved clinical outcome when given nutritional support.
Nutrition steering committee	An advisory committee that oversees nutrition policy and activity in a hospital. It consists of senior staff from all disciplines, including managers, involved in the nutritional care of patients.
Nutrition support	Part of medical and dietetic treatment; its purpose is to improve or maintain a patient's nutritional status and improve recovery. The assessment of current nutritional status involves: • estimation of nutritional requirements • prescription and delivery of appropriate energy, macro- and micro-nutrients, electrolytes and fluids (in the form of ordinary hospital food {first choice}, sip feeds and/or artificial nutrition) • monitoring the former in the context of clinical status • ensuring that the best feeding route is used at all times
Parenteral nutrition	Nutrients provided intravenously either into a large central vein or peripheral vein.
Sip feeds	Nutrition provided in the form of high-calorie, high-protein drinks which are sipped by the patient between meals or as a supplement to meals.

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INTRODUCTION

Promoting good nutritional care in hospitals

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

Hippocrates, circa 400 BC

The length of time a patient spends in hospital and the cost of that stay is linked to the patient's nutritional status.[1] Under-nutrition in sick patients is associated with:

- impairment of every system in the body: muscle weakness, particularly in respiratory muscles; reduction of the ability of the immune system to function; and alterations in the structure and function of the gut
- delayed wound healing
- apathy and depression
- reduction of appetite and the ability to eat
- higher rates of mortality

These changes combine to increase both the length of time a patient spends in hospital and the cost of that stay. Apart from this, the patient's quality of life is severely affected, both while in hospital and after discharge.[2]

All patients have a right to safe, nutritious food. They expect that their nutritional needs will be fulfilled during hospitalisation. The benefits of providing nutritional support have been documented in several clinical situations. While some patients may benefit from special techniques of nutritional support (by the enteral or parenteral routes), most depend on ordinary hospital food to improve or maintain their nutritional status in order to optimise their recovery from illness.

In Ireland, studies have found that 11% of patients admitted to hospital were malnourished and between 63% and 84% were at nutritional risk.[3] In Europe generally, up to 30% of patients admitted to hospitals are found to be malnourished. In one Irish study, a weight loss of more than 10% of usual weight was linked with a significantly greater risk of mortality.

Nutritional status often declines while the patient is in hospital; a study has shown that 29% of previously well-nourished patients showed deterioration in nutritional status during their hospital stay.[4]

All acute hospitals need to be aware of the results of the above research and action must be

1 Allison 1999.
2 Brozek 1990, Allison *et al* 1999.
3 Corish 2000, Charles *et al*1999.
4 Charles et al 1999.

taken to prevent under-nutrition. The nutritional status of patients must be assessed in hospital and effective treatment given. Food service in hospitals must be given a higher priority and recognised as an integral and important part of the patient's treatment and care.

Aim of guidelines

The aim of this document is:

- To increase awareness of the serious problem of under-nutrition in Irish hospitals.
- To document guidelines for managing nutrition in Irish acute adult hospitals.
- To issue recommendations which help to ensure that assessment of nutritional status and requirements, hospital food, nutritional support and monitoring are regarded as important and necessary parts of patient care.
- To provide minimum nutritional guidelines for the provision of hospital food and to outline the responsibilities of all staff members in treating and preventing under-nutrition.
- To consider how the Health Service Executive-Corporate (especially Population Health and the National Hospitals Office), hospital managers, food service providers and healthcare professionals might work together to improve the nutritional care and support of hospitalised patients.

Cost benefits

Assessing the nutritional risk of patients is the first step in treating under-nutrition. There are substantial cost benefits:

- A review of 22 nutrition surveys in 70 hospitals in the US showed that patients receiving early nutrition intervention had a shorter length of stay (by 2.1 days on average), leading to a direct saving of $697 per bed per day.
- In the UK, the King's Fund Report calculated that treatment of under-nutrition would lead to a saving of £453m each year.[5]

It is worth stressing that a hospital policy designed to identify and treat under-nutrition at an early stage may prevent some patients from losing weight to the point where more expensive forms of artificial nutrition become necessary.[6]

Children in acute hospitals

While many acute hospitals can have children as patients, these guidelines are focused on adult patients. However, children in acute hospitals may benefit from the introduction of the guidelines. Studies of hospitalised children commonly find that a significant proportion are undernourished.[7]

[5] Lennard-Jones 1992.
[6] Allison 1995.
[7] Hendrikse *et al* 1997.

Barriers to good nutritional care in hospitals

Choosing and enjoying healthy food at all stages of life, together with other healthy behaviours, can help to ensure good health.

The acute healthcare facility provides an excellent opportunity to attain and sustain healthful eating habits. In particular, for patients with chronic diet-related diseases, learning to eat well can improve well-being and enhance quality of life.

For patients in acute hospitals, the largest nutrition problem is under-nutrition. On admission to acute hospitals, as many as 11% of patients are malnourished.

While patients are in hospital, this problem is often exacerbated because hospital procedures often necessitate fasting or conflict with meal times, or the food served to patients may not be adequate for their nutritional needs. If these patients are offered food choices that follow the general Healthy Eating Guidelines of low-fat, high-fibre and high fruit and vegetable intake, and low intake of salt and sugar, their risk of under-nutrition *increases*. It is particularly important that all people involved in caring for and feeding the hospital patient be aware of this problem of under-nutrition.

The first and most important step is that a screening tool is used to assess the nutritional status of all patients on admission to hospital. After that, patients who are under-nourished or at risk of under-nutrition need to be carefully monitored. Food has to be seen as an integral part of the patient's medical treatment rather than part of a 'hotel service' provided by the hospital. As well, there are substantial cost benefits in treating under-nutrition. These include shorter lengths of hospital stay and reduced costs per stay. The earlier under-nutrition is recognised and treated, the greater the benefits.

Barriers to change

Several actions must take place to ensure a patient has adequate food intake while in hospital. These include:

- screening the patient for nutritional risk
- monitoring dietary intake
- modifying the hospital menu according to patient preferences
- ensuring that the service and ambience of mealtimes are focused on the patient with reduced appetite
- proper food preparation and distribution

A weak link in any part of this chain has consequences for both the patient and the hospital. For this reason, a prerequisite of proper hospital nutrition is that all stages in the provision of food – from nutritional risk screening and menu design to distribution and serving – must be dealt with adequately.

There is growing awareness that under-nutrition, in association with sickness/disease, is a significant problem with considerable economic costs, but this is still not widely recognised or accepted.

The following is a summary of the barriers to proper nutritional care in hospital, as outlined in *Food and Nutritional Care in Hospitals: How to Prevent Under-Nutrition*, published by the Council of Europe in 2002.

The five major factors outlined in the report are:

1. Lack of clearly defined responsibilities in planning and managing nutritional care

The responsibilities, duties, and tasks of different staff categories in nutritional care and support and food service seem to be unclear in most European hospitals. As a consequence, routine nutritional risk screening and assessment is generally not performed. Neither is nutritional counselling commonly practised. Finally, the use of nutritional support for undernourished patients and at-risk patients is sparse and inconsistent.

The responsibilities of both management and staff for nutritional care should be clearly assigned.

2. Lack of sufficient education in nutrition among all staff groups

Physicians' education contains few lessons addressing nutrition-related topics. Teaching has lagged behind nutritional research, increasing the gap between knowledge and practice. Nurses generally find it difficult to identify at-risk patients and set up nutritional treatment plans. Dietitians receive the most up-to-date training but responsibilities in practice are varied due to lack of clinical awareness of the benefits of nutritional care and lack of support and access to adequate financial resources. Food-service staff may not be aware of the importance of providing highly nutritious food to ill patients. As a result, they may not have a strong enough influence in the allocation of budgets. Also, management may lack sufficient awareness about the benefits of nutrition and thus not recognise its importance.

A general improvement in the level of nutrition education of all staff groups is needed.

3. Lack of influence of patients

The basic patient right to safe nutritious food is an integral part of this programme and should be communicated to patients and their families, according to hospital policy.

Patients attending hospital often find it difficult to adjust, from food cooked in their own homes, to meals produced through large-scale methods of production and service. This may result in poor intake of food and weight loss, without the patient recognising that losing weight will increase their chances of complications from a disease. Patients can miss meals because of fasting or tests and are often unaware that extra meals and snacks are available. Where a choice between menus is offered, care must be taken to help the undernourished patient choose appropriate food, as they may select low-calorie foods if these are available on a menu. Additional factors such as hours of meal service and disturbances during mealtimes (such as rounds by medical personnel) affect the way patients eat and enjoy their food.

The provision of meals should be individualised and flexible. All patients should be able to order extra food and be informed about this possibility. Patients should be involved in planning their meals and have some control over food selection. Menus targeting specific groups should be developed.

4. Lack of cooperation between staff groups

In general, the simplest way to ensure that the patient eats well is to have close collaboration between patients and the medical, nursing, dietetic and food-service staff. In practice, such collaboration seldom occurs.

Hospital managers, physicians, dietitians, nurses, catering managers and food-service staff should work together toward the common goal: optimal nutritional care of patients. Hospital management should give priority to facilitating this cooperation.

5. Lack of involvement by the hospital administration

Management may not consider food service to play a particularly important role in the service the hospital provides. The food service is often regarded as an issue that can be addressed apart from patient treatment and as a simple task that any food operator can handle. But good hospital food service requires skilled food-service operators. Management should be able to define exactly what the food service should include.

Providing meals should be regarded as an essential part of treating patients and not just as a 'hotel service'. Hospital management should acknowledge responsibility for the food service and the nutritional care of patients, and give priority to hospital food policy. When assessing

the cost of the food service, it should take account of the costs of complications and prolonged hospital stay due to under-nutrition.

Besides the five main barriers above, research has highlighted the following as helping to improve nutritional care and support in hospitals:

- Developing and validating simple food recording methods
- Nutritional support that improves both nutritional status and clinical outcome (including physical and mental functioning and quality of life)
- Protein and energy-dense food that improves patient outcome
- Methods to ensure that patients eat ordinary hospital food
- Methods to assess patient satisfaction with the food available
- The influence of food service practice on food wastage
- The influence of food service practice on nutrient losses

Putting Theory into Practice - suggestions by the National Hospitals Office Network are included in Appendix 6.

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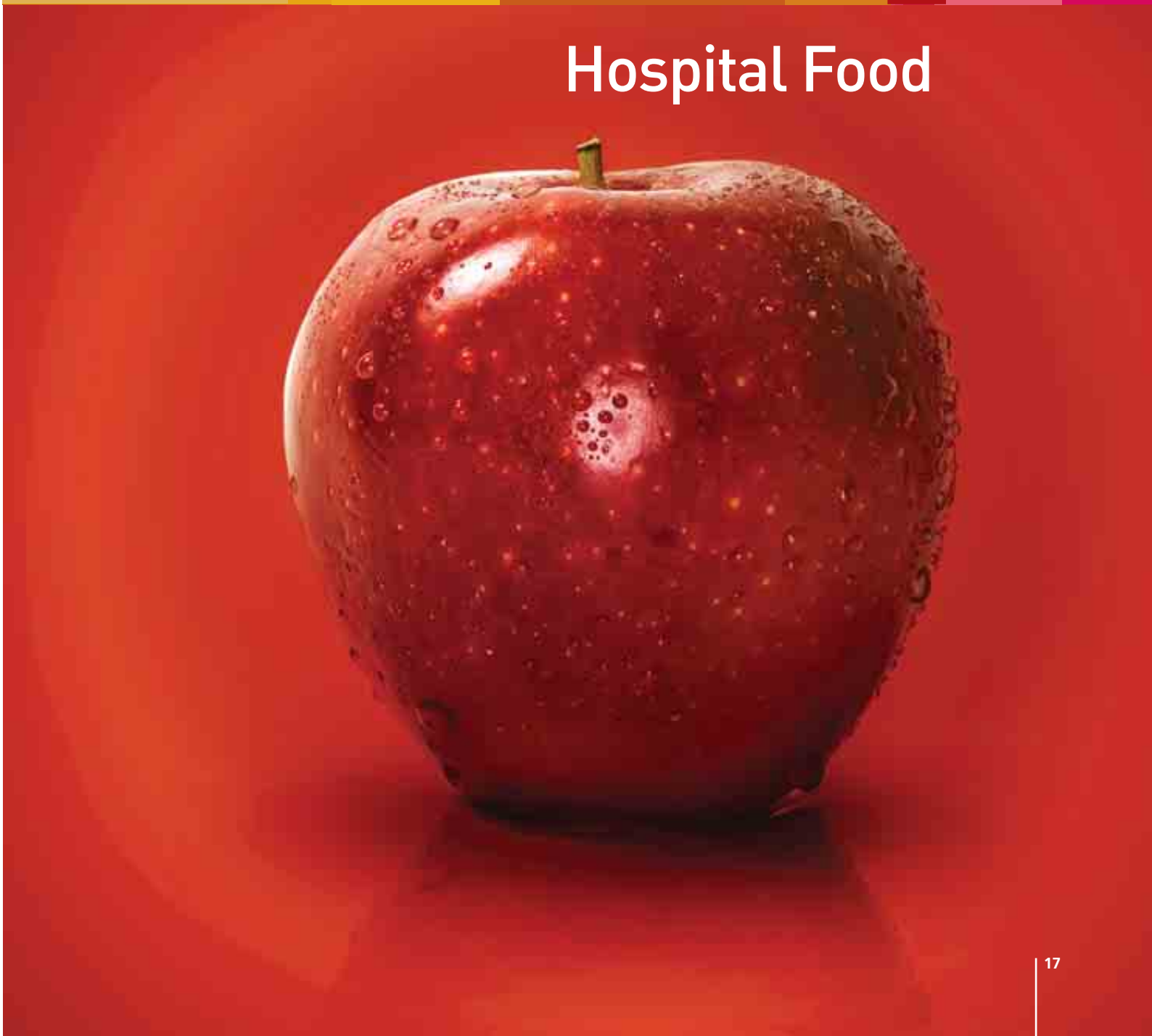
Hospital Food



1. Hospital food

Food service in hospitals is often given a low priority instead of being recognised as an integral and important part of patient treatment and care. Up to now there have been no nationally agreed minimum guidelines for patients in acute hospitals.

