

# Food, Nutrition and Homelessness

## Guidance for Community Nurses



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## Introduction

Good nutrition plays an important role in improving overall health and wellbeing for all. The experience of community nurses suggests that people experiencing homelessness, particularly rough sleepers with concurrent addictions, experience worse nutrition than the wider population (Shaw and MacDonald, 2007; Falaise, 2017; Ijaz et al, 2017; Qirici, B. and Story, A. 2019). People who are homeless struggle to access the food and nutritional support they need, and this has serious consequences for their health.

Standards govern the healthcare of people who are homeless, and these explicitly reference nutritional care: ‘Health promotion with excluded groups should use a common risk factor approach addressing nutrition and diet, smoking, alcohol and substance use and basic hygiene’ (Faculty for Homeless and Inclusion Health, 2018, p. 41). In this context, it is important that community nurses are confident to deliver nutritional screening, and support and advice, and link vulnerable people in to appropriate services as needed.

This guidance resource was originally written by registered dietitians in 2012 as part of the QNI’s Opening Doors Project. The 2015 revision aimed to update the nutritional guidance in line with national nutritional trends, such as rising rates of obesity. This third review in 2020 brings in some new key evidence related specifically to populations who are homeless and vulnerable.

The aim of the guidance is to update specialist community nurses on good practice. It can also be used as a reference by others with an interest in the health of people who are homeless, such as hostel staff, daycentre staff and support workers.

### Other high-risk groups

Although people who are homeless are at high risk of poor nutrition, community nursing services should consider risk factors for other inclusion health groups, e.g. those with learning disabilities, mental health problems, drug and alcohol users, Gypsy, Roma or Traveller communities, asylum seekers, refugees, and other vulnerable migrants.

## Good nutrition and hydration

### The role of nutrition in wellbeing

Food is an important part of our lives, not only because it provides the essential nutrients the body needs, but also because it has an important role to play in our general health and wellbeing. Healthy eating plays an important part in our culture and traditions, and thus plays a key role in social inclusion. Having the ability to buy, prepare, cook, share and eat food with others, helps people feel socially included.

### What is a healthy balanced diet?

The ‘eatwell’ plate (figure 1) shows the different types of food and the proportions that should be consumed for a well-balanced diet. A balanced healthy diet contains a third starchy foods (bread, pasta, rice, potatoes, breakfast cereal, preferably wholegrain), a third fruit and vegetables, 15% milk and dairy foods (cheese, yoghurt and fromage frais, preferably low-fat), and 12% lean meat, fish, beans, pulses, nuts and eggs. It is advised that a maximum of 5% of the diet should consist of ‘free sugars’ - monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and unsweetened fruit juices (Public Health England, 2015).



‘A general rule for adults is that women should drink around eight 200ml glasses, and men ten 200ml glasses of fluid per day depending on activity levels.’



The ‘eatwell’ plate is applicable to anyone over the age of two years. Infants and toddlers need a higher proportion of fats in their diet. People who are over or underweight can use the ‘eatwell’ plate to help them eat the right foods, while increasing or decreasing their overall daily energy intake from food as needed. It can also be useful to suggest to people to eat a variety of colours of fresh food – as this leads to a wider intake of nutrients.

**Figure 1. The Eatwell Plate**



**The importance of healthy hydration**

Any healthy diet should contain an adequate fluid intake which will vary according to a person’s level of activity, age and gender.

A general rule for adults is that women should drink around eight 200ml glasses, and men ten 200ml glasses of fluid per day (NHS Choices, 2015), depending on activity levels. Increased activity levels will require more fluid. The healthiest source of fluid is water, and, if consumed, sugary drinks, alcoholic drinks and highly caffeinated drinks should make up only a very small percentage of overall fluid intake.

Advice for regarding adequate fluid intake for children can be found below.

Table 1: Fluid intake for children		
Sex	Age group	Amount of fluid from drinks only (litres/day**)
Boys and girls	2 to 3 years	0.9-1.0
Boys and girls	4 to 8 years	1.1-1.3
Girls	9 to 13 years	1.3-1.5
Boys	9 to 13 years	1.5-1.7
Female	14-18 years	1.4-1.6
Male	14-18 years	1.8-2.0

Source: European Food Safety Authority (2010)

The British Nutrition Foundation has a useful poster targeted at children aged 5-11, which can be downloaded from their website. (Updated 2018) <https://www.nutrition.org.uk/healthyliving/hydration/hydration-for-children.html>

## **Fruit and vegetables**

Current advice is that everyone should try to eat at least five portions of fruit and vegetables each day. Fruit and vegetables help keep the immune system strong and are very low in fat. Eating fruit and vegetables can help to maintain a healthy body weight, and provide lots of valuable vitamins and minerals, and reduce the risk of diseases such as heart disease, diabetes and cancer. A glass of unsweetened fruit juice (no added sugar) counts as one portion, however it is important to say that drinking more than one glass does not contribute to more than one of our five a day.

Portion sizes for adults are described in this NHS guidance: <https://www.nhs.uk/live-well/eat-well/5-a-day-portion-sizes/>

Portion sizes for children are smaller. Generally, a portion size is the amount that can be fitted into the palm of a hand.

However, eating five portions of fruit and vegetables a day can be significant for people living in poverty and homeless, and it is important to acknowledge this. People obtaining food at day centres, soup runs and in hostels may be at a serious disadvantage if fruit and vegetables are not offered.

