

## CONSULTATION DRAFT

# UK Undergraduate Curriculum in Nutrition for Medical Doctors

Association for Nutrition

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## Introduction

Nutrition science is the study of how energy and nutrients are derived from the diet, intermediary metabolism and the microbiome and impacts on health. As an integrative science, it draws upon knowledge and understanding across disciplines such as biochemistry, physiology, biology, psychology, sociology, health sciences, food science, environmental science, agricultural and veterinary sciences. The importance of nutrition for health has received increased interest, with Public Health England noting the need to develop training in diet and health for non-nutritionists [1] and the NHS Long Term Plan stating “we will ensure nutrition has a greater place in professional education training” [2]. There is widespread appreciation that nutrition is fundamental for good health, and poor nutrition is directly associated with an increased risk of disease, morbidity and mortality [3, 4]. In the hospital setting, poor nutrition is associated with increased complications and longer in-patient stays, and hence increased costs to the individual and the NHS [1, 2, 3].

As the rate of smoking has decreased in western society, the food and drink that we consume together with decreased levels of physical activity have become the main modifiable/behavioural determinants of life expectancy. The 2020 Global Nutrition Report states that ‘collectively, malnutrition is responsible for more ill health than any other cause – good health is not possible without good nutrition’ [4]. The World Health Organization (WHO) have also stated that consuming a healthy diet throughout life helps to prevent malnutrition in all its forms (both under- and over-nutrition), and associated non-communicable diseases (NCDs) [5]. The increased availability of energy dense foods that are high in fats, salt and sugars (HFSS), together with larger portion sizes, rapid urbanisation and changing lifestyles have led to a shift in dietary patterns (nutrition transition). The WHO and UK government have highlighted that as individuals are consuming more energy dense and HFSS foods, they eat less fruit, vegetables and dietary fibre. Alcohol consumption and reduced physical activity can also be contributing factors to excess energy intake, with both impacting on body weight and also on physical and mental health and wellbeing [3, 5, 6]

Issues relating to nutrition (including dietary patterns associated with prevention, management and potential remission of chronic disease and under/over-nutrition) are extremely common in medical practice. They feature as a consideration in all medical and surgical specialities, at all stages of life (pregnancy, neonates, children, adults and the older adults) and across public health, community and hospital settings. Nutrition integrates many aspects of basic sciences (anatomy, physiology, biochemistry and pharmacology) together with aspects of applied science in public health, community care and clinical practice. Specific interventions for diet and physical activity form part of the guidelines for the prevention and treatment of medical conditions such as diabetes, bowel disorders and renal disease etc. It is important for doctors to recognise these risks and to ensure advice provided to patients is appropriate to medical, cultural and individual requirements, as well as to know when to refer a patient on to a UK

Voluntary Register of Nutritionists (UKVRN) Registered Nutritionist or a Dietitian for specialist support or care.

In 2018, 60% of women and 67% of men in England were living with overweight (30.5% and 40.8% respectively) or obesity (29.2% and 26% respectively) [7]. Additionally in 2018-19, 1/3 of children were living with overweight or obesity when they left primary school (aged 10 - 11) [8]. These figures represent a significant increased risk of developing chronic disease with the potential to impact on a high number of individuals with additional costs and challenges placed on communities and healthcare systems. For example, people living with obesity have an increased risk of serious health conditions, such as cancer, type 2 diabetes mellitus, cardiovascular disease, non-alcoholic fatty liver disease, stroke etc., and within a clinical setting there can be higher risks associated with surgical and anaesthetic complications [3, 9].

Research into COVID-19 has also found that individuals living with obesity who contract COVID-19 have an increased risk of complications, hospitalisation and development of severe symptoms compared to those living with a healthy body weight [10].

The British Association for Parenteral and Enteral Nutrition (BAPEN) report that in the UK, 33% of older adults aged over 65 years admitted to hospital are, or are at risk of being, undernourished. With levels in nursing homes rising to 41%. Being undernourished can increase the length of hospital stay, readmission rates, increased susceptibility to infection and increased mortality. It is estimated that the health and social care costs are three times greater for an undernourished patient (£7,408) than for a non-undernourished patient (£2,155) [11].