Good nutrition is needed to ensure that the treatment the patient receives in hospital is as effective as possible. The number of patients who have good nutritional status, therefore, is a sound indicator of the quality of care provided by the hospital. It must be recognised that providing nutritious and appetising food is a key part of high-quality, effective hospital treatment.

Significant problems in the nutritional care and support of the undernourished and vulnerable patient include: limited food choice, the way food is served and lack of help for those unable to feed themselves properly. One major step in improving the food provided in hospitals is to ensure that hospital menus meet the needs of the patients; these menus should provide sufficient choice to offer adequate nutrition for all patients. The focus should be moved away from the production and serving of specific diets. Instead more attention should be given to frequent provision of appropriate energy-dense meals for undernourished patients.

As well, since Ireland is now a multi-cultural country, every effort needs to be made to incorporate suitable dishes in menus (see Appendix 1).

1.1 Food served in hospitals

A variety of menus is needed in hospitals to cover the requirements of many different types of patients. It is important to emphasise that *the national Healthy Eating Guidelines are rarely appropriate for the hospitalised patient.* Such guidelines are aimed at maintaining a healthy weight and helping to prevent long-term diseases such as heart disease. But patients admitted to hospital generally have nutritional needs that would not be met by following such guidelines. They often have higher energy needs or smaller appetites than healthy people and many patients entering hospital have already lost weight due to their illness. Because of this, the standard hospital menu for patients should not be based on low-fat and high-fibre healthy eating guidelines. It is more appropriate to offer high-protein and high-calorie food in the standard menu and to have a healthy eating menu as an option.

Hospital food guidelines

- The standard menu for acute hospitals should be energy-dense and high-protein, providing at least 40% of energy from fat.
- A healthy-eating menu should be available for patients who are not malnourished or at risk of malnutrition. This menu should provide around 35% of energy from fat. (See Appendix 3 for patients who may be given this menu.)
- A menu with at least 50% energy from fat should be available for patients with a poor appetite, high energy requirements and low food intake.
- Texture-modified menus should be available for patients with chewing or swallowing difficulties. These should provide at least 40% energy from fat.
- The standard menus must reach the minimum recommended daily amount (RDA) for protein and all vitamins and minerals. (See Appendix 2 for Irish RDAs.)
- All menus must take into account the ethnic and religious needs of patients. (See Appendix 1.)
- All menus must, where possible, take into account patients' preferences.
- Patients must receive accurate descriptions of menu dishes to allow them to make informed choices. Picture menus must be available to aid patients with low literacy skills or poor vision.
- Menus must be developed in consultation with the hospital's clinical nutritionist/dietitian or the health board's clinical/community nutritionist/dietitian, the catering manager and the nutrition steering committee. Standard recipes should be used, where appropriate.
- Only evidence-based therapeutic diets should be prescribed.
- The nutritional status of the patient must be considered when therapeutic diets with a low fat content are indicated.
- The eating abilities and nutritional status of patients on texture-modified diets must be continually assessed.
- The clinical nutritionist/dietitian or physician should be aware of the patient's use of 'alternative diets' and the influence these might have on nutritional status.
- Feedback from patients about the acceptability of the food provided should be sought.
- The nutrient content and portion size of food should be audited per dish annually, or more often if the menu changes.
- In the planning stage, it should be documented that the nutrient content of the food is sufficient. This should be carried out in consultation with the clinical nutritionist/dietitian.
- Nutrient databases should be improved, with more reliable data on nutrient losses with different food-service systems.

1.2 Menu composition

The guidelines below show the basic menus that every acute hospital should provide.

It is important to remember that normal low-fat, healthy-eating guidelines are not suitable for most patients in acute hospitals as such food will not provide enough concentrated energy to meet their needs.

Basic menu requirements

Below is a basic list of the minimum amounts of different foods each type of menu should provide to patients every day *(Table 1.1).*

Where necessary, amounts of fruit and vegetables may be reduced on energy-dense menus, because fruit and vegetables are high in fibre and provide a feeling of satiety or fullness, thus reducing the appetite for other foods.

Since micronutrients may be lost during food preparation and requirements for some micronutrients may be higher in illness, it should be considered whether or not some patients might benefit from a vitamin-mineral supplement.

Table 1.1: Recommended minimum amounts of food which should be provided to each patient by the hospital menu

FOOD GROUP	DAILY INDIVIDUAL TARGETS	NOTES
Milk Fresh, whole milk	3 portions from this list daily: *1 portion is:* 1/3 pint of milk 1oz of cheese Milk pudding or yoghurt	Whole milk should be used. Low-fat or skimmed milk should not be routinely used.
Meat, fish and alternatives Meat Poultry Fish Eggs Pulses	2 portions from this list daily: *1 portion is:* 50-75g cooked weight 50-75g cooked weight 100-125g cooked weight 2 eggs per portion 75-100g beans served with 25g of cheese or 1 egg or 50g raw lentils	* Halal meats should be available as appropriate; care must be taken not to contaminate non-halal meats with halal meats by using same utensils while cooking
Starchy foods Breakfast cereals Bread Pasta Rice Potato	One or more of these foods at each meal. At least 6 portions daily. *1 portion is:* 1 bowl of cereal 1 slice of bread 3 dessertspoons of pasta or rice 1 potato Number of portions daily depends on individual requirements.	
Fruit Fresh Dried Stewed Tinned Fruit juice	3 portions of fruit daily *1 portion is:* 1 piece of fruit 1 fruit-based dessert e.g. apple tart/fruit salad 1 glass fruit juice	At least one portion of fruit should be in the form of fruit juice.
Vegetables Fresh Frozen	2 portions of vegetables daily. *1 portion is:* 1 bowl of vegetable soup 2 tablespoons cooked vegetables 1 small salad	To prevent vitamin loss: • do not soak vegetables • do not add bicarbonate of soda • cook in minimal amount of water • cook in batches • cook until just tender and serve immediately after cooking Salad to include 3-4 vegetables Use a variety of vegetables
Oils and spreads Butter Margarine Cooking oils	Butter and margarine should both be available. Foods can be fried in polyunsaturated or monounsaturated oils.	
Sugar Jam Marmalade Honey	Sugar, jam, honey and marmalade should be available to all non-diabetic patients.	
Fluids Tea Coffee Soup Fruit juice Water Squashes & soft drinks Milk	8 cups of fluid each day	

1.3 Menus

All menus should provide the minimum amounts as described above.

1.3.1 Standard menu: high-protein, high-calorie

This high-protein, high-calorie menu is intended as the standard or normal menu in acute hospitals. Most patients in acute hospitals have higher energy needs than normal and may have smaller appetites. For this reason, the standard menu should provide 40% of energy from fat as this is a more concentrated source of calories.

Standard menu guidelines

- The standard menu is high-protein and high-calorie, providing 40% of energy from fat.
- This menu should provide two portion sizes: standard and large. The nutritional content of the menus should be as laid out in Table 1.2.
- Low-fat products should not be used (e.g. whole milk should be used instead of low-fat milk).
- Potatoes, vegetables and accompaniments to meals should be fortified with butter/oils (e.g. butter on potatoes and vegetables and oil dressings on salads).
- High-calorie desserts should be served and accompanied with a high-calorie sauce or dressing (e.g. ice cream, cream or custard). Desserts should be available at mid-day and evening meals.
- High-calorie snacks should be offered between meals.

Table 1.2: Macronutrient content of Standard Menu meal

	STANDARD PORTIONS	LARGE PORTIONS
Calories (kcal)	2000kcal	2500kcal
Protein (g)	90g	113g
Fat (g)	90g	110g

Table 1.3: Food amounts providing 7g of protein

FOOD	AMOUNT PROVIDING 7g PROTEIN
Lean meat (cooked)	28g
Fish	42g
Cheese	28g
Eggs	56g
Beans, peas, lentils	100g
Yoghurt	140g
Peanuts	28g
Milk	200ml

Table 1.4: Food amounts providing 2g of protein

FOOD	AMOUNT PROVIDING 2g PROTEIN
Bread	28g
Potato	112g
Breakfast cereal	28g
Flour	28g
Cooked rice	84g
Cooked pasta	70g

1.3.2 Healthy Eating menu

A Healthy Eating menu should be available for patients with diabetes or high cholesterol and who are not malnourished or at risk of malnutrition. This menu should provide 35% energy from fat. (See Appendix 3.)

1.3.3 Energy-dense menu

This menu should be available for patients with a very poor appetite and very low food intake.

Guidelines

- The aim of this menu is to provide small, frequent meals, which are high in energy and protein.
- The menu should provide 50% energy from fat. This can be achieved through high-calorie desserts and between-meal snacks or nourishing drinks.
- Low-fat products should not be used (e.g. whole milk should be used in place of low-fat milk).
- Potatoes, vegetables and accompaniments to meals should be fortified with butter/oils (e.g. butter on potatoes and vegetables and oil dressings on salads).

Table 1.5. Suggestions for small, high-calorie meals for use with the energy-dense menu

- Milk pudding made with whole milk, with cream added
- Cream crackers with butter and cheddar cheese
- Chocolate mousse
- Fortified soup
- Sandwiches with meat fillings and mayonnaise
- Cheese on toast
- Trifle
- Chocolate

1.3.4 Texture-modified menu

Texture-modified menus should be available for patients with chewing or swallowing difficulties. They should include set, pureed, semi-solid, soft or liquidised diets, as required by the patient. These menus should provide 40% energy from fat.

Guidelines

- Advice should be sought from a speech and language therapist about the appropriate consistency to use for each patient.
- If pureed meals are required, each part of the meal should be pureed separately.
- Food moulds should be used where possible for set/puree diets.
- Suitable food thickeners should be available for thickening fluids for set fluids.
- A nourishing liquid should be used when pureeing meals (e.g. milk, gravy, sauce, soup or custard).
- Meals may need to be fortified using high-protein/high-calorie powders.
- Between-meal nourishing snacks and nutritional drinks should be provided.

1.3.5 Special menus

Special menus should be available for patients with conditions requiring a special menu – for example, coeliac or renal disease. The particular menus used should be selected by the hospital in accordance with the patient's requirements. All menus should meet the basic nutritional requirements described above.

1.4 Meal pattern

Hospital mealtimes are often inflexible and designed to meet the needs of staff rather than those of patients:

- meals are often close together, with long fasts between the evening meal and breakfast
- ward rounds and diagnostic procedures often interrupt mealtimes

In-between meals and snacks increase total food consumption.

Guidelines

- Three main meals should be served daily: breakfast, lunch and dinner.
- Nourishing snacks and drinks should be served between meals: mid-morning, mid-afternoon and late-evening. They should also be available on the wards at all times and be routinely offered to patients who miss meals and snacks.
- There should be four hours or more between the end of each main meal and the beginning of the next.
- The mealtimes should be spread to cover most of the waking hours.
- Patients should be given adequate time to eat their meals.
- Interruption of patients' mealtimes by ward rounds and diagnostic procedures should be

minimised. Hospitals are encouraged to have 'protected mealtimes' to allow patients to eat undisturbed.
- Snacks and nourishing drinks between meals should be offered routinely.
- A range of nourishing food supplements, such as fortified drinks and soups, should be available on every ward.
- The use of sip feeding should be targeted and supervised properly. Sip feeds should be prescribed by the clinical nutritionist/dietitian and dispensed by the nurses on the medication rounds. A nutrition supplement-monitoring chart should be designed and used.

1.5 Serving meals

Guidelines

- Meals should be served at the correct temperature – hot foods should be hot and cold foods should be cold.
- Where patients are eating in bed, trays should be placed close enough for the patient to reach comfortably, especially in the case of incapacitated patients.
- Tray and dish covers should be removed for incapacitated patients.
- Where required, modified cutlery and other feeding aids must be given to the patient before serving the meal.
- Where assistance with feeding is required, the assistant must be available at the time the meal is served.
- Responsibility for feeding patients should be clearly assigned.

1.6 Monitoring food intake

Guidelines

- The nursing staff is responsible for overseeing the monitoring of the food intake of patients on their wards.
- Tray collection should be supervised closely to enable monitoring of patients' food intake.
- The food intake of all patients should be registered by means of a semi-quantitative system.
- The food intake of all patients at nutritional risk and receiving nutritional support should be registered by means of dietary records.
- Information from the catering department about the portion size and energy content of hospital food should be available, to aid ward personnel in noting the food intake of patients.
- The appropriate personnel on the wards should be trained in how to monitor food intake.
- The information about patients' food intake should be used to develop appropriate menus for specific groups.
- A system to monitor food wastage should be implemented.
- Studies should be undertaken to develop and validate simple food-registration methods.