If a person is feeding themselves, it is important to let them know that canned, frozen and dried fruit and vegetables can all count towards achieving the five a day target. Canned, frozen and dried fruit and vegetables are just as nutritious as fresh versions and also tend to be cheaper. It is good to be aware of low-cost higher nutrition options such as canned vegetable soups, which are long-life and practical. Fresh fruits and vegetables in season are also often cheaper.

## **Starchy foods**

Starchy foods such as bread, pasta and rice are important sources of energy and nutrients such as calcium, iron and B vitamins. Starchy foods are made from grains. There are two types of starchy foods: refined and unrefined. Refined means that some parts of the grain have been removed whilst unrefined means that all of the grain has been used. This is the reason why unrefined starchy foods are also known as wholegrains.

Refined starchy foods include white bread, white pasta, white rice and potatoes without the skin. Unrefined starchy foods include wholegrain bread, whole-wheat pasta, brown rice and wholegrain cereals. Wholegrains contain many more nutrients (e.g. fibre and B vitamins) compared to refined grains. To help select wholegrain types of starchy foods tell people to look for the word 'whole' before the name of the food, e.g. whole oats, whole-wheat crackers.

Very young children should not consume too much high fibre foods. Children require a lot of energy as they are growing and developing, but have smaller stomachs than adults. Eating too many fibre-rich foods may fill them up, making it difficult to take in adequate energy and nutrients. As children approach school age, they should gradually move towards a diet lower in fat and higher in fibre. By the age of five, children's diet should be low in fat, sugar and salt and high in dietary fibre.

## **Milk and dairy foods**

Dairy foods include milk, cheese, and yoghurt and fromage frais and are an excellent source of calcium and protein. The calcium found in these foods can be easily used by the body and therefore these foods are essential for bone health.

However, some dairy products can be high in saturated fat, which can increase the risk of heart disease. Encouraging patients to choose lower fat versions will ensure that they are provided with all the nutritional benefits, but with a reduced fat intake. For example, semi-skimmed milk contains half the amount of fat as whole milk, but contains more calcium. Choose low fat varieties of yoghurt and cheese. Cheese naturally low in fat includes cottage cheese and ricotta.

Three portions of dairy products (e.g. a match box size piece of reduced fat cheese; a glass of skimmed/semi-skimmed milk and pot of low-fat yoghurt) per day will ensure that most people get the calcium they need for healthy bones and teeth.

It is important that children under the age of two consume whole milk (not semi-skimmed or skimmed milk) as whole milk is a valuable source of energy for developing children. Children over the age of two should move towards consuming semi-skimmed milk.

Some infants and children are allergic to milk protein, or are unable to digest the sugar in cow's milk. While soya milk has traditionally been the most commonly used cow's milk alternative, use of e.g. almond and cashew milks are also

‘The study found that low income households were more likely to eat high-fat processed foods or fast / snack foods and had poor intakes of vitamins and minerals.’



popular. Rice and oat milk are also common alternatives. However, cow’s milk alternatives often contain less protein and less calories than cow’s milk. Most are fortified with vitamin D and calcium, but it is important to check the labels as protein and vitamin content may differ among brands.

### **Meat, fish, eggs, beans and other non-dairy sources of protein**

Protein is found in every part of our body, and has many essential functions. Protein can be found in animal food sources such as meat, fish, eggs, and plant sources such as nuts, pulses and lentils.

Everyone should aim to eat at least two portions of fish per week, including one portion of oily fish. Oily fish contains essential fats called long chain omega 3 fatty acids which protect against heart disease. Less expensive sources of oily fish include mackerel, sardines, trout and herring.

Meat is an excellent source of iron and vitamin B12, although some meat can be high in saturated fat. If possible, tell people to try to choose lean versions of meat and cut the visible fat off the meat before cooking. Ideally grill or oven cook instead of frying.

Note that women who may become pregnant should not eat more than two portions of oily fish per week. This is because they can contain environmental pollutants that could interfere with the baby’s development.

### **Vitamins and Minerals**

Vitamins and minerals are nutrients your body needs in small amounts to work properly and stay healthy. The most important vitamins and minerals are:

- Vitamin A, B Complex, C, D, E and K
- Calcium
- Iron
- Iodine

Lack of these vitamins and minerals can generate specific deficiency diseases and conditions which are known in homeless populations. Although most people in the general population can get all the nutrients they need by having a varied and balanced diet, some people may need to take extra supplements.

For specific information and advice sheets on all vitamins and minerals go to: <https://www.nhs.uk/conditions/vitamins-and-minerals/>

### **Foods high in fat and ‘free sugars’**

Foods in this group include butter, cream, cooking oil, cakes, biscuits, crisps, non-diet soft drinks and pastries, chips, and include other convenience foods like cheap pre-made sandwiches, and fast food. Unfortunately, such foods provide an immediate ‘hit’ of sugar, and are therefore often seen as desirable, and they are also often cheap to buy.

The Low-Income Diet and Nutrition survey, published in 2007, surveyed the food and nutrient intake of low-income households. The study found that low income households were more likely to eat high-fat processed foods or fast / snack foods, had poor intakes of vitamins and minerals (Nelson et al 2007). Such types of food are also often provided free in day centres, etc. to single homeless populations.

However, ideally, people should be advised only to eat a small amount of these foods, as they often contain lots of fat and sugar, very little or no valuable nutrients, and are a key cause of weight gain and tooth decay. If possible, people should try to eat healthier snacks such as fruit, instead of chocolate or crisps, or a scone or currant bun, instead of cakes, or pastries. There is also some evidence that eating these foods can exacerbate mood disorders, however complex carbohydrates may conversely be beneficial for people who experience these.