The 2020 Global Nutrition Report highlights that there is a major problem with multiple forms of malnutrition occurring within populations and it is increasingly recognised these can co-exist within the same individual – this is referred to as the double burden of disease [4, 12]. For example, the combination of sarcopenia and obesity (sarcopenic obesity) and the combination of wasting and micronutrient toxicity present complicated interactions of relevant factors. The 2020 Global Nutrition Report notes that 88% of countries face the serious burden of more than one form of malnutrition, with 29% having high levels of all three forms: acute and/or chronic undernutrition, micronutrient deficiencies, obesity and diet-related diseases (including type II diabetes, cardiovascular diseases and certain types of cancer). 15.95million children are both stunted and wasted and 8.23 million experience stunting and overweight [4].

Although great emphasis has been placed on problems identified as energy imbalance, all over the world and in the UK there are also problems of specific nutrient imbalances which may be very common (e.g. vitamin A, D, iron, iodine and zinc) and have substantial clinical and public health implications. Micronutrient deficiencies may often be an under-recognised concomitant of obesity in childhood, attributable to low dietary diversity and high intakes of HFSS foods and drinks. These complex nutritional problems carry adverse implications for the physical, immunological and cognitive development of the child [12].

It is important to remember that nutrition includes adequate water balance or hydration. Dehydration is most evident in the sick, older adults or in patients with small bowel stomas/fistulas. Whereas over-hydration may be found frequently in patients receiving large amounts of intravenous saline.

## **References**

- [1] Public Health England, "Sugar Reduction: The evidence for action," October 2015. [Online].  
Available: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/470179/Sugar\\_reduction\\_The\\_evidence\\_for\\_action.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/470179/Sugar_reduction_The_evidence_for_action.pdf).
- [2] NHS Digital, "The NHS Long Term Plan," 7 January 2019. [Online].  
Available: <https://www.longtermplan.nhs.uk/publication/nhs-long-term-plan/>.
- [3] Public Health England, "Calorie reduction: The scope and ambition for action," March 2018. [Online].  
Available: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/800675/Calories\\_Evidence\\_Document.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/800675/Calories_Evidence_Document.pdf).
- [4] Development Initiatives, "2020 Global Nutrition Report: Action on equity to end malnutrition," July 2020. [Online].  
Available: [https://globalnutritionreport.org/documents/566/2020\\_Global\\_Nutrition\\_Report\\_2hrssKo.pdf](https://globalnutritionreport.org/documents/566/2020_Global_Nutrition_Report_2hrssKo.pdf).
- [5] World Health Organisation, "Healthy Diet: Factsheet No. 394," August 2018. [Online].  
Available: <https://www.who.int/publications/m/item/healthy-diet-factsheet394>.
- [6] Public Health England and Food Standards Agency, "National Diet and Nutrition Survey: Results from Years 7 and 8 (combined) of the Rolling Programme (2014/15 to 2015/16)," March 2018. [Online].  
Available: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/699241/NDNS\\_results\\_years\\_7\\_and\\_8.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699241/NDNS_results_years_7_and_8.pdf).
- [7] National Statistics, "Health Survey for England 2018," December 2019. [Online].  
Available: <https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2018>.
- [8] National Statistics, "National Child Measurement Programme, England 2018/19 School Year," October 2019. [Online].  
Available: <https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year/age>.
- [9] Bazurro, Ball and Pelosi, "Perioperative management of obese patient. Current Opinion in Critical Care 24(6):560-567," December 2018. [Online].  
Available: [https://journals.lww.com/co-criticalcare/Abstract/2018/12000/Perioperative\\_management\\_of\\_obese\\_patient.21.aspx](https://journals.lww.com/co-criticalcare/Abstract/2018/12000/Perioperative_management_of_obese_patient.21.aspx).
- [10] Public Health England, "Excess Weight and COVID-19: Insights from new evidence," July 2020. [Online].  
Available: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/907966/PHE\\_insight\\_Excess\\_weight\\_and\\_COVID-19\\_FINAL.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907966/PHE_insight_Excess_weight_and_COVID-19_FINAL.pdf).
- [11] British Association of Parenteral and Enteral Nutrition, "Managing malnutrition to improve lives and save money," October 2018. [Online].  
Available: <https://www.bapen.org.uk/pdfs/reports/mag/managing-malnutrition.pdf>.
- [12] World Health Organisation, "Double Burden of Malnutrition," 2017. [Online].  
Available: <https://www.who.int/nutrition/double-burden-malnutrition/en/>.