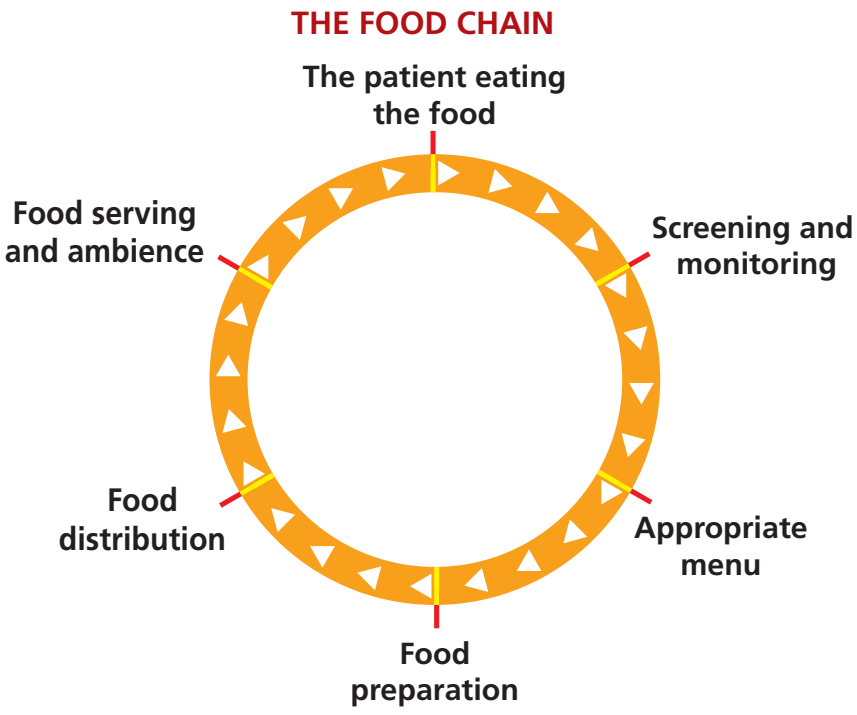
1.7 Knowledge of the patient

Guidelines

- Before admission (if possible) the patient should be informed about the importance of good nutrition for his/her successful treatment. If this is not done before admission, it should be done on admission. Written information could be provided.
- Information (in written or oral form) about available dishes and foods should be given to patients.
- Information about menus should be improved and extended. Dishes should be described accurately so patients have a reasonable idea of what to expect.
- Information about the nutrient composition of meals should be available to patients.
- All patients should receive help and guidance about ordering food from the nurses or appointed, trained staff, especially where there are problems with comprehension, speech or language or where there is a therapeutic requirement.
- Patients should be involved in planning their meals and have some control over food selection.
- Methods to assess patient satisfaction should be developed and implemented.
- Patients with different ethnic backgrounds should be able to get meals in accordance with their religious beliefs.
- Staff members should be aware of the importance of food and nutrition in the treatment and care of patients.

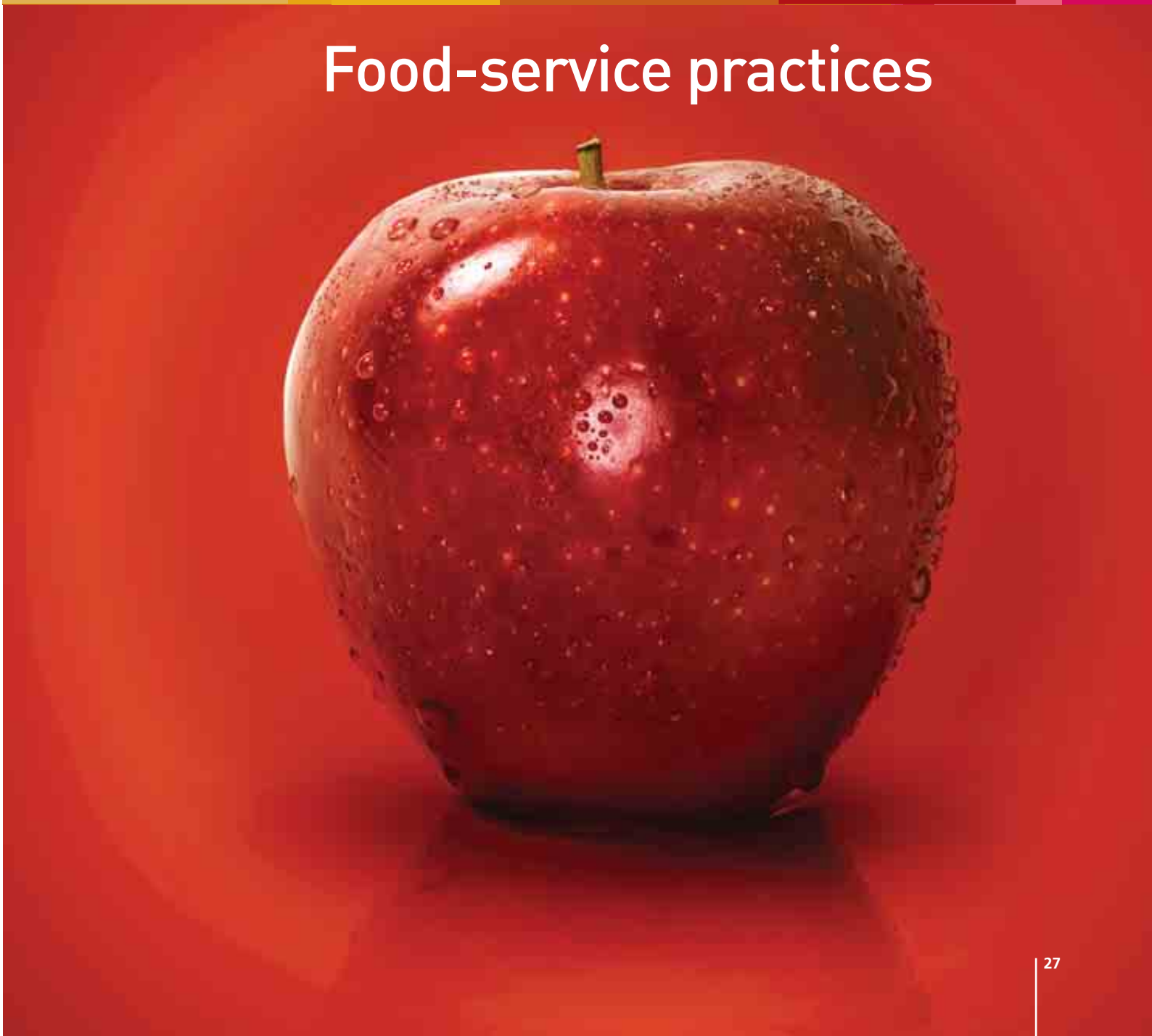
The Food Chain

The nutritional status of the patient depends on a chain of interacting links. A failure in any one of these links leads to failure of the whole chain.



2

Food-service practices



2 Food-service practices

In general, food service practices receive little attention from the political/administration level or the physicians. However, food service is not merely a 'hotel function'. The food served in hospitals is part of the patients' clinical treatment. Arrangements for food preparation, distribution, and serving should ensure that hospital food of defined standards – in nutritional quality, balance, palatability and temperature – is provided.

Each method of food preparation and distribution has its advantages and disadvantages in terms of nutrient losses, menu flexibility, food wastage, food hygiene requirements, staff skills in the kitchen, staff skills on the wards and other factors. The choice of method should therefore depend on the patients and the institution in question.

2.1 Organisation of hospital meals service

Guidelines

- Hospital administrators should prioritise a food and nutrition policy.
- This food policy should be adopted and implemented at hospital or regional level.
- A nutrition steering committee should be set up to:
  - facilitate the implementation of the guidelines
  - set guidelines for the nutritional care and support of patients, including contract specifications, nutritional risk screening and audits
- The committee should include a minimum of two clinical nutritionists/dietitians, a representative from nursing, the senior management, pharmacy, a speech and language therapist and occupational therapist where available, two senior catering managers and a physician. As Ireland is now a multi-cultural country, representation on the committee from ethnic minorities is important so that suitable dishes are included in menu planning. Additional members may be included as required.
- The responsibilities for hospital nutrition among healthcare professionals and hospital administration should be clearly assigned (see 4.1 for recommended distribution of responsibilities).
- Clinical staff should acknowledge meal service as an important part of the treatment and care of patients.

2.2 Meal service production systems

Guidelines

- Cooking temperatures and methods should be used that maintain the maximum nutritional content of the food.

- The serving system should be adjusted to the patients' needs, taking into consideration their physical and mental functions. This often requires different serving systems in different hospitals.
- Close cooperation between experts in food service should be established in order to identify and track new trends.

2.3 Bedside or dining-room eating

Guidelines

- All patients, if able, should have the opportunity where possible to sit at a table to eat their main meals. This should be considered at the planning level for new hospitals and when upgrading existing facilities.
- The catering department or local catering manager should be consulted at the architectural and planning stage in the case of new hospitals and when existing facilities are being upgraded.
- Occupational therapists should be consulted at the planning stage for developing dining areas or when existing facilities are being upgraded, to advise on facilitating patients with disability.

2.4 Food service practices and under-nutrition

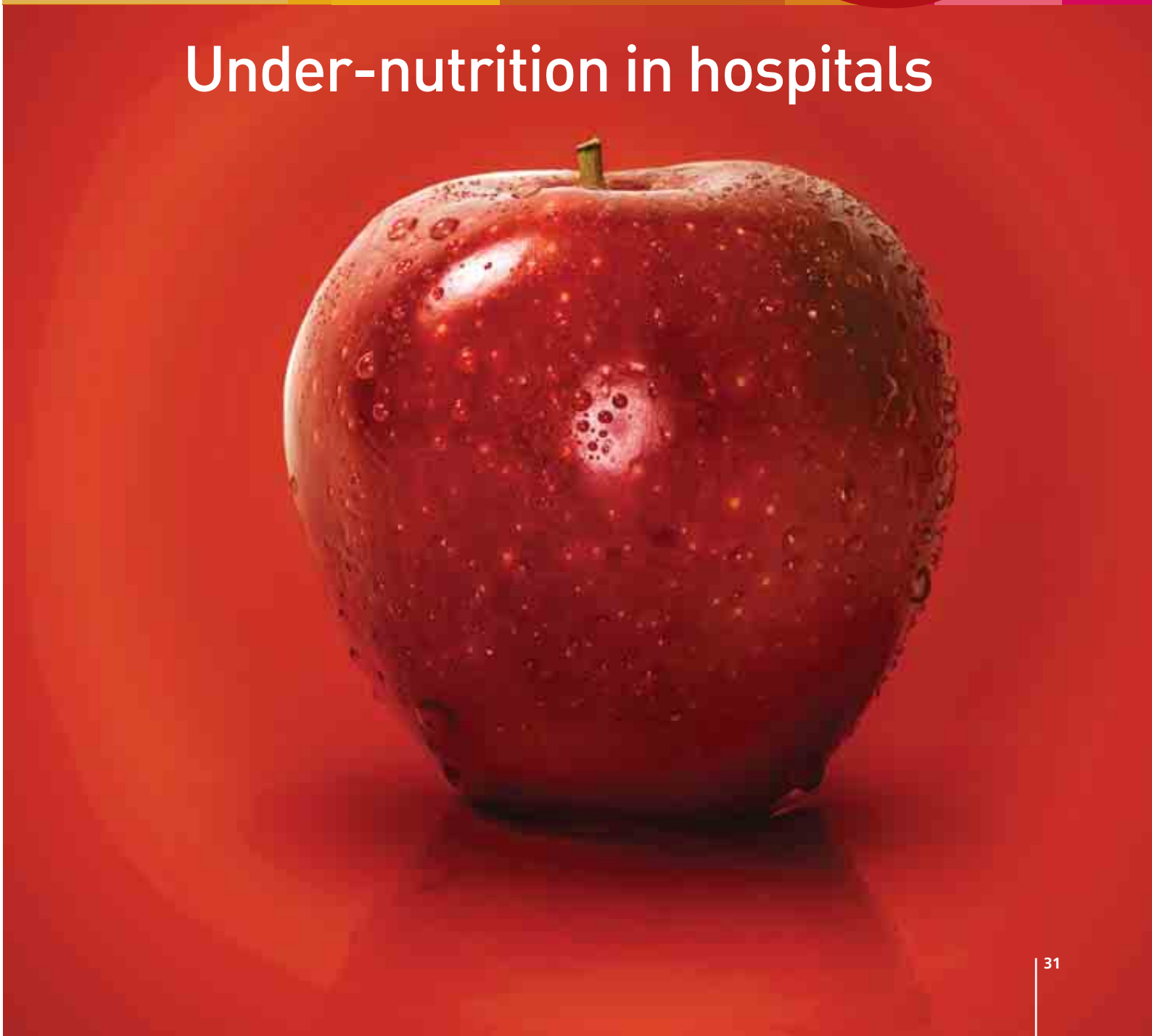
Guidelines

- Standards for food service systems, based on patient needs and not on hospital needs, should be developed.
- No matter which serving system is used, close collaboration between the patient and the nursing, food service, clinical nutrition/dietetic and medical staff and the catering manager is required to get the patient to eat.
- To deal with unforeseen circumstances such as extended fasting times and missed meals, there must be a facility available to allow patients to order and receive food outside normal mealtimes. All patients should be informed about this possibility.
- The provision of meals should be based on individualised dietary needs.
- Menus should be targeted at different categories of patients.
- Proper feeding aids should be provided where required by the patients and be given to them before meals are served. An occupational therapist, nurse or other suitable qualified staff member should give guidance to the patient, or carer, on how to use feeding aids.
- Feeding assistance should be provided where required by the patient.