‘Malnutrition includes undernutrition, having an inadequate intake of vitamins or minerals, being overweight or obese, and all diet-related noncommunicable diseases.’



## The Effects and Prevalence of Malnutrition

### Prevalence

Malnutrition, in all its forms, includes undernutrition (wasting, stunting, underweight), having an inadequate intake of vitamins or minerals, being overweight or obese, and all diet-related noncommunicable diseases (World Health Organization (WHO), 2018).

Specifically, the adverse effects of malnutrition can include:

- reduced muscle and tissue mass
- difficulty staying warm (if there is reduced muscle and tissue mass) causing an increased risk of hypothermia
- obesity
- decreased mobility and stamina
- reduced immune responses – increasing the risk of infection, and extending recovery time
- delayed wound healing
- diabetes
- respiratory problems
- cardiovascular disease
- poor libido and fertility
- mood problems and disorders
- specific deficiency diseases and conditions

The British Association for Parenteral and Enteral Nutrition (BAPEN) places the number of people suffering malnourishment in the UK at three million people (British Association for Parenteral and Enteral Nutrition, 2018), including 25–34% of people admitted to hospital. This is made up of both people suffering undernourishment and obesity. Simultaneously, the UK has the second highest rate of obesity in Europe, one in 10 children are living with adults who report experiencing severe food insecurity (UNICEF, 2017).

The Trussell Trust, which provides approximately 60% of the UK’s food banks, reported that in 2017–18 they alone had distributed 1,332,952 three-day emergency food supply packs to people in crisis (nearly 484,026 of which went to children), compared to 913,138 in 2013–14, an increase of 46%. They noted that the most likely groups to require foodbanks were ‘people with a disability, people dealing with an illness, families with children and single parents’ (Trussell Trust, 2018).

In terms of homeless populations specifically a recent report by the UCLH Find and Treat specialist outreach service surveyed 267 homeless participants in London (59 female, mean age 44) 75% of whom had been currently or recently rough sleeping. 17.2% had a BMI less than 18.5 (compared to 1.3% of the general population.) 53% skipped a meal every day, and 30% had no food for a whole day at least once a week. This went up to 77% and 58% for people who are drug users. Overall 1 in 4 of the population were at risk of malnutrition on the basis of their Malnutrition Universal Screening Score (Qirici and Story, 2019).

### Alcohol dependence and malnutrition

A systematic review of nutritional deficiencies of people experiencing homelessness in the UK who were problem drinkers was undertaken, and found nine studies spanning from the 1950s to 2013. The following nutrient deficiencies were reported across studies: vitamins B1, B2, B6, B9, B12, C, A, and E; haemoglobin; and albumin. The most common deficiencies reported were of vitamin B1 and vitamin C. (Ijaz et al, 2017).

These deficiencies contribute to neurological and other organ damage and can lead to long-lasting medical conditions (de la Monte and Kril, 2014). Specifically, vitamin B1 (thiamine) deficiency is associated with the neurological damage in these groups. Oral thiamine replacement is therefore recommended, and parenteral thiamine is recommended for patients with chronic alcohol misuse who are admitted to prevent the specific deficiency disease Wernicke’s encephalopathy (Thomson et al, 2002).

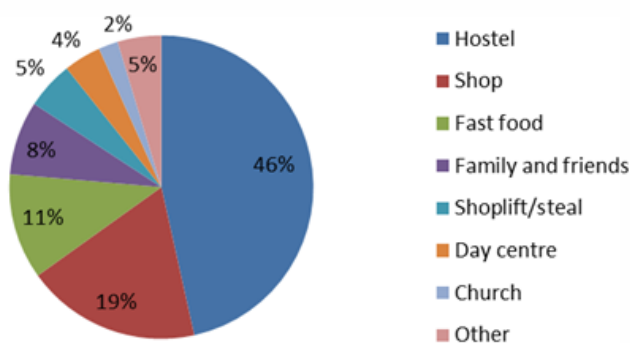
### Substance misuse and malnutrition

Malnutrition among substance misuse clients is also noted in the literature (Davison, 2015, Fallaize, 2017, Sason 2018, Story and Qirici, 2019).

### The Impact of Homelessness on Nutritional Status

Homelessness presents significant challenge to getting enough food and getting the right food to maintain good health. In 2013, Alison McKay at the University of Southampton worked with Winchester Churches Night Shelter to undertake research into the eating patterns of people who are homeless.

**Figure 2: Where do people who are homeless eat?**



Source: Alison McKay, University of Southampton, 2013

It can be noted from this that in at least 67% of the time meals are provided by others, and thus individual choice would be limited.

#### According to research:

- 63% of participants ate at least two meals daily
- 14% ate only one small meal daily
- Some individuals ate no regular meals

This is similar to the results found later by Qirici and Story (2019).

A summary of some potential other reasons for poor nutrition are presented in the table.