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## Consultation

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The Academy of Medical Royal Colleges (AoMRC) transferred responsibility for the UK Undergraduate Curriculum in Nutrition for newly qualified doctors to the Association for Nutrition (AfN). The original UK Undergraduate Curriculum in nutrition for medical students was developed by the AoMRC's Inter-Collegiate Group on Nutrition (ICGN) and an implementation group representing UK medical schools. It described expected nutrition content of undergraduate medical training to meet 'Outcomes for Graduates (Tomorrow's doctors)' published by the General Medical Council.

With the support of both the AoMRC and GMC, the AfN is leading on the review and implementation of nutrition into the undergraduate curriculum of medical students, so as to develop nutrition capacity to meet the needs of newly qualified doctors and the achievement of the GMC Outcomes for Graduates.

The AfN thank all those who have contributed to the AfN Inter-professional Working Group for Medical Education. This has enabled a review of the previous AoMRC-ICGN curriculum to be undertaken and for this revised draft curriculum to be produced.

To ensure this curriculum meets the needs of future undergraduates and is implementable by medical schools, a consultation is being held for 4 weeks to obtain feedback from stakeholders prior to the final curriculum being published.

Submit consultation responses at:

<https://afn.onlinesurveys.ac.uk/afn-ug-medical-curriculum-consultation>

Consultation Closes: 2359h on 30 November 2020

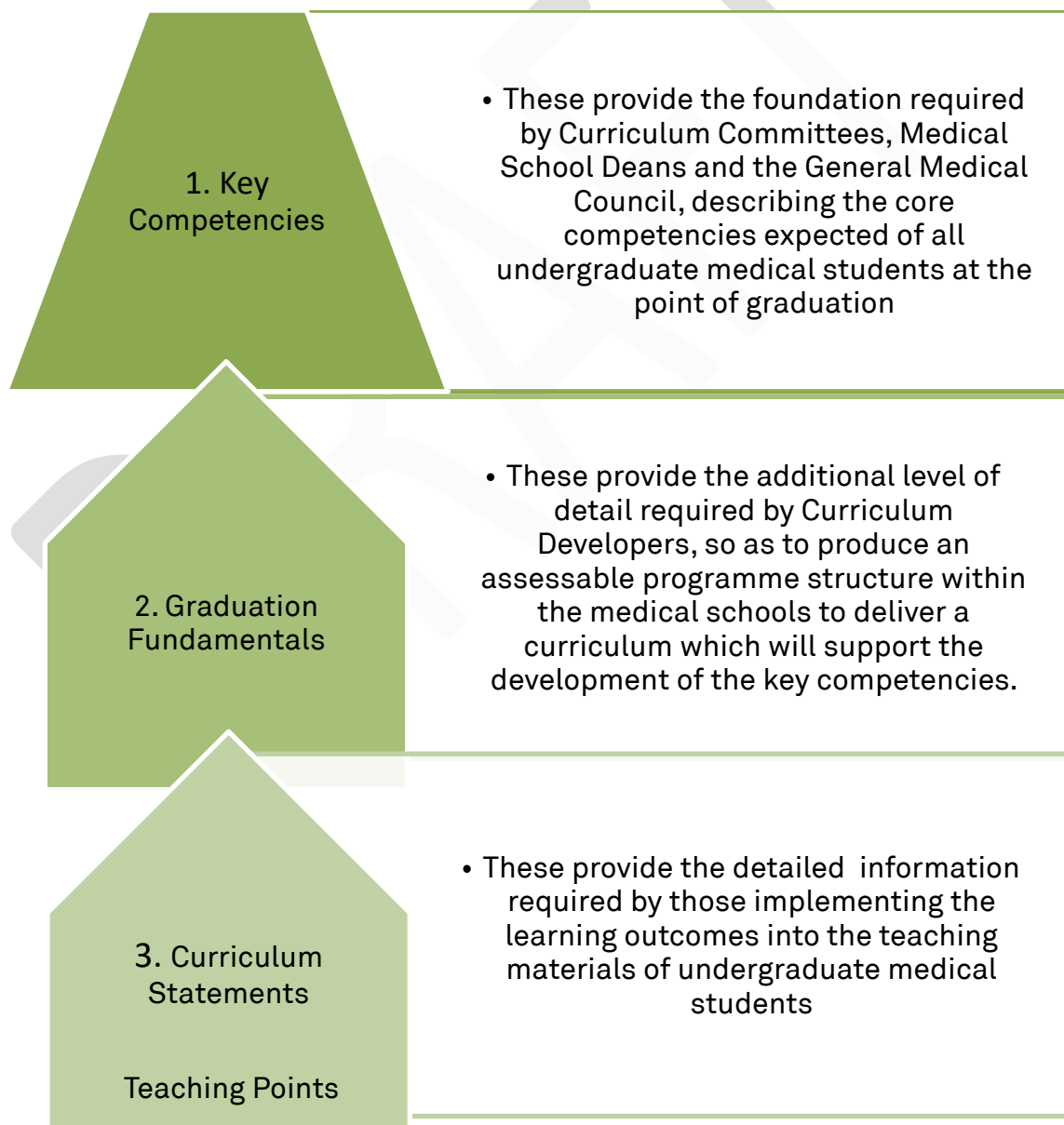
*(Date extended due to COVID-19 impact on health professionals and education provisions)*