When patients in hospitals eat well, there are clear social and mental-health benefits and their recovery from illness is speeded up.

3

Under-nutrition in hospitals



3 Under-nutrition in hospitals

Many patients with severe illness are at risk from an often-unrecognised complication – under-nutrition. In Ireland, 11% of patients admitted to hospital were found to be malnourished and between 63% and 84% were found to be at nutritional risk.[9]

Most patients have an average food intake that is less than recommended and continue to lose weight while in hospital. In one Irish study, 29% of previously well-nourished patients showed deterioration in nutritional status during their hospital stay.[10]

Malnourished patients become apathetic and depressed. They have decreased appetite and less ability to eat. Their respiratory muscles are weakened, which increases the risk of lung infection. They have reduced cardiac output. The working of the intestine is impaired. The patient's overall mobility is reduced, which can lead to the additional problem of pressure sores. Undernourished patients have delayed wound healing and higher rates of mortality.[11]

In one study, under-nourished patients had a mortality rate of 12.4% compared to the 4.7% rate of a well-nourished group. The undernourished patients stayed in hospital for an average of 16.7 and up to 24.5 days compared to 10.1 days in the well-nourished group.[12]

The causes of disease-related under-nutrition are numerous, ranging from individual to systemic factors.[13] Under-nutrition and acute rapid weight loss of as little as 2-3kg (5%) in combination with disease:

- increases the risk of complications
- lowers resistance to infection
- impairs physical and mental functioning
- delays recovery
- may be life-threatening

There is clear evidence that in these circumstances nutritional support can hasten and improve recovery, and in some cases prevent complications and death. However, not all cases of under-nutrition call for aggressive nutritional support; in some cases such an approach may be of little benefit and even harmful. Nutritional risk screening should thus be performed, taking into consideration both the nutritional status and the severity of disease, and ordinary food should be the primary feeding choice.

[9] Corish 2000, Charles et al 1999.
[10] Charles et al 1999
[11] Council of Europe report 2002.
[12] Waitzberg et al 2001.
[13] Corish & Kennedy 2000.

3.1 Assessing and treating under-nutrition

The patient's nutritional problems must be dealt with in the same way as with any other medical treatment – with evaluation, diagnosis, treatment plans, follow-up and documentation.

Guidelines

- Every patient must be assessed for nutritional risk by nursing staff within 24 hours of admission to hospital.
- The assessment of nutritional risk must include a combination of nutritional status and the severity of disease.
- The nutritional risk screening method must be evidence-based, in order to ensure that patients who will benefit from nutritional support are identified. The recommended tool is the BAPEN MUST screening tool (see Appendix 4).
- The nutritional risk screening method should be simple to understand and easy to use.
- Identification of a patient at nutritional risk must be followed by a nutritional assessment by a clinical nutritionist/dietitian, and a locally agreed care plan, implemented as a result of the screening process, should be used to allocate specific diets to the patient.
- This treatment plan should set out dietary goals and, where necessary, goals for the use of nutritional support and monitoring of food/nutritional intake and body weight, and include scope for adjustment.
- If the patient is in hospital for longer than one week, their nutritional risk must be reviewed each week, regardless of their initial nutritional risk.
- The nutritional support plan should be reviewed and/or adjusted at least each week, using information about the patient's food intake and weight changes.
- Nutritional risk screening, assessment and monitoring could be included in the accreditation standard for hospitals.

3.2 Causes of under-nutrition

The many causes of under-nutrition include:

- loss of appetite due to the disease
- difficulties in chewing or swallowing
- lack of assistance with feeding
- inappropriate utensils
- impaired cognitive function
- missed meals due to interruptions or investigations at mealtimes or excessive fasting

Inadequate provision of food and physical disability can cause under-nutrition or aggravate an existing deficiency.

Table 3.1. Causes of disease-related under-nutrition (Green 1999)

CATEGORY	CAUSE	EXAMPLES
Reduced food intake	Anorexia	Poor appetite, nausea and vomiting as a result of disease process, treatment or depression
	Change in taste and smell	Due to treatment or medication
	Episodes of fasting	Before investigative procedures or operations; missed meals due to these procedures, or avoidance of food due to diarrhoea
	Pain on eating	Sore mouth due to disease or partial gastrointestinal obstruction
	Difficulties in chewing and swallowing	Dysphagia (e.g. due to stroke or dementia), ill-fitting dentures, poor oral health
	Inability to eat independently	Physical handicap, arthritis, dementia
	Respiratory problems	Pulmonary disease
Mal-absorption	Impaired digestion	Pancreatic insufficiency, enzyme deficiencies (e.g. cystic fibrosis)
	Impaired absorption	Intestinal resection (short bowel syndrome), mucosal damage (e.g. inflammatory bowel disease)
	Excess losses from the gut	High output fistulae, protein-losing enteropathy, short bowel syndrome.
Modified metabolism	Metabolic response to disease	Malignancy, trauma, chronic sepsis, multiple organ failure, advanced HIV infection
	Metabolic consequences of impaired organ function	Renal disease, liver disease, pulmonary disease

Excessive fasting prior to surgery

For many years it has been standard practice to institute an overnight fast before surgery to reduce the risk of aspiration of gastric contents into the lungs and to raise the pH of the gastric contents. However, studies have shown that liquids are cleared from the stomach within about 90 minutes of ingestion and that a light meal (e.g. tea and toast) is cleared in about six hours. Meals with a higher fat content will take longer to clear. Current research supports a fast from clear liquids of only two hours and a fast from a light meal of only six hours before elective surgery or gastroscopy in patients with no history of gastric dysfunction.

Guidelines

- The many causes of under-nutrition should be considered in the patients needing nutritional support.
- 'Nil-by-mouth' regimes, overnight fasting and cleansing protocols with dietary restrictions should be evidence-based and not be used routinely.
- Each hospital should have a policy on fasting. This policy should reflect current evidence on fasting times before surgery or diagnostic investigations.

3.3 Effects of nutritional support

Guidelines

- Standards of practice for nutritional support must be developed in each hospital so that patients likely to benefit from nutritional support are identified and for the initiation and termination of nutritional support and the discharge of patients on nutritional support.
- All nutritional support must be individually tailored to the patient.
- Where artificial nutritional support is required to treat under-nutrition, it should be given for at least seven days.
- No patient should receive artificial nutritional support without proper monitoring of side-effects.
- A record of each patient's nutritional status is mandatory in medical and nursing records at admission, on discharge and at out-patient follow-up. It must be included in patient-discharge and transfer notes/letters. The admission records may be based on the nutritional screening tool used to assess the patient's nutritional status at admission.
- The nutritional support and care of the patient is ongoing. Follow-up care will be the responsibility of both the hospital and the Primary Care Team.
- Patients identified as being in need of nutritional support should receive this treatment before admission and after discharge.
- Suitable reference material for patients and relatives should accompany any advice or treatment given to patients.

- Research on the effect of nutritional support on clinical outcome and quality of life should be ongoing.

The current evidence showing that nutritional support can improve clinical outcome justifies the recommendation of an improvement of this treatment in hospitals.

3.4 Choosing a feeding method

Guidelines

- Ordinary food is the first choice to correct or prevent under-nutrition in the hospital patient.
- Only when ordinary food or nutritional sip feeds do not meet the nutritional requirements of the patient should artificial nutritional support be considered.
- Nutritional sip feeds must not be used as a substitute for the adequate provision of ordinary food, and must only be used where there are clear clinical indications.

3.5 When to withhold or withdraw nutritional support

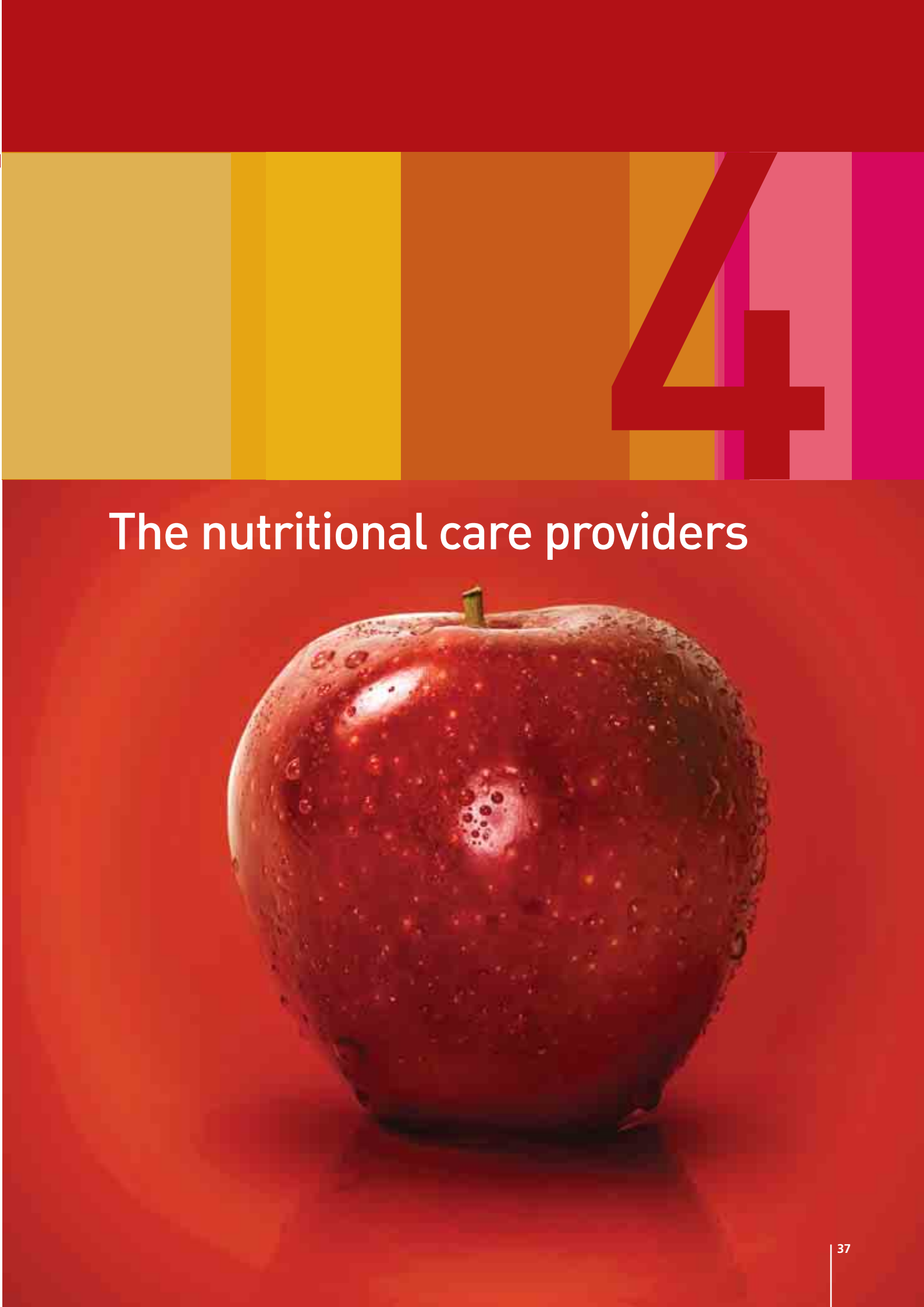
Where the patient does not achieve adequate nutritional intake and refuses artificial support, their wishes should be respected.

Guidelines

- Food and fluids should be offered to all patients capable of eating - regardless of prognosis.
- If adequate nutritional intake is to be maintained, there is an ethical duty to provide this, with the patients' consent, orally or by artificial means.
- The aim of the nutritional support should be defined in an early stage of terminal illness.
- Food and fluid given enterally or parenterally is legally defined as medical treatment and not basic care.
- Where there is evidence that the patient would not benefit from artificial nutritional support, its withdrawal is an acceptable medical practice.
- When death is imminent, the quality of life should be the highest priority in the management of the patient. Thus, in consideration of the wishes of the patient and his/her family, artificial nutrition may be avoided or stopped if the clinical opinion is that it will not benefit the patient.

4

The nutritional care providers



4 The nutritional care providers

In most hospitals, responsibilities for nutritional care, nutritional support and service of food are not clearly assigned. Good nutritional practices are often lacking, which suggests that all personnel involved in the nutritional care and support of patients need training in nutrition.

Protocols need to be drawn up to aid the early identification and treatment of patients at nutritional risk. Better communication and co-operation between different staff categories is needed.

Finally, the political and administrative level must give food service and nutritional care and support a higher priority.

4.1 Organisation and responsibilities in hospitals

Guidelines

- The Department of Health and Children, HSE, National Hospitals Office and hospital administrators must accept responsibility for overall nutritional care in hospitals.
- Hospital administrators, clinical nutritionists/dietitians, physicians, nurses, catering managers and food-service staff must work together to achieve optimum nutritional care, and hospital management must give priority to such co-operation.
- A nutrition steering committee should be set up to:
  - facilitate the implementation of the guidelines
  - set standards for the nutritional care and support of patients in hospital
  - review the food-service system, nutritional risk screening and audits
  - ensure that the hospital purchasing authorities include contract specifications regarding nutritious food and nutritional products

  The committee should include two catering managers; a minimum of two clinical nutritionists/dietitians; a representative from senior management, nursing, pharmacy; a physician; an occupational therapist where available, and a speech and language therapist. Additional members may be included as required. The representatives on the committee must be senior staff.
- Consideration needs to be given to ensuring continuity of nutritional care for patients discharged to community-based residential care or community services.
- Development of nutritional support policies should be integrated in local hospital policy to ensure that all the nutritional needs of patients are met.
- The recommended responsibilities of different staff categories for nutritional care/support and food service must be outlined by each hospital. Emphasis at all times must be on

cooperation within and between staff groups to ensure the highest possible standard of care for the patient and to ensure the patient eats the food provided. For this reason, the distribution of responsibility given below is a suggested guideline only and is not intended to be used to draw up lines of demarcation between staff groups.