**Table 2: Potential reasons for poor nutrition**

<p><b>Resources and location</b></p> <ul style="list-style-type: none"> <li>• There is limited or no money to buy food</li> <li>• Limited storage space for food, meaning there is a higher likelihood that people will have to eat lower quality food or fresh food that is past its best</li> <li>• A consequence is people eating for fullness (high carbohydrate, high free sugars diet) rather than for nutritional value</li> <li>• Less access to clean water</li> <li>• May not live near or be aware of homeless support services that offer food or meals</li> </ul>
<p><b>Provision of local low-cost food facilities</b></p> <ul style="list-style-type: none"> <li>• Areas of high homelessness concentration are often situated in areas of high deprivation or city centres where there is high availability of unhealthy take-away food</li> </ul>
<p><b>Mental health</b></p> <ul style="list-style-type: none"> <li>• Poor self-esteem</li> <li>• Anxiety and depression among parents can lead to weight loss and suppressed appetite</li> </ul>
<p><b>Education</b></p> <ul style="list-style-type: none"> <li>• Some people may not know the essentials of healthy eating</li> <li>• Some people may not have the cooking skills or confidence</li> <li>• Food is a low priority in life and may prioritise the feeding of pets over their own nutrition</li> </ul>

‘Nicotine, drug, alcohol and novel psychoactive substance issues may interfere with nutrient uptake and cause either unhelpful food cravings, suppressed appetite or the de-prioritization of food.’



<p><b>Housing quality</b></p> <ul style="list-style-type: none"> <li>• People without a permanent home have no or limited access to hot food and cooking facilities</li> <li>• Poor quality accommodation which may have unsafe or broken equipment (oven, fridge, microwave, toaster etc.)</li> <li>• Temporary accommodation may not have clean and adequate food preparation and cooking facilities, or necessary kitchen implements</li> </ul>
<p><b>Cultural provision</b></p> <ul style="list-style-type: none"> <li>• People may rely on day centres for food – some are not able to address cultural differences in food provision, such as halal foods</li> <li>• Depending on their location, refugees, asylum seekers and vulnerable migrants may struggle to find familiar food at a low enough cost</li> </ul>
<p><b>Health and addiction issues</b></p> <ul style="list-style-type: none"> <li>• Nicotine, drug, alcohol and novel psychoactive substance issues may interfere with nutrient uptake and cause either unhelpful food cravings, suppressed appetite or the de-prioritization of food. According to one research study, 69% of people who are homeless would regularly spend, money on cigarettes, alcohol or drugs instead of food (McKay, 2013).</li> <li>• Drug use can affect the production of saliva which impacts on digestion and nutrition uptake.</li> <li>• More likely to have health problems including physical (e.g. digestive problems) and mental health (e.g. depression, anxiety)</li> <li>• People experiencing homelessness are more likely to experience long-term health conditions such as diabetes. The need for a regular balanced diet in chronic disease management is very important and irregular, low nutrient eating is not helpful for other health conditions and can risk a series of serious medical conditions</li> </ul>
<p><b>Dental health</b></p> <ul style="list-style-type: none"> <li>• Poor dental health can affect ability to eat and enjoyment of eating.</li> <li>• As mentioned, in the QNI’s Oral Health and Homelessness Guidance, medication can have a negative impact on health. As an example, methadone is commonly provided as a syrup, which can be damaging to oral health (QNI,2020)</li> </ul>
<p><b>Parenting</b></p> <ul style="list-style-type: none"> <li>• Meeting children’s food needs takes priority over parents’ and carers’ needs - more likely that parents (more often mothers) become poorly nourished</li> <li>• Food is low on the list of priorities (for parents) when coping with the reality of being homeless and living in temporary accommodation</li> <li>• Children are at risk of poorer diets if living in temporary accommodation. Parents may struggle to provide a nutritious diet when working through the challenges of leaving domestic violence situations. Children’s needs are not always prioritized.</li> </ul>
<p><b>Employment</b></p> <ul style="list-style-type: none"> <li>• People may be working for exploitative employers and so have less access to eating and drinking breaks. This may be especially true of sex workers.</li> </ul>

**What Health Interventions are Helpful?**

**Education programmes**

A recent systematic review looked at nutrition interventions for preventing malnutrition specifically in homeless problem drinkers (Ijaz et al, 2018). Fruit and vegetable intake and nutritional status improved in some education and support interventions (in 4 out of 6 studies). No study reported cost effectiveness (Ijaz et al, 2018).



‘Another approach to improving the nutritional status of groups may be to ask local day centres, hostels and night shelters about their menus and discuss this guidance with them.’



Educational initiatives include undertaking a more detailed exploration of an individual’s understanding around food and nutrition, and discussing the practicalities of eating health and preparing healthy food. The provision of recipe books, joint cooking / eating initiatives, cooking classes, and food growing projects have also been used.

A useful free advice and recipe book for use in such programmes can be found here: [https://nichs.org.uk/wp-content/uploads/2018/07/NICHS-A5-Booklet-Feed-your-day\\_screen.pdf](https://nichs.org.uk/wp-content/uploads/2018/07/NICHS-A5-Booklet-Feed-your-day_screen.pdf)

#### **Provision of food bank vouchers / free food**

Linking people into food banks and day centres etc. will help them access food. However Ljaz et al (2018) note that while this is usually welcomed by users, it does not necessarily improve nutritional status, and may need to be accompanied with other interventions. It is somewhat dependent on what free food is provided, knowledge and skills related to preparation, and cooking facilities.

#### **Provision of advice for day centres / hostels etc**

Another approach to improving the nutritional status of groups may be to ask local day centres, hostels and night shelters about their menus and discuss this guidance with them. See if there are any practical changes that can be made to make the selection of nutritional choices easier.

#### **Example of an integrated programme:**

##### **Case study: Cyrenians Good Food Programme, Scotland**

‘Food is the essence of everything. It’s about caring, sharing and building people up.’