## Document Format and Use

Nutrition is relevant to all physiological systems and clinical specialties, but is not considered a clinical specialty in its own right. Furthermore, nutrition learning opportunities should be embedded within the general medical undergraduate curriculum, without adding a large number of new components to an already crowded programme or with an additional burden on teaching staff.

This document enables the clear identification of the learning outcomes (key competencies & graduation fundamentals) for students and suggests appropriate teaching points to achieve these.

This document is divided into 3 main levels:



## Integration within the general medical undergraduate curriculum

This nutrition curriculum provides undergraduate students with the knowledge, understanding and skills required to support them in being safe practitioners before they move onto the next stage of their medical training.

The Undergraduate Curriculum in Nutrition for Medical Doctors supports the development of 12 core nutritional competencies for all undergraduate medical students at the point of graduation, assessed through the achievement of 11 graduation fundamentals.

The curriculum supports the understanding and skill development of the core competencies, has 8 key curriculum statements. The curriculum statements are supported by teaching points which can be integrated across foundation courses (or introductory learning) where the principles of basic nutrition underpinning good health across the life course can be incorporated alongside basic biochemical and physiological principles, within public health teaching, and within clinical teaching by specialty. Thus ensuring students understand the importance of nutrition in the prevention and both the progression and management of disease, and conversely how disease can exert an effect on nutritional state.

The curriculum statements cover the primary knowledge base, the essential skills all doctors should have and places nutrition within the context of public health and modern professional practice.

Alongside formative lectures, learning with the use of case- or problem-based approaches provide a very good opportunity for the role of nutrition within medicine to be illustrated, with each case presenting an opportunity to address one or more learning outcome. Combining supporting resources and activities, with lectures and a portfolio of case-studies, alongside the acquisition of practical skills through clinical training or at the bedside, undergraduate medical students should be provided with sufficient opportunity to meet all the learning outcomes in this curriculum and achieve the key competencies for graduates.

The nutrition curriculum is designed to be presented as an integrated part of the general undergraduate medical curriculum, thereby making it clear to students how nutrition inter-relates with the study of other systems and contributes to an inclusive understanding of health and disease.

# Key Competencies For Undergraduate Medical Curriculum In Clinical Nutrition

The 12 core nutritional competencies expected of undergraduate medical students at the point of graduation are divided into three categories. Newly qualified doctors should be able to demonstrate the knowledge base, ability to assess and skills in intervention to facilitate safe, effective nutritional care.