- The hospital determines the distribution of responsibility. The following distribution is suggested:
  - Hospital administrators have the ultimate responsibility for creating the environment that makes it possible for the nutritional needs of patients to be met.
  - The clinical nutritionist/dietitian
    - is responsible for taking part actively in the formulation and implementation of the hospitals' nutrition guidelines
    - provides individually adapted nutritional counselling for special groups of patients and their family members
    - should play an active role in the education of staff on nutrition-related subjects
    - is responsible for assessing nutritional status in patients found to be at risk of under-nutrition and for prescribing appropriate treatment
    - is responsible for assessing, planning, monitoring and evaluating all nutritional treatment prescribed
  - The physician has a responsibility to acknowledge nutrition as an important part of the patient's total care.
  - The clinical nurse manager has responsibility for co-ordinating nutritional care on the ward. The individual nurse has the day-to-day responsibility for ensuring that
    - patients are assessed for nutritional risk on admission
    - patients are given an appropriate diet
    - assistance with feeding is provided if required by the patient

    The nurse is also responsible for recording, assessing and reporting on the patients' food intake and nutritional status.
  - The catering manager is responsible for ensuring a food service that meets the minimum requirements for appetising and nutritionally wholesome food, and for taking part in the formulation of the institution's nutritional guidelines.
  - Patients, if they are capable, have a responsibility for cooperating to achieve the best possible result of the treatment and care given.

4.2 Communication

Guidelines

- Organisational research should be carried out to assess and improve the cooperation between staff groups.
- Food-service staff and representatives from wards should develop, test and implement methods for easier and more accurate menu ordering. Organised contact between ward and food-service personnel should be established. One or more persons in each ward should be designated to have primary responsibility for communication and information. One or more persons in the kitchen should be designated as contact person(s) for the ward personnel.
- Organised contact between the hospital and the primary healthcare sector should be established.
- Standards of practice should be developed for the initiation, preparation, education, equipment provision, and safe delivery and monitoring of patients discharged on home nutritional support.

4.3 Educational and nutritional knowledge at all levels

Guidelines

- All staff involved in the nutritional care of patients must have nutrition and under-nutrition included in their training. Hospital policy should include the development of staff training programmes about the role that good nutrition has in the management of the patient. This part of the policy should be presented to staff along with other hospital policies at induction. Training should also include information on drugs that affect appetite.
- A continuing education programme on general nutrition and techniques of nutritional support should be available in each hospital for all staff involved in providing nutritional support to patients.
- All staff involved in the feeding of patients should receive updated nutrition knowledge every year.
- Special focus should be given to the nutritional training of non-clinical staff and the definition of their area of responsibility.
- Questions on clinical nutrition should be included in pre- and post-graduate examination for physicians and nurses.
- An academic forum for nutrition should be established to foster education and research in every health science faculty.
- Professors in clinical nutrition/dietetics should be appointed in every health science faculty.

4.3.1 Clinical nutritionists/dietitians

Clinical nutritionists/dietitians in Ireland are already trained to a high standard in the field of clinical nutrition, which includes extensive training in under-nutrition. There should be an identified programme of post-graduate studies for clinical nutritionists/dietitians leading to clinical specialist grade in nutritional support and related fields.

4.3.2 Physicians

Nutrition should be included as a subject in medical schools and should cover the basic physiology and pathophysiology, diagnosis, treatment and prevention of under-nutrition. This would enable physicians to orient themselves easily within the large inter-disciplinary field of nutrition.

4.3.3 Nurses

Nutrition should be included as a subject as part of the under-graduate curriculum, covering the basic physiology and pathophysiology, diagnosis, treatment and prevention of under-nutrition. There should be special emphasis on nutrition risk assessment and monitoring.

The role of the nurse in nutritional care of patients should be standardised and taught as part of nursing training. Nurses should consider nutrition as an integrated part of patient care.

4.3.4 Catering managers

Catering managers and food-service staff are aware of the importance of providing highly nutritious food to ill patients.

Catering managers, like other health professionals, should be provided with regular opportunities to improve their knowledge and skills through professional development and project research.

There should be increased emphasis in the college curriculum on the effects of under-nutrition in hospitals.

4.3.5 Non-clinical staff

There should be ongoing on-site training for all clinical and non-clinical staff, including care assistants and catering assistants, on a yearly basis. A qualified clinical nutritionist/dietitian should provide the training.

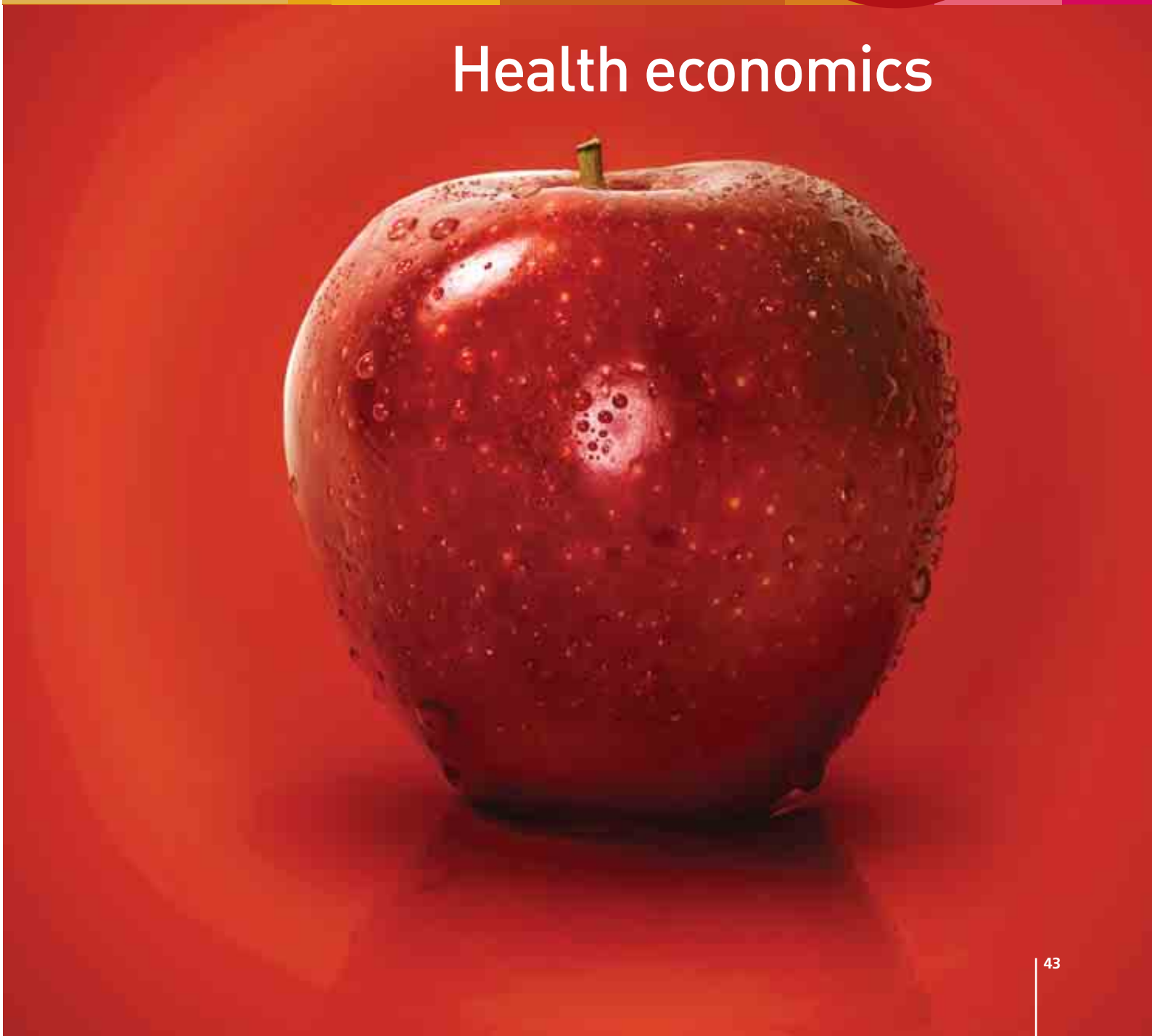
Regular and ongoing formal training is required for all food-service staff. Topics should include food and personal hygiene, customer care, portioning/display skills and plate-waste awareness. Nutrition training should be provided by clinical nutritionists/dietitians.

4.3.6 Patients

Most patients are not aware of the important role that good nutrition plays in their treatment and recovery from illness. Therefore the topic of nutrition education and information for patients should receive high priority in the educational campaigns at all levels.

5

Health economics



5 Health economics

Under-nutrition is associated with an increased likelihood of a patient developing complications, which may lead to significant costs. Evidence shows that nutritional support of undernourished patients improves recovery rates, decreases complications and reduces length of stay and cost per day. Hence improved or expanded nutrition services can help cut hospital costs or increase revenue.

Studies also show high levels of hospital food waste. Several factors determine how much food is wasted. These range from food palatability to portion size and from the patient's appetite to availability of help with feeding. In general, waste is a major clinical problem because it reflects inadequate food intake. It is also a waste of money.

5.1 Cost-effectiveness and cost-benefit considerations

Guidelines

- Calculations of the cost-benefit and cost-effectiveness of nutritional support should involve experts in health economics at national level.
- Calculations of the cost-benefit and cost-effectiveness of nutritional support should be made at hospital level.
- When estimating cost-benefit and cost-effectiveness, the choice of nutritional support should be considered.
- When estimating cost-benefit and cost-effectiveness, the primary outcome parameter should be quality of life measurements.

5.2 Food service and food wastage costs

Guidelines

- To determine food consumption, studies should be undertaken nationally to develop and validate plate-waste survey tools.
- The influence of food-service practices on food consumption should be examined.
- There is a need to ensure that food production reflects patients' menu choices.
- When assessing the cost of different food systems, the patient's satisfaction with the food produced is a critical factor.
- Greater investment in food and food services is necessary for the implementation of these guidelines.

- Food must be seen as part of the treatment of patients. Policymakers must give food the same priority as other clinical support and treatment services.
- When assessing the cost of food and nutritional care and support, hospital administrators should take account of the potential cost of complications and prolonged hospital stay due to under-nutrition.
- The distribution of nutrient intake from food, sip feeding and artificial nutrition should be audited on an annual basis.
- Inappropriate use of expensive nutritional support techniques should be minimised and be replaced by ordinary food where appropriate.

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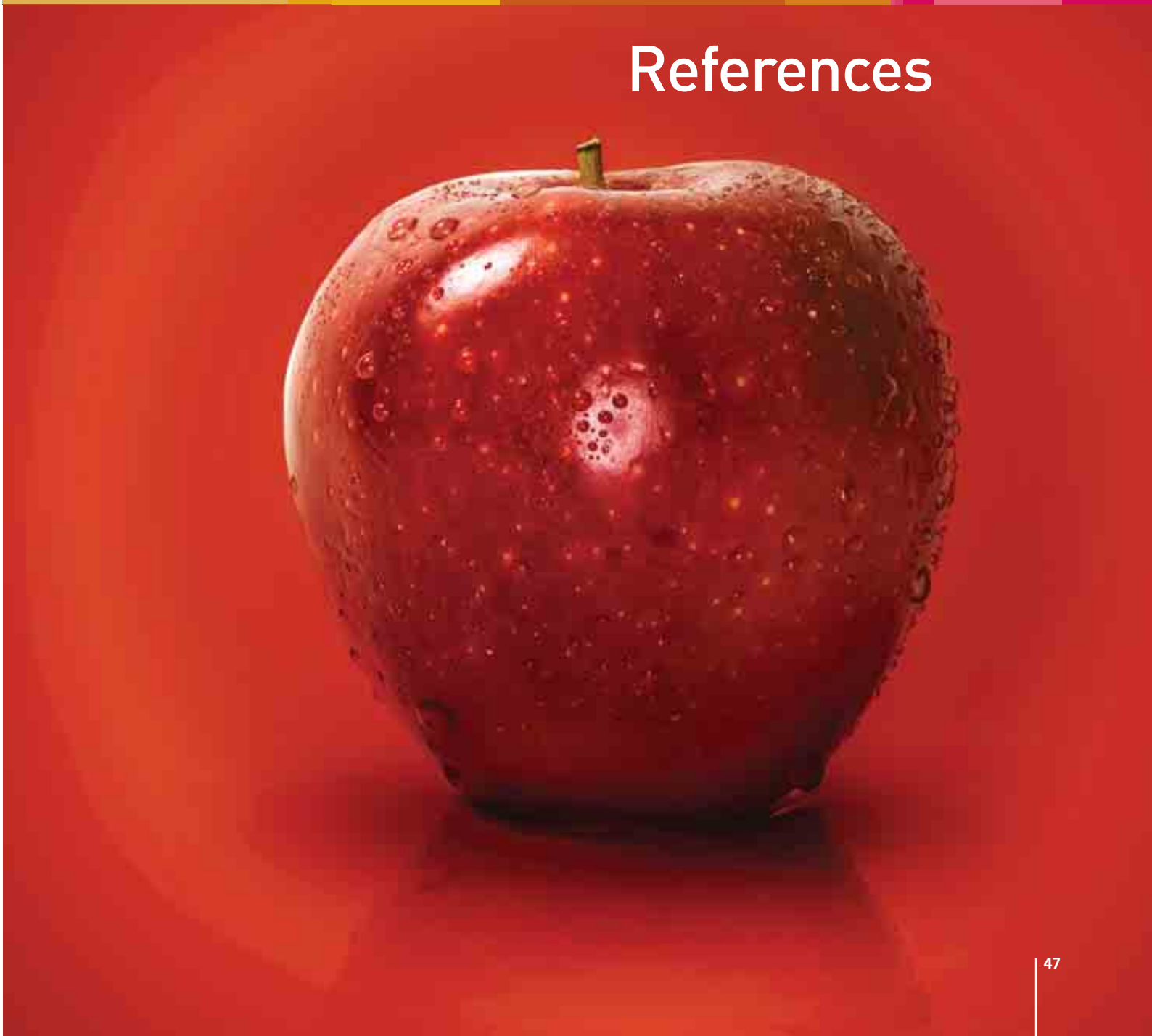