The Good Food Programme is a social enterprise that supports people through access to food, which supports improving their health and wellbeing, and develops skills and confidence around cooking. This in turn allows them to move towards a more settled lifestyle.

There are four key elements:

1. They are part of FareShare - a national network redistributing surplus food from producers and suppliers (like supermarkets and bakeries) to organisations working with vulnerable people (such as residential homeless projects and community youth groups).
2. Their Food Education programme provides classes with ‘hands on’ activities that encourage healthy eating and promote social inclusion.
3. Their Farm grows food and helps the community to grow people, providing a range of opportunities for individuals to develop skills and confidence as a step towards a settled lifestyle.
4. Volunteers from all walks of life are invited to participate in the programme.

To find out more about our Good Food Programme: call 0131 554 3900 or email [goodfood@cyrenians.scot](mailto:goodfood@cyrenians.scot)

Source: <https://cyrenians.scot/community-and-food/good-food/>

#### **Routine screening of all patients experiencing homelessness for malnutrition**

National guidance recommends that many groups should be screened routinely for malnutrition. These include:

- all hospital inpatients on admission
- all outpatients at their first appointment
- all people in care homes on admission
- all people on registration at GP surgeries
- any patients for who there is a clinical concern. This includes, for example, unintentional weight loss, fragile skin, poor wound healing, apathy, wasted muscles, poor appetite, altered taste sensation, impaired swallowing, altered bowel habit, loose fitting clothes, or prolonged intercurrent illness.

However, evidence suggests it may be useful to screen all people who are homeless. Screening should include the assessment of body mass index (BMI) that is, weight in kilograms divided by height in metres squared. It should also include the percentage unintentional weight loss, and time over which nutrient intake has been unintentionally reduced and/or the likelihood of future impaired nutrient. The Malnutrition Universal Screening Tool (MUST), can be used to do this.

### **'MUST' – Malnutrition Universal Screening Tool**

A standardised and validated tool: Malnutrition Universal Screening Tool ('MUST') is freely available to screen adults for malnutrition in the community and can be used by all care workers. 'MUST' is a five-step screening tool to identify adults who are malnourished, at risk of undernutrition, or obesity. The 'MUST' tool can be accessed through the following link: [https://www.bapen.org.uk/pdfs/must/must\\_full.pdf](https://www.bapen.org.uk/pdfs/must/must_full.pdf)

This tool is very simple and quick to use. Please note that Step 3 (Acute Disease effect) can be omitted in the community setting. If it is not possible to obtain a weight and/or height during an assessment, advice on how this can be estimated is available within the guidance.

The MUST tool provides a valid and reliable method of nutrition screening but is NOT a nutritional assessment. A nutritional assessment is a structured way to establish nutritional status and energy requirements by objective measurements and results in a care plan being produced. However, screening provides an opportunity to clearly identify the risk of malnutrition, and should be linked to care plans and clear goals for nutritional intervention should be set and reviewed on an ongoing basis. Step 5 of the 'MUST' identifies patients as being at Low, Medium or High risk of malnutrition, and identifies actions to take.

### **Nutritional supplementation**

The publication by NICE, Nutrition Support in Adults (2006) states that healthcare professionals should consider using oral, enteral or parenteral nutrition support, alone or in combination, for people who are either malnourished or at risk of malnutrition, as defined below. (Potential swallowing problems should also be taken into account).

Nutrition support should be considered in people who are malnourished, as defined by any of the following:

- BMI less than 18.5 kg/m<sup>2</sup>
- unintentional weight loss greater than 10% within the last 3–6 months
- BMI less than 20 kg/m<sup>2</sup> and unintentional weight loss greater than 5% within the last 3–6 months.
- nutrition support should be considered in people at risk of malnutrition, as defined by any of the following:
  - eaten little or nothing for more than 5 days and/or are likely to eat little or nothing for the next 5 days or longer
  - poor absorptive capacity, and/or have high nutrient losses and/or have increased nutritional needs from causes such as catabolism.

<http://pathways.nice.org.uk/pathways/nutrition-support-in-adults#content=view-node%3Anodes-indications-for-nutrition-support>

Research also suggests that oral vitamin supplements improve vitamin levels in people who are homeless, and thus supplementation with multivitamins may therefore be useful (Darnton-Hill et al, 1986).

### **Refeeding syndrome**

Refeeding syndrome was first recorded in the 1940s when prisoners of war were released from internment camps, many of them having survived starvation, ate too much too fast and subsequently died.

Refeeding syndrome involves metabolic abnormalities when a person who is malnourished begins feeding after a period of starvation or limited intake. In a starved body, there is a breakdown of fat and muscle, which leads to losses in some electrolytes like potassium, magnesium, and phosphate. These electrolyte levels do not always appear to be low in the blood because our bodies try to preserve them through reduced losses by our kidneys.

When a person re-starts feeding, these electrolytes move into the cells, causing blood levels to drop. This can cause symptoms such as fatigue, weakness, confusion, inability to breathe, high blood pressure, seizures, heart arrhythmias, heart failure and ultimately death.

Nutrition Support in Adults (NICE, 2006) outlines the risks of refeeding syndrome. Although this is likely to be a rare occurrence in homelessness, the risk of refeeding syndrome should be considered in the nutritional plan of someone who is found to be severely malnourished.