The curriculum will act to support the development of the competencies, and is intended to be embedded in to existing medical school programmes. Nutritional considerations underpin health and disease, and improving nutritional status can enhance the effectiveness of other aspects of care and therapeutic interventions.

## Knowledge

- K.1 Understand the principles of a healthy balanced diet for the general population and where to access official government dietary recommendations and nutrition advice.
- K.2 Understand the challenges and barriers to achieving a balanced diet and dietary recommendations i.e. physical, beliefs, access, cost, values and perceptions.
- K.3 Understand that nutrition has a direct/indirect impact on health and disease.
- K.4 Understand ethical considerations relating to nutrition and hydration.
- K.5 Understand the roles and responsibilities of the multidisciplinary team involved in nutrition care.

## Assessment

- A.1 Be able to weigh and measure the height of a patient accurately.
- A.2 Be able to accurately calculate a patient's body mass index (BMI), percentage weight loss and be able to plot measures on a growth chart for children.
- A.3 Be able to interpret anthropometric measures, physical examination and biomarkers against reference ranges to identify patients at risk of malnutrition (underweight, overweight and micronutrient insufficiency).
- A.4 Be able to identify the nutritional risk(s) associated with common diseases/disorders.

## Skills in Intervention

- S.1 Be able to acknowledge appropriate scope of practice, limitations and when and how to refer on for specialist nutritional care.
- S.2 Be able to start a sensitive, non-judgmental conversation about diet, health behaviours and weight in a brief consultation within a primary/secondary care setting.
- S.3 Be able to include appropriate data to provide a comprehensive referral for specialist nutrition care.

## Graduation Fundamentals

All medical students at the point of completing undergraduate training should be able to:

1. Detect patients who are underweight or at risk of undernutrition and patients who are living with overweight or obesity.
2. Include a basic assessment of nutritional status into every patient's clerking and state, where appropriate, a nutritional care plan/referral.
3. Appreciate the importance of fluid and electrolyte requirements in health and during illness (including post-operatively).
4. Appreciate that giving nutritional support to undernourished patients and achieving movement towards a healthy weight in individuals who are living with underweight/overweight or obesity can improve quality of life, morbidity and/or mortality.
5. Appreciate the importance of diet in maintaining health in all ages, life-stages, sex and ethnic groups.
6. Undertake a basic assessment of nutritional and hydration status to recognise undernutrition, its consequences and treatment/ management.
7. Recognise individuals who are living with overweight or obesity at all ages and the related health risk consequences and be aware of the treatment/management options, appreciating micronutrient deficiency may also be a factor to consider.
8. Have an understanding of, and know where to reference, the approximate normal macronutrient, water, micronutrient requirements and the more common deficiencies in the UK population.
9. Describe the official UK population dietary recommendations and be able to promote a "healthy balanced diet".
10. Appreciate the indications for patients needing artificial nutrition support (oral, enteral and parenteral); know the principles of administration and the potential complications.
11. Understand when it is appropriate to refer for specialist nutrition/dietetic support.

# **The UK Undergraduate Curriculum in Nutrition for Medical Doctors**

## **Curriculum Statements and Teaching Points**

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# A. Nutrition / Hydration In Health And Disease

## Curriculum Statement A:

Be safe and competent to advise on nutrition and hydration in healthy and ill people.

### Teaching Points for Curriculum Statement A

1. Understand how appetite/food intake is regulated (including neurological, hormonal and psychological mechanisms).
2. Understand the processes of digestion and absorption (for macronutrients, water, micronutrients) and the importance of dietary intake in the maintenance of normal gastrointestinal function.
3. Know how to maintain fluid balance and the daily requirements for water and key minerals in health and in illness
4. Be able to discuss the social, cultural, environmental (including regulatory) and psychological drivers of people's eating, drinking and activity behaviours throughout their life course.
5. Have an understanding of the dietary reference values for nutrients and that these requirements can vary, for example with rest, physical activity, illness and during the life course (including pregnancy).
6. Know the estimated average requirements for energy intake and the main factors that affect energy balance (energy intake and expenditure).
7. Be able to describe a "healthy balanced diet" in terms of the major food groups using knowledge of UK dietary recommendations/advice for the population and know where to find information on general advice for the general population, being aware of specific population groups (e.g. folic acid for women who may become pregnant and vitamin D for those with restricted access to sunlight).
8. Be aware of the interactions of nutrients with:
  - common medications (e.g. anticoagulants, anticonvulsants, chemotherapy)
  - fluids (including artificial nutritional support)
  - drugs of abuse (including alcohol, opiates), other nutrients and other food components
9. Be aware of the common use of supplements including those recommended at a population level, as well as high dose vitamins, herbs, phytonutrients and other supplements and their potential adverse effects.
10. Be aware that suboptimal nutrition or nutritional management or long-term conditions can affect pregnancy outcomes.
11. Be aware that exclusive breast-feeding is recommended for around the first six months of an infant's life and to be continued for at least the first year of life, and