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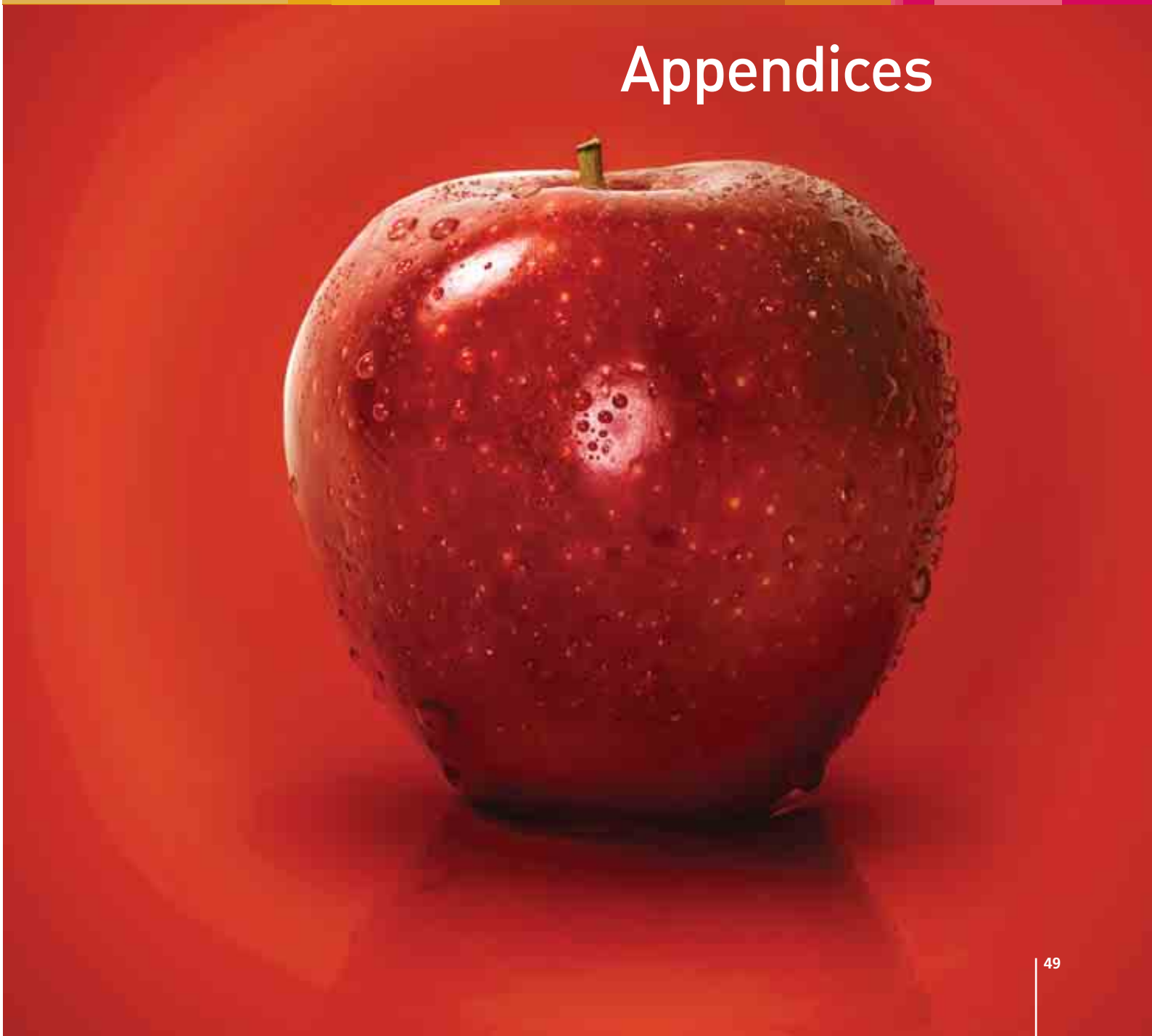
Appendices



Appendix 1: Religious food restrictions

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

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

	BUDDHIST	SIKH	RASTAFARIAN	MORMON	7th DAY ADVENTIST
Beef	Varies, many prefer a vegetarian or vegan diet	NA	Some	A	Some
Pork	Varies, many prefer a vegetarian or vegan diet	Some, not halal or kosher	NA	A	NA
Lamb	Varies, many prefer a vegetarian or vegan diet	Some, not halal or kosher	Some	A	Some
Chicken	Varies, many prefer a vegetarian or vegan diet	Some, not halal or kosher	Some	A	Some
Fish	Varies, many prefer a vegetarian or vegan diet	Some	A	A	Some
Shellfish	NA	Some	A	A	NA
Milk/yoghurt	A	A	A	A	Most
Cheese	A	Some	A	A	Most
Eggs	Some	Some	A	A	Most
Tea/coffee/cocoa	A	A	A	NA	NA
Fruit/vegetables/ pulses/nuts	A	A	A	A	A
Alcohol	NA	A	NA	NA	NA
Fasting	New and full moon and all holy days after midday	Varies		24 hours once a month	

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

Appendix 2: Recommended daily amounts (RDAs) for Irish adults

These recommended daily amounts are for a healthy population. Patients in hospital may have higher requirements than the healthy population.

Age	Protein	n-6 PUFA[a]	n-3 PUFA[a]	Vitamin A[b]	Thiamin	Riboflavin	Niacin	Vitamin C	Vitamin B6	Folate	Vitamin B12	Vitamin D	Calcium	Phosp-horus	Potassium	Iron	Zinc	Copper	Selenium	Iodine
Years	g/kg body weight/d	% dietary energy	% dietary energy	µg/d	µg/MJ	mg/d	mg/MJ	mg/d	µg/ g protein	µg/d	µg/d	µg/d	mg/d	mg/d	mg/d	mg/d	mg/d	mg/d	µg/d	µg/d
Children																				
1-3	1.1	3	0.5	400	100	0.8	1.6	45	15	100	0.7	10	800	300	800	8	4	0.4	10	70
4-6	1.0	2	0.5	400	100	1.0	1.6	45	15	200	0.9	0-10	800	350	1100	9	6	0.6	15	90
7-10	1.0	2	0.5	500	100	1.2	1.6	45	15	200	1.0	0-10	800	450	2000	10	7	0.7	25	100
Males																				
11-14	1.0	2	0.5	600	100	1.4	1.6	50	15	300	1.3	0-15	1200	775	3100	13	9	0.8	35	120
15-17	0.9	2	0.5	700	100	1.6	1.6	60	15	300	1.4	0-15	1200	775	3100	14	9	1.0	45	130
†Females																				
11-14	0.95	2	0.5	600	100	1.2	1.6	50	15	300	1.3	0-15	1200	625	3100	14	9	0.8	35	120
15-17	0.85	2	0.5	600	100	1.3	1.6	60	15	300	1.4	0-15	1200	625	3100	14	7	1.0	45	130
Males																				
18-64	0.75	2	0.5	700	100	1.6	1.6	60	15	300	1.4	0-10	800	550	3100	10	9.5	1.1	55	130
65+	0.75	2	0.5	700	100	1.6	1.6	60	15	300	1.4	10	800	550	3100	10	9.5	1.1	55	130
†Females																				
18-64	0.75	2	0.5	600	100	1.3	1.6	60	15	300	1.4	0-10	800	550	3100	14	7	1.1	55	130
65+	0.75	2	0.5	600	100	1.3	1.6	60	15	300	1.4	10	800	550	3100	9	7	1.1	55	130
Pregnancy*	0.75 (+10g/d)	2	0.5	700	100	1.6	1.6	80	15	500	1.6	10	1200	550	3100	15	7	1.1	55	130
Lactation°	0.75 (+10g/d)	2	0.5	950	100	1.7	1.6 (+2)	80	15	400	1.9	10	1200	950	3100	15	12	1.4	75	160

* Second half of pregnancy

° First six months of lactation

[a] Polyunsaturated fatty acids

[b] Retinol equivalents (g/d)

† Neural-tube defects can be prevented by periconceptual supplementation of folic acid.

From *Recommended Dietary Allowances for Ireland*, with kind permission of the Food Safety Authority of Ireland.

Appendix 3:
Patients groups suitable for receiving a Healthy Eating menu

1. Diabetes Mellitus

- Patients admitted for routine investigation of diabetes who are otherwise healthy and not undergoing surgery during the admission.
- Patients who are being investigated for diabetes who are otherwise healthy and not scheduled for surgery during the admission.

2. Coronary heart disease

- Patients admitted for routine investigations of coronary heart disease who are otherwise healthy and who are not scheduled for surgery during the admission.

3. Overweight

- Patients admitted for treatment of obesity may receive a Healthy Eating menu or may follow the menu prescribed by a clinical nutritionist/dietitian.

Appendix 4: Nutritional screening tool

'Malnutrition Universal Screening Tool' ('MUST') MAG

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'MUST'

'MUST' is a five-step screening tool to identify **adults,** who are malnourished, at risk of malnutrition (undernutrition), or obese. It also includes management guidelines which can be used to develop a care plan.

It is for use in hospitals, community and other care settings and can be used by all care workers.

This guide contains:

- A flow chart showing the 5 steps to use for screening and management
- BMI chart
- Weight loss tables
- Alternative measurements when BMI cannot be obtained by measuring weight and height.

The 5 'MUST' Steps

Step 1

Measure height and weight to get a BMI score using chart provided. *If unable to obtain height and weight, use the alternative procedures shown in this guide.*

Step 2

Note percentage unplanned weight loss and score using tables provided.

Step 3

Establish acute disease effect and score.

Step 4

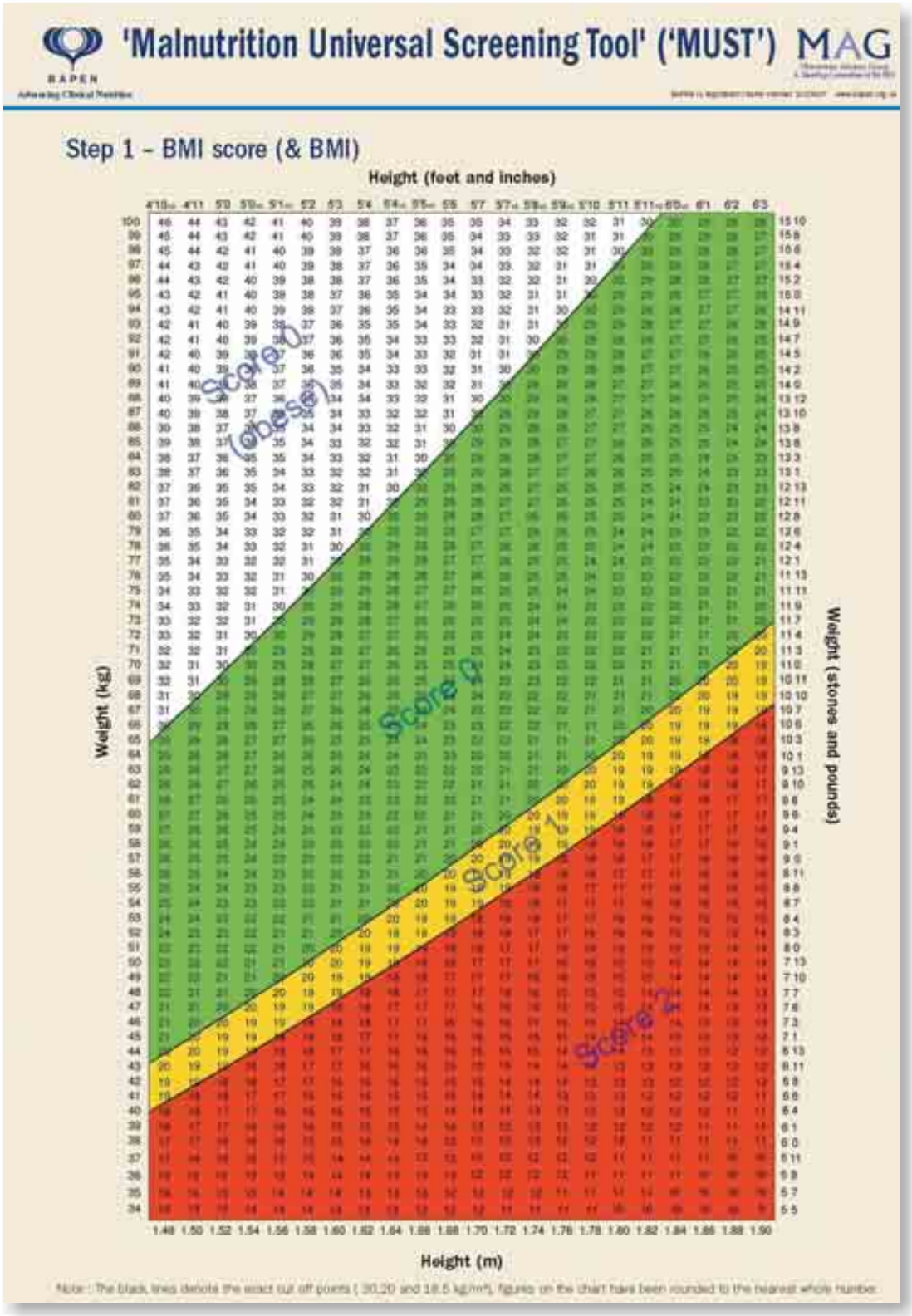
Add scores from steps 1, 2 and 3 together to obtain overall risk of malnutrition.