‘Refeeding syndrome was first recorded in the 1940s when prisoners of war were released from internment camps, many of them having survived starvation, ate too much too fast and subsequently died.’



**Table 3: Risk factors for refeeding syndrome (NICE, 2006: p37-38)**

NICE states that nutritional support should be considered with caution of re-feeding risk if the patient has:	
One or more of the following:	Two or more of the following:
<ul style="list-style-type: none"> <li>• Body mass index &lt;16 kg/m<sup>2</sup></li> <li>• Unintentional weight loss &gt;15% in the past three to six months</li> <li>• Little or no nutritional intake for &gt;10 days</li> <li>• Low levels of potassium, phosphate, or magnesium before feeding</li> </ul>	<ul style="list-style-type: none"> <li>• Body mass index &lt;18.5 kg/m<sup>2</sup></li> <li>• Unintentional weight loss &gt;10% in the past three to six months</li> <li>• Little or no nutritional intake for &gt;5 days</li> <li>• History of alcohol misuse or drugs, including insulin, chemotherapy, antacids, or diuretics</li> </ul>

### General Dietary Advice

Patients should receive general dietary advice, alongside other key public health messages that need to be delivered e.g. in regards to regular exercise, smoking cessation, alcohol brief intervention advice, and substance misuse harm reduction advice. Advice should be person centred, and take account of individual preferences, allergies, intolerances and cultural needs.

#### Key messages

Encourage everyone to follow a dietary pattern that is mainly based on vegetables, fruits, beans and pulses, wholegrains and fish. Everyone should be encouraged to reduce the overall energy density of the diet.

Practical ways to achieve a reduction in energy density include:

- reducing how often energy dense foods and drinks (such as fried foods, biscuits, savoury snacks, confectionery and drinks made with full fat milk or cream) are eaten
- substituting energy dense items with foods and drinks with a lower energy density (such as fruit and vegetables or water)
- using food and drink labels to choose options lower in fat and sugar
- choosing smaller portions or avoiding additional servings of energy dense foods.
- Limit consumption of energy dense food and drinks prepared outside the home, particularly ‘fast’ or ‘takeaway’ foods.

**Avoid sugary drinks** (including carbonated drinks, sports drinks, squashes and any other drinks that contain free sugars). Everyone should be encouraged to choose water or other drinks that do not contain free sugars. Other suitable drinks may include coffee, tea or drinks containing non-nutritive sweeteners, such as ‘diet’ versions of carbonated drinks or squashes.

**Reduce total fat intake.** Practical ways of doing this may include choosing lower fat options of the main sources of fat in the diet, reducing portion size or frequency of consumption of foods high in fat (such as meat and meat products, milk and dairy products, fats and oils, and baked foods such as pizza, biscuits and cakes).

Eat breakfast but do not increase overall daily energy intake. Breakfast choices should reflect existing healthy eating advice. Practical ways to achieve this may include opting for unsweetened wholegrain cereals or bread, lower fat milk and a portion of fruit.

**Increase the proportion of high fibre or wholegrain foods eaten.** Practical ways to do this may include:

- choosing wholemeal bread and pasta and wholegrain rice instead of ‘white’ versions
- opting for higher-fibre foods (such as oats, fruit and vegetables, beans, peas and lentils) in place of food and drinks high in fat or sugar.

**For those who eat meat, limit intake of meat and meat products.** Follow existing advice from NHS Choices to eat no more than 70 g of red and processed meat a day on average. Practical ways to do this may include reducing the portion size of meat or how often meals including meat are eaten.





‘Practical ways to limit alcohol consumption may include replacing alcoholic drinks with non alcoholic drinks that do not contain free sugars, and increasing the number of alcohol free days.’



**Reduce alcohol consumption.** Advise adults that all alcoholic drinks are a source of additional energy. For example, a man drinking the upper daily limit of 3–4 units will be consuming around 200–325 extra calories a day and a woman drinking the upper daily limit of 2–3 units will be consuming around 140–260 extra calories a day. Practical ways to limit alcohol consumption may include replacing alcoholic drinks with non alcoholic drinks that do not contain free sugars, and increasing the number of alcohol free days. For more information see advice on drinking alcohol on the NHS Choices website.

**Table 4: Age Specific Dietary Guidance - Pregnant Women**

**Advice for pregnant women**

Follow the ‘eatwell’ plate format for healthy eating during pregnancy with the following additions:

1. Aim for a pint of milk a day or 1/3 pint of milk plus a small pot of yoghurt and matchbox size piece of cheese
2. Two portions of fish per week, including one oily fish such as sardines, mackerel or salmon (including tinned) and/or white meat e.g. chicken
3. Avoid vitamin A supplements
4. Avoid alcohol and illegal drugs intake until the postnatal period
5. 400µg supplement of folic acid each day recommended for women planning a pregnancy or who may become pregnant (NICE, 2008)
6. Vitamin D supplement to 10mcg/d is recommended especially for women of Asian, African and Middle Eastern origin
7. Avoid liver and liver products such as pâté, as they contain high amounts of vitamin A, which can affect a baby’s development
8. Avoid soft cheese such as Brie / Camembert, and any cheese with visible mould
9. Limit intake of caffeine to 200mg a day (two mugs of instant coffee) as too much caffeine can result in a low birth weight or occasionally miscarriage.
10. Keep well hydrated

**Table 5: Age Specific Dietary Guidance - Young Children**

**Advice for young children**

School-aged children have high nutritional needs but quite small appetites.