provides benefits to both the mother and infant. Complementary feeding (commonly referred to as weaning) should be introduced at around 6 months of age. Be sensitive to difficulties that can be experienced in respect to breast-feeding and the alternatives available if breast-feeding is not possible.

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## B. Nutrition Screening & Assessment

### Curriculum Statement B:

Be able to make an assessment of the patient's general state of nutrition. This includes an evaluation of their diet, general physical condition and the undertaking of basic anthropometric measurements.

### Teaching Points for Curriculum Statement B

1. Be able to interpret measurements using child growth charts and detect abnormal patterns, including wasting, stunting, growth faltering and excess weight, and appreciate the importance of growth in early life and its association with health and disease in later life.
2. Recognise difficulties in oral intakes including problems patients may have in getting food into their mouth, being able to chew (including denture problems) and failing swallowing mechanisms; and recognising whom to refer to for a formal swallowing assessment.
3. Be able to assess fluid status from the oral or recorded history (e.g. reported thirst, urine output/colour, recorded input/losses, blood biochemistry, sudden weight changes) and from examination (e.g. oedema, dry skin, postural hypotension/tachycardia).
4. Be able to take a basic dietary, fluid, alcohol and physical activity history, to include information on patterns of consumption, activity, appetite, weight change, including unintentional weight changes (loss or gain). Be able to clearly document the discussions and know when to refer to a dietitian for a formal assessment.
5. Be aware of common anthropometric measures (e.g BMI, BMI Z scores, MUAC, waist circumference, skinfolds), and their advantages and disadvantages in different populations. Be able to sensitively weigh and measure a patient's height to calculate their BMI, knowing the standard ranges defined for underweight, normal, overweight and with obesity, plus the sub-groups in which BMI has limitations of use (e.g. athletes, children). Be aware that anthropometry is a proxy measure of malnutrition
6. Have a knowledge of the biochemical changes that occur in undernutrition (e.g. sodium, potassium, magnesium, phosphate) and their implications for refeeding. Additionally, know when biochemical markers are not valid measures of nutritional status e.g. low serum albumin.
7. Have knowledge of common micronutrient deficiencies and appreciate the impact of both subclinical (i.e. only detectable on biochemical tests) and clinical (i.e. those with specific symptoms and signs) deficiencies across body weight spectrum and impact of dietary variety on this. To include vitamins A, C, D, E, K, B<sub>12</sub>, folate, thiamine, iron, selenium, zinc, magnesium, calcium, and essential fatty acids.

## C. Effect Of Nutrition Status On Illness

### Curriculum Statement C:

Appreciate that being underweight or overweight/with obesity may adversely affect the prognosis of many diseases (including during their treatment).

### Teaching Points for Curriculum Statement C

1. Know that some diseases (e.g. chronic obstructive pulmonary disease, congestive cardiac failure, irritable bowel disease and cancer) and surgical procedures may have a better outcome if nutritional status is improved/normalised.
2. Be aware of the effect of being underweight and/or undernourished on clinical outcomes (including complications, quality of life, length of stay and readmission rate) via mechanisms including:
  - muscle strength (thus mobility and respiratory reserve),
  - wound healing and the risk of pressure ulcers
  - resistance to infection
3. Be aware that patients who are living with overweight/obesity are more prone to complications of their illness and in particular surgical-associated risks (e.g. anaesthetic risks, deep vein thrombosis, hyperglycaemia and unrecognised sarcopenia).
4. Understand how inflammation and specific diseases (including sepsis, trauma, burns, cancer) and their treatments influence nutritional status and needs by affecting:
  - intake, digestion and absorption
  - requirements
  - losses (e.g. gut or urine water and electrolytes)

## D. Malnutrition: Underweight / Undernourished

### Curriculum Statement D:

Be able to work with a multidisciplinary nutrition support team to give nutritional support to patients who are already underweight, undernourished or at risk of becoming so.