Step 5

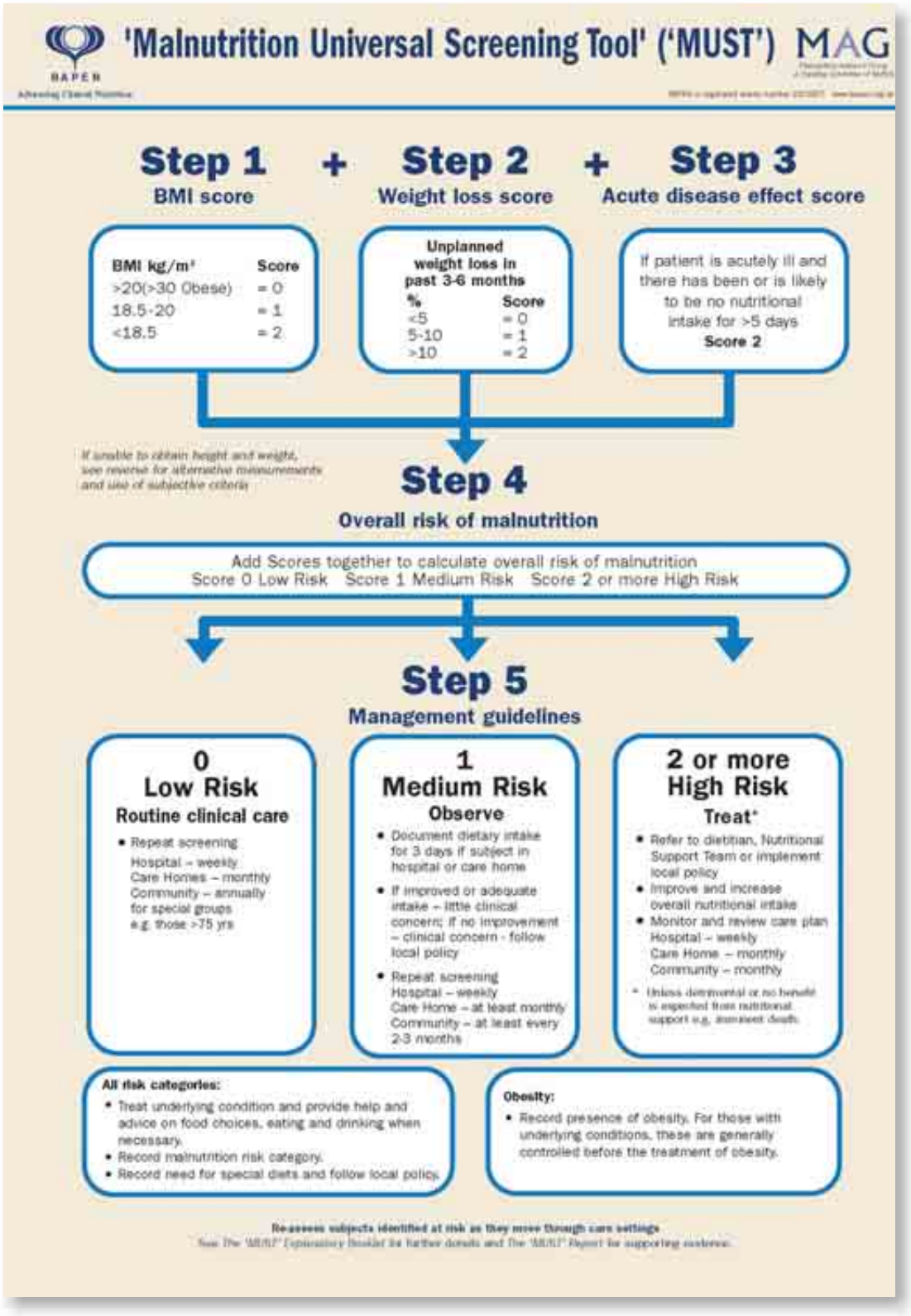
Use management guidelines and/or local policy to develop care plan.

Please refer to *The 'MUST' Explanatory Booklet* for more information when weight and height cannot be measured, and when screening patient groups in which extra care in interpretation is needed (e.g. those with fluid disturbances, plaster casts, amputations, critical illness and pregnant or lactating women). The booklet can also be used for training. See *The 'MUST' Report* for supporting evidence. Please note that 'MUST' has not been designed to detect deficiencies or excessive intakes of vitamins and minerals and is of **use only in adults.**

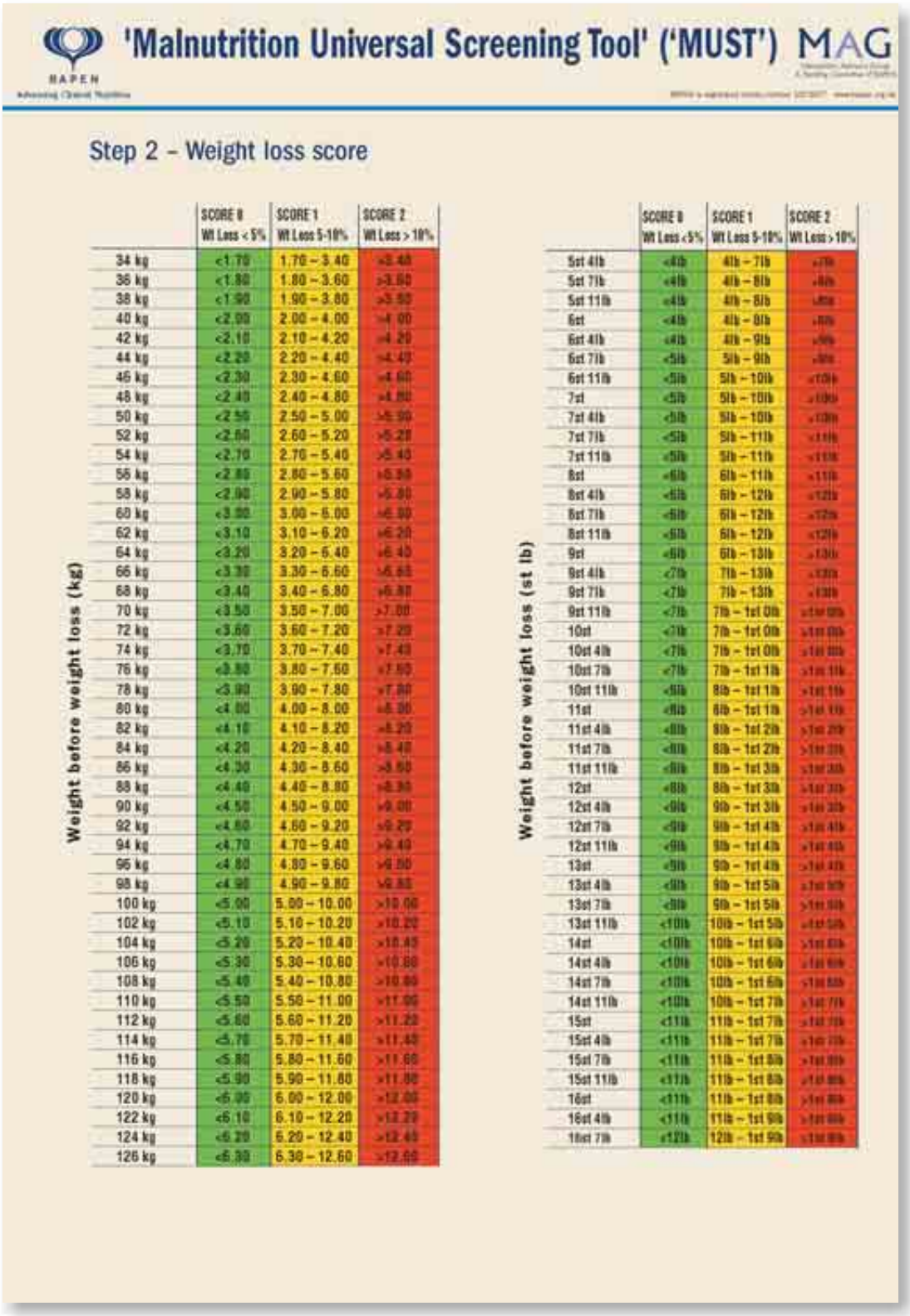
Appendix 4:
Nutritional screening tool (continued)



Appendix 4:
Nutritional screening tool (continued)



Appendix 4:
Nutritional screening tool (continued)



'Malnutrition Universal Screening Tool' ('MUST') MAG

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Step 2 – Weight loss score

Weight before weight loss (kg)

	SCORE 0 Wt Loss < 5%	SCORE 1 Wt Loss 5-10%	SCORE 2 Wt Loss > 10%
34 kg	<1.70	1.70 – 3.40	>3.40
36 kg	<1.80	1.80 – 3.60	>3.60
38 kg	<1.90	1.90 – 3.80	>3.80
40 kg	<2.00	2.00 – 4.00	>4.00
42 kg	<2.10	2.10 – 4.20	>4.20
44 kg	<2.20	2.20 – 4.40	>4.40
46 kg	<2.30	2.30 – 4.60	>4.60
48 kg	<2.40	2.40 – 4.80	>4.80
50 kg	<2.50	2.50 – 5.00	>5.00
52 kg	<2.60	2.60 – 5.20	>5.20
54 kg	<2.70	2.70 – 5.40	>5.40
56 kg	<2.80	2.80 – 5.60	>5.60
58 kg	<2.90	2.90 – 5.80	>5.80
60 kg	<3.00	3.00 – 6.00	>6.00
62 kg	<3.10	3.10 – 6.20	>6.20
64 kg	<3.20	3.20 – 6.40	>6.40
66 kg	<3.30	3.30 – 6.60	>6.60
68 kg	<3.40	3.40 – 6.80	>6.80
70 kg	<3.50	3.50 – 7.00	>7.00
72 kg	<3.60	3.60 – 7.20	>7.20
74 kg	<3.70	3.70 – 7.40	>7.40
76 kg	<3.80	3.80 – 7.60	>7.60
78 kg	<3.90	3.90 – 7.80	>7.80
80 kg	<4.00	4.00 – 8.00	>8.00
82 kg	<4.10	4.10 – 8.20	>8.20
84 kg	<4.20	4.20 – 8.40	>8.40
86 kg	<4.30	4.30 – 8.60	>8.60
88 kg	<4.40	4.40 – 8.80	>8.80
90 kg	<4.50	4.50 – 9.00	>9.00
92 kg	<4.60	4.60 – 9.20	>9.20
94 kg	<4.70	4.70 – 9.40	>9.40
96 kg	<4.80	4.80 – 9.60	>9.60
98 kg	<4.90	4.90 – 9.80	>9.80
100 kg	<5.00	5.00 – 10.00	>10.00
102 kg	<5.10	5.10 – 10.20	>10.20
104 kg	<5.20	5.20 – 10.40	>10.40
106 kg	<5.30	5.30 – 10.60	>10.60
108 kg	<5.40	5.40 – 10.80	>10.80
110 kg	<5.50	5.50 – 11.00	>11.00
112 kg	<5.60	5.60 – 11.20	>11.20
114 kg	<5.70	5.70 – 11.40	>11.40
116 kg	<5.80	5.80 – 11.60	>11.60
118 kg	<5.90	5.90 – 11.80	>11.80
120 kg	<6.00	6.00 – 12.00	>12.00
122 kg	<6.10	6.10 – 12.20	>12.20
124 kg	<6.20	6.20 – 12.40	>12.40
126 kg	<6.30	6.30 – 12.60	>12.60

Weight before weight loss (st lb)