1. Make sure that there are plenty of nutrients as well as energy (however many children this age can also be overweight due to too much energy in the diet)
2. Base meals and snacks on the five main food groups in the Eat Well Plate but limit fatty and sugary snacks. Swap sugary snacks for fresh / dried fruit.
3. Emphasise the need for different types of colours of food, and make food layout attractive and fun.
4. Calcium is important for healthy bone development. Good sources include dairy products such as milk, cheese, yoghurt and fromage frais, as well as fortified orange juice, green leafy vegetables, cereals, sesame seeds and tofu. Ideally aim for three servings of calcium-rich food a day - for example, a 150ml glass of milk, a small pot of yoghurt and a small matchbox-sized piece of cheese.
5. Folate is important for growth, but intake is low in some children, especially those who miss breakfast because fortified cereals are a good source of folate. Other sources include fortified bread, green leafy vegetables and pulses.
6. Iron is important for prevention of anaemia and important for concentration. Good sources include red meat, liver, fortified breakfast cereals, beans and pulses. To help absorb the iron more effectively from non-meat sources, combine it with vitamin C-rich foods such as citrus fruits and fruit juice.
7. Limit the amount of sugar and sweets eaten, and offer them at the end of meals, rather than in-between.
8. Avoid additional salt.
9. Very young children should not consume too much high fibre containing foods. Eating too many fibre rich foods may fill them up making it difficult to eat adequate energy and nutrients.

### Table 6: Age Specific Dietary Guidance - Teenagers

#### Advice for teenagers

Diet is important at this stage for continued growth and development.

1. During this time, a number of physiological changes occur in boys and girls that affect nutritional needs, for example increase in muscle mass amongst boys and menstruation amongst girls
2. Include plenty of starchy carbohydrates - bread, rice, pasta, breakfast cereals, chapattis, couscous and potatoes (wholegrain varieties where possible)
3. It is also important to include five portions of fruit and vegetables - a great source of fibre and vitamins and minerals
4. Limit fatty and sugary foods
5. In particular try to avoid fast foods in favour of freshly cooked food.
6. Include two servings of protein daily, for example meat, fish, eggs, beans and pulses
7. Important nutrients include iron (especially for girls) and there is a danger of iron deficiency anaemia at this age. Good sources include fortified breakfast cereals, leafy green vegetables, dried fruit and bread
8. Calcium is another important nutrient at this age and some calcium-rich foods should be eaten every day in order to help prevent osteoporosis in later life. Milk and dairy products (including low fat) are a good source and aim for three portions of dairy food each day – for example, a glass of milk, a 150g pot of yoghurt.
9. Ensure good hydration.

### Table 6: Age Specific Dietary Guidance - Adults

#### Advice for adults (19-65)

Good nutrition at this age is important for current and future health status. Regular exercise if also very important.

1. Include the main food groups from the 'eatwell' plate in the diet, including starchy carbohydrates, fruit and vegetables (five portions a day) and two servings of protein daily for example meat, fish, eggs, beans and pulses.
2. Include three portions of calcium rich foods a day (should be low fat), for example, a glass of milk, a 150g pot of yoghurt and a small matchbox-sized piece of cheese
3. Smokers have higher vitamin C requirements than those who don't smoke (Stein, 2000). Vitamin C is needed for the absorption of iron and is found in a wide variety of fruit and vegetables. Good sources include kiwi fruit, oranges and broccoli.
4. Maintaining a healthy body weight is important, including the prevention of being underweight and overweight
5. Healthy eating guidelines for those over 65 remain the same as those under 65, however, it is recommended that this age group should consume a daily vitamin D (10µg/day) supplement to meet Government recommendations.

'Research is currently looking at ways to desensitise some food allergens, such as peanuts and milk, but this is not an established treatment in the NHS.'



## Managing Special Dietary and Cultural Needs

### Vegetarian diets

Vegetarian diets are now common. Vegetarians need to vary what they eat, because some nutrients are found in smaller amounts in vegetable sources, or are less well absorbed than from fish or meat sources. In particular vegetarian diets need planning to ensure there is enough iron and B12 in the diet.

For specific advice on vegetarian diets please see: <https://www.nhs.uk/live-well/eat-well/the-vegetarian-diet/>

### Food Allergies

A food allergy is when the body's immune system reacts unusually to protein specific foods. Symptoms of a mild food allergy include:

- an itchy sensation inside the mouth, throat or ears
- urticaria, or "hives"
- swelling of the face, around the eyes, lips, tongue and roof of the mouth (angioedema)
- vomiting

However, in some cases, the allergic response can lead to anaphylaxis which is life threatening. If this is felt to be a risk, key things to note are:

- Any amount of exposure can cause a reaction
- Reaction usually occurs within 30 minutes and therefore timely treatment is vital
- Strict avoidance is extremely important once anaphylaxis is known to be a risk
- People should be fully educated on the risks, and be given an EpiPen

The best way to prevent an allergic reaction is to identify the food that causes the allergy and avoid it. A GP can refer a patient to an allergy clinic for testing if there are concerns.

Foods that most commonly cause an allergic reaction are:

- milk
- eggs
- peanuts
- tree nuts
- fish
- shellfish
- some fruit and vegetables

Research is currently looking at ways to desensitise some food allergens, such as peanuts and milk, but this is not an established treatment in the NHS. Most children tend to grow out of egg and milk allergies, but allergies to nuts and seafood generally persist for life.

### Food intolerances

A food intolerance is a difficulty digesting certain foods and/or having an unpleasant physical reaction to them. This generally causes symptoms, such as bloating and tummy pain, which usually happen a few hours after eating the food. This is different to allergies in that the reactions are not immediately life threatening, and can take several days to appear. Diets can usually be modified to keep intake below threshold tolerated. In the case of specific chemicals or additives it may be possible to avoid them e.g. caffeine, artificial sweeteners, alcohol, monosodium glutamate.

### Coeliac disease - gluten intolerance

Coeliac disease is a condition where your immune system attacks the body's own tissues when gluten (found in wheat, barley and rye) is taken in. This damages the small intestine, so the person is unable to take in nutrients. Coeliac disease can cause a range of abdominal symptoms, including diarrhoea, abdominal cramps, bloating, indigestion and constipation. Coeliac disease can also cause more general symptoms like tiredness, unintentional weight loss, an itchy rash, peripheral neuropathy, disorders that affect co-ordination, balance and speech and infertility.



‘The best way to prevent an allergic reaction is to identify the food that causes the allergy and avoid it. A GP can refer a patient to an allergy clinic for testing if there are concerns.’



Potential long-term complications include:

- osteoporosis
- iron deficiency anaemia
- vitamin B12 and folate deficiency anaemia

There’s no cure for coeliac disease, but following a gluten-free diet should help control symptoms and prevent the long-term complications of the condition. Gluten is found in pasta, cakes, bread, cereals and beer, but gluten free alternatives exist.

### **Lactose intolerance**

Lactose intolerance is a common digestive problem where the body is unable to digest lactose, a type of sugar mainly found in milk and dairy products, due to a lack of the enzyme ‘lactase’.

Symptoms of lactose intolerance usually develop within a few hours of consuming food or drink that contains lactose, and include:

- diarrhoea
- bloating
- stomach cramps and pains
- nausea

The severity of symptoms depends on the amount of lactose consumed. Small amounts may be tolerated. Diets should be modified to keep intake below threshold tolerated. Lacto free milk and dairy products are relatively easy to source.

### **Common Cultural Needs**

#### **Hinduism**

Do not eat beef products, as the cow is sacred, and eating beef is a sin. Devout Hindus observe a vegetarian diet, with the addition of no eggs.

#### **Judaism**

Food has to be prepared to ‘kosher’ guidelines. To qualify as kosher, mammals must have split hooves, and chew their cud. Fish and birds also need to meet certain rules. Notably pork and shellfish are non-kosher. Kosher species of meat and fowl must be ritually slaughtered in a prescribed manner to be kosher. Meat and dairy products cannot be cooked or consumed together.

#### **Muslims**

Meat must be slaughtered in the ‘Halal’ manner. Muslims also exclude many foods from their diet. Notably pork is not allowed, although shellfish is allowed. Dairy and meat can be combined. Muslims cannot eat anything prepared with alcohol.

#### **Buddhist**

Mostly vegetarian.

#### **Christians**

Until 1967, every Friday meant fish for dinner for Roman Catholics because it was deemed to be a day of sacrifice. Fish rather than meat was to be served as the main meal of the day. Many Roman Catholics and some other Christians still observe this on every Friday during Lent.

## Appendix 1: Practice Based Case Study

This case study gives you a chance to practice using the tools described in this paper.

'Joe Smith' is a single male and has been of 'no fixed abode' for the past couple of years. He occasionally sleeps overnight in a shelter and regularly uses day centres for meals. Joe is also a heavy drinker. Over the past couple of years, he has noticed his weight decline and he has recently noticed in just the past couple of months that he has lost approximately 1 stone in weight. Joe is 40 years of age, height 1.78m (5ft 10") and his weight today is 54kg (8st 7lb). In the previous month he weighed 62kg (9st 10lb).

Using the 'MUST' tool available at: [www.bapen.org.uk/must\\_tool.html](http://www.bapen.org.uk/must_tool.html) carry out the following steps:

Step 1: Calculate Joe's BMI and identify a score.

Step 2: Note Joe's percentage unplanned weight loss and score using the tables provided.

Step 3: If possible establish an acute disease effect

Step 4: Add scores from steps 1, 2, and 3 together to obtain an overall risk of malnutrition.

Step 5: Use management guidelines and / or local policy to develop care plan.

Answer:

Step 1: Calculate Joe's BMI and identify a score – BMI = 17 / Score 2

Step 2: Note Joe's percentage unplanned weight loss and score using the tables provided - % weight loss is between 5-10% / Score 2

Step 3: Not possible to establish an acute disease effect score in this case

Step 4: Add scores from steps 1, 2, and 3 together to obtain an overall risk of malnutrition – Overall risk of malnutrition score is 4

Step 5: Use management guidelines and / or local policy to develop care plan - Joe has a risk score of 2 which indicate he is high risk and should be treated as per recommendations.

However, in the community setting a referral to a dietitian may not be possible and / or there may be a long waiting time. It is important to improve and increase nutritional intake in the first instance.

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‘Over the past couple of years, he has noticed his weight decline and he has recently noticed in just the past couple of months that he has lost approximately 1 stone in weight.’



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### Resources

- <https://www.nhs.uk/live-well/eat-well/5-a-day-what-counts/>
- <https://www.nhs.uk/live-well/eat-well/5-a-day-on-a-budget/>
- <https://www.nhs.uk/change4life>
- <https://www.bhf.org.uk/informationsupport/support/healthy-living/healthy-eating/healthy-eating-on-a-budget>

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