	SCORE 0 Wt Loss <5%	SCORE 1 Wt Loss 5-10%	SCORE 2 Wt Loss >10%
5st 4lb	<4lb	4lb – 7lb	>7lb
5st 7lb	<4lb	4lb – 8lb	>8lb
5st 11lb	<4lb	4lb – 8lb	>8lb
6st	<4lb	4lb – 9lb	>9lb
6st 4lb	<4lb	4lb – 9lb	>9lb
6st 7lb	<5lb	5lb – 9lb	>9lb
6st 11lb	<5lb	5lb – 10lb	>10lb
7st	<5lb	5lb – 10lb	>10lb
7st 4lb	<5lb	5lb – 10lb	>10lb
7st 7lb	<5lb	5lb – 11lb	>11lb
7st 11lb	<5lb	5lb – 11lb	>11lb
8st	<6lb	6lb – 11lb	>11lb
8st 4lb	<6lb	6lb – 12lb	>12lb
8st 7lb	<6lb	6lb – 12lb	>12lb
8st 11lb	<6lb	6lb – 12lb	>12lb
9st	<6lb	6lb – 13lb	>13lb
9st 4lb	<7lb	7lb – 13lb	>13lb
9st 7lb	<7lb	7lb – 13lb	>13lb
9st 11lb	<7lb	7lb – 1st 0lb	>1st 0lb
10st	<7lb	7lb – 1st 0lb	>1st 0lb
10st 4lb	<7lb	7lb – 1st 0lb	>1st 0lb
10st 7lb	<7lb	7lb – 1st 1lb	>1st 1lb
10st 11lb	<8lb	8lb – 1st 1lb	>1st 1lb
11st	<8lb	8lb – 1st 1lb	>1st 1lb
11st 4lb	<8lb	8lb – 1st 2lb	>1st 2lb
11st 7lb	<8lb	8lb – 1st 2lb	>1st 2lb
11st 11lb	<8lb	8lb – 1st 3lb	>1st 3lb
12st	<8lb	8lb – 1st 3lb	>1st 3lb
12st 4lb	<9lb	9lb – 1st 3lb	>1st 3lb
12st 7lb	<9lb	9lb – 1st 4lb	>1st 4lb
12st 11lb	<9lb	9lb – 1st 4lb	>1st 4lb
13st	<9lb	9lb – 1st 4lb	>1st 4lb
13st 4lb	<9lb	9lb – 1st 5lb	>1st 5lb
13st 7lb	<9lb	9lb – 1st 5lb	>1st 5lb
13st 11lb	<10lb	10lb – 1st 5lb	>1st 5lb
14st	<10lb	10lb – 1st 6lb	>1st 6lb
14st 4lb	<10lb	10lb – 1st 6lb	>1st 6lb
14st 7lb	<10lb	10lb – 1st 6lb	>1st 6lb
14st 11lb	<10lb	10lb – 1st 7lb	>1st 7lb
15st	<11lb	11lb – 1st 7lb	>1st 7lb
15st 4lb	<11lb	11lb – 1st 7lb	>1st 7lb
15st 7lb	<11lb	11lb – 1st 8lb	>1st 8lb
15st 11lb	<11lb	11lb – 1st 8lb	>1st 8lb
16st	<11lb	11lb – 1st 8lb	>1st 8lb
16st 4lb	<11lb	11lb – 1st 9lb	>1st 9lb
16st 7lb	<12lb	12lb – 1st 9lb	>1st 9lb

Appendix 4: Nutritional screening tool (continued)

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Advancing Clinical Nutrition

'Malnutrition Universal Screening Tool' ('MUST') MAG

Alternative measurements and considerations

Step 1: BMI (body mass index)

If height cannot be measured

- Use recently documented or self-reported height (if reliable and realistic).
- If the subject does not know or is unable to report their height, use one of the alternative measurements to estimate height (ulna, knee height or demispan).

If height & weight cannot be obtained

- Use mid upper arm circumference (MUAC) measurement to estimate BMI category.

Step 2: Recent unplanned weight loss

If recent weight loss cannot be calculated, use self-reported weight loss (if reliable and realistic).

Subjective criteria

If height, weight or BMI cannot be obtained, the following criteria which relate to them can assist your professional judgement of the subject's nutritional risk.

1. BMI

- Clinical impression – thin, acceptable weight, overweight. Obvious wasting (very thin) and obesity (very overweight) can also be noted.

2. Unplanned weight loss

- Clothes and/or jewellery have become loose fitting (weight loss).
- History of decreased food intake, reduced appetite or swallowing problems over 3-6 months and underlying disease or psycho-social/physical disabilities likely to cause weight loss.

3. Acute disease effect

- No nutritional intake or likelihood of no intake for more than 5 days.

Further details on taking alternative measurements, special circumstances and subjective criteria can be found in *The 'MUST' Explanatory Booklet*. A copy can be downloaded at www.bapen.org.uk or purchased from the BAPEN office. The full evidence-base for 'MUST' is contained in *The 'MUST' Report* and is also available for purchase from the BAPEN office.

BAPEN Office, Secure Hold Business Centre, Studley Road, Redditch, Worcs, B98 7LG. Tel 01527 457 850. Fax 01527 458 718
bapen@sovereignconference.co.uk BAPEN is registered charity number 1023927. www.bapen.org.uk

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Alternative measurements: instructions and tables

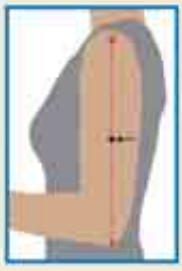
If height cannot be obtained, use length of forearm (ulna) to calculate height using tables below.
(See The 'MUST' Explanatory Booklet for details of other alternative measurements (knee height and demispan) that can also be used to estimate height).

Estimating height from ulna length

Measure between the point of the elbow (olecranon process) and the midpoint of the prominent bone of the wrist (styloid process) (left side if possible).

HEIGHT (m)	Men (<65 years)	1.94	1.93	1.91	1.89	1.87	1.85	1.84	1.82	1.80	1.78	1.76	1.75	1.73	1.71
	Men (>65 years)	1.87	1.86	1.84	1.82	1.81	1.79	1.78	1.76	1.75	1.73	1.71	1.70	1.68	1.67
	Ulna length (cm)	32.0	31.5	31.0	30.5	30.0	29.5	29.0	28.5	28.0	27.5	27.0	26.5	26.0	25.5
HEIGHT (m)	Women (<65 years)	1.84	1.83	1.81	1.80	1.79	1.77	1.76	1.75	1.73	1.72	1.70	1.69	1.68	1.66
	Women (>65 years)	1.84	1.83	1.81	1.79	1.78	1.76	1.75	1.73	1.71	1.70	1.68	1.66	1.65	1.63
HEIGHT (m)	Men (<65 years)	1.69	1.67	1.66	1.64	1.62	1.60	1.58	1.57	1.55	1.53	1.51	1.49	1.48	1.46
	Men (>65 years)	1.65	1.63	1.62	1.60	1.59	1.57	1.56	1.54	1.52	1.51	1.49	1.48	1.46	1.45
	Ulna length (cm)	25.0	24.5	24.0	23.5	23.0	22.5	22.0	21.5	21.0	20.5	20.0	19.5	19.0	18.5
HEIGHT (m)	Women (<65 years)	1.65	1.63	1.62	1.61	1.59	1.58	1.56	1.55	1.54	1.52	1.51	1.50	1.48	1.47
	Women (>65 years)	1.61	1.60	1.58	1.56	1.55	1.53	1.52	1.50	1.48	1.47	1.45	1.44	1.42	1.40

Estimating BMI category from mid upper arm circumference (MUAC)



The subject's left arm should be bent at the elbow at a 90 degree angle, with the upper arm held parallel to the side of the body. Measure the distance between the bony protrusion on the shoulder (acromion) and the point of the elbow (olecranon process). Mark the mid-point.

Ask the subject to let arm hang loose and measure around the upper arm at the mid-point, making sure that the tape measure is snug but not tight.

If MUAC is < 23.5 cm, BMI is likely to be <20 kg/m^2.
If MUAC is > 32.0 cm, BMI is likely to be >30 kg/m^2.

The use of MUAC provides a general indication of BMI and is not designed to generate an actual score for use with 'MUST'. For further information on use of MUAC please refer to *The 'MUST' Explanatory Booklet.*

Appendix 5: The Healthcare Food Award

The Healthcare Food Award is an award for health-service organisations. It is being coordinated by the Irish Health Promoting Hospitals Network (IHPH).

The award aims to promote and support the development and implementation of Healthy Catering Policies and Practices in Irish health-service organisations.

Health-service organisations have obligations not only in educating about and promoting healthy eating choices, but also in providing healthy food choices in all catering outlets within the organisations.

HEALTHCARE FOOD AWARD INITIATIVE FOR HEALTH SERVICE ORGANISATIONS

STAFF & VISITORS AWARD

Setting the scene

Health-service organisations have the following responsibilities: provision of care, prevention, research and training.

- These responsibilities need to be included in the healthy eating and catering policies of all health-service organisations. While these responsibilities cover everyone, this award is particularly directed at all staff as well as at visitors.

Health-service organisations also have a legal requirement to implement a food-safety management system based on the principles of hazard analysis at critical control points (HACCP) in all food-service areas.

- This system provides a framework to ensure that safe food is provided for all staff and visitors in the hospital.

The Healthcare Food Award Initiative has been developed to promote and support the implementation of the Healthy Catering Guidelines for Staff and Visitors in Healthcare Facilities, published by the Department of Health and Children.

- The Healthy Catering Guidelines provide a clear checklist of practical, easy-to-implement practices, which can be gradually incorporated into the existing food service. Under this initiative, organisations are encouraged to apply for/implement the Irish Heart Foundation's Happy Heart at Work Healthy Eating Award. It provides a supportive framework for developing a healthy catering policy.

It is important that the individual healthcare facility's policy and actions harmonise with healthy eating activities in other health services and in the country at large.

- Successful implementation of the Healthy Catering Guidelines depends on clearly defined decisions on policy, on budget and on implementing comprehensive information and training processes, along with the participation of all staff and the establishment of long-term monitoring and review procedures.

Healthcare Food Award

- Supporting healthy lifestyle choices for all people in the workplace and public service areas is the responsibility of healthcare organisations and needs active participation by everybody.

- The objective of the Healthcare Food Award is to support and facilitate the implementation of the Healthy Catering Guidelines and address any difficulties in a realistic and achievable manner.

First stage: Interest

Register your organisation's interest by returning a *Letter of Interest* and nominate a focal/contact person for the initiative within your organisation.

Second stage: Membership status

Initiate a review of current practices within your organisation and complete a *Baseline Self-Assessment Questionnaire.*

Develop an action plan and return the *Baseline Self-Assessment Questionnaire*, along with the signed *Letter of Commitment*, and confirm the focal person.

- **Once the above documents have been forwarded to the Irish Health Promoting Hospitals Network, your organisation may apply for the Irish Heart Foundation (IHF) Happy Heart at Work Healthy Eating Award or for confirmation of award status.**

Following a minimum of 12 months in the initiative, organisations will be asked to complete and return a post-project *self-assessment questionnaire* annually. Organisations will be invited periodically to apply for the award.

Third stage: Staff & Visitor Award

Applications will not be processed until the completed post-project *self-assessment questionnaire* – demonstrating achievement of the award criteria and supplying evidence that the organisation currently holds the IHF Happy Heart at Work Healthy Eating Award – is returned. ('Currently holds' means that the organisation holds the award or has been re-certified within the previous two years.)

- **On return of all documentation to the Irish Health Promoting Hospitals Network and the successful attainment of all requirements, the organisation will be awarded the National Staff & Visitors Healthcare Food Award.**

Final stage: Overall Healthcare Food Award

Further initiatives will support the implementation of other guidelines drawn up by the Department of Health and Children, as part of its overall Hospital Food Initiative.

- **An Overall Healthcare Food Award will be awarded to organisations that attain all these Guidelines.**

Appendix 6: Putting theory into practice

These Guidelines for Preventing Under-Nutrition in Acute Hospitals have been welcomed by the National Hospitals Office Network, who support the content and implementation.

6.1 Suggestions by the National Hospitals Office Network

- The guidelines must be supported by a national campaign to increase awareness of the problem of under-nutrition.
- Education of all staff (including management, physicians, nurses, health and social care professionals and food-service staff) is a priority.
- The guidelines can be fostered at local level, where roles and responsibilities can be defined, and ultimately improve patient outcome through improved nutritional care and service.
- The screening tool needs to be mandatory in the nursing admission notes to ensure its success. This screening tool should be linked with a locally agreed care plan (as recommended in the screening tool) as this will allow individualised allocation of diets.
- There is a need to take into account how these guidelines will affect other non-acute services being catered for by the hospital.
- Nutritional support care for patients in the community needs to be improved to prevent re-admission.
- The guidelines need to be enforced nationally, and audited locally with a view to accreditation.
- All the guidelines should be expanded at local level to include healthy options in vending machines and all hospital and health-service retail outlets, as well as recommendations for healthy options at meetings for staff. (Information on how to achieve the Healthcare Food Service Award for interested hospitals is available in Appendix 5. This award includes healthy food options in all hospital food-service outlets.)
- Individual nutritional care plans need to be provided, implemented and monitored.
- Dietetic prescribing of nutritional supplements needs to be formalised.
- An enteral feeding policy needs to be implemented.
- Post-discharge dietetic management needs to be provided.
- Staff need ongoing training so that they recognise the value of nutrition as treatment and know how to fulfil their roles.
- 'Good nutrition in hospital' leaflets should be provided in pre-admission packs, for elective admissions.

- Picture menu cards should be introduced.
- New menus – as outlined in Section 1 – need to be introduced and special diets to be improved.
- Altered-texture diets, including food moulds, need to be fully implemented in consultation with a speech and language therapist.
- Snacks should be available during waking hours.
- Surveys of patient satisfaction and food wastage should be administered.
- Dedicated care assistance should be provided on each ward so that help with feeding can be given to all who require it.
- 'Protected mealtimes' should be encouraged.

It is imperative for these guidelines to be implemented at a local level and that a regular review of hospital food and feeding practices be carried out. Patient feedback should be an integral part of this review.