### Teaching Points for Curriculum Statement D

1. Know the effects and manifestations of acute and chronic undernutrition on key processes (including physiological, biochemical, immunological and psychological).
2. Appreciate the importance of formally assessing nutritional status and the limitations of solely relying on the initial clinical impression alone. The screening and assessments include:
  - Detecting those currently underweight from the calculation of BMI and percentage weight loss.
  - Detecting those at risk of becoming undernourished from the current nutrient intake and the illnesses' predicted course (e.g. MUST, SGA or other screening tools).
3. Recognise intake (oral) failure (inability to get food into the gut) and the factors that may influence poor intake including poor dentition, poor appetite, head/neck, oesophageal cancer, trauma, neurological disease (e.g. stroke, cerebral palsy, motor neurone disease, multiple sclerosis) and psychological disorders (e.g. dementia, depression and eating disorders).
4. Recognise the potential signs and symptoms of typical and atypical eating disorders (and other psychological problems) and know how to obtain help from eating disorder specialists.
5. Recognise digestive and absorptive (intestinal) failures. Digestive failure is due to gastric or pancreatic disease and absorptive (intestinal) failure due to short gut, intestinal fistula, obstruction, dysfunction or mucosal disease. Be aware of the role of the wider MDT in supporting the management of such conditions.
6. Identify patients at risk of developing refeeding problems when food (especially carbohydrate) is introduced to an underweight/undernourished patient. Know the principles to prevent/treat this.
7. Understand the role of the multidisciplinary nutrition support team (NST) in giving good quality, safe nutritional care and support to the patient throughout the risk reduction, treatment and management stages, and know when to refer a patient to them.
8. Know the indications and goals for nutritional support. Have knowledge of the routes (oral, enteral and parenteral) of giving nutritional support and the advantages and disadvantages, and contraindications of the different forms of nutrition support.

9. Have knowledge of the problems that can occur with enteral nutrition (e.g. mal-positioned enteral tube) and with parenteral nutrition (e.g. catheter-related blood stream infection and central vein thrombosis/stenosis).
10. Know and understand how to apply the principles of the ethical / legal aspects of providing, withholding and/or withdrawing nutrition/ hydration treatment (with reference to latest GMC guidelines). This includes autonomy, beneficence, non-maleficence, justice and mental capacity.

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## E. Malnutrition: Overweight, Obesity & Metabolic Syndrome

### Curriculum Statement E:

Be able to advise on the appropriate management of individuals who are overweight or with obesity.

### Teaching Points for Curriculum Statement E

1. Be aware that obesity is a complex problem for adults and children, however at its simplest level is the result of an energy imbalance (intake exceeds expenditure) and micronutrient deficiencies can be prevalent alongside excess weight.
2. Understand that reduced energy intake is required for weight loss, but both reduced energy intake and increased physical activity support the maintenance of a healthier weight. Appreciate that physical activity has other health benefits beyond weight control to aid healthy discussion.
3. Know that the drivers for obesity (dietary intake) are often beyond individual control alone and are influenced by a large variety of factors including:
  - Individual biology (e.g. genetics, physiological state)
  - Social / cultural / behavioural factors
  - Advertising and promotion of food & drink
  - Mental health and wellbeing (e.g. depression/anxiety - comfort eating etc.)
  - Built environment (e.g. access to shops and cycle/footpaths etc.)
  - Availability and/or cost of healthier and less healthy food, drinks & alcohol
  - Socio-economic factors effecting knowledge and finances

Most importantly, know and understand that obesity is driven by the interaction of these factors and not one in isolation.

Appreciate there may also be some other potential factors where the evidence base is still developing (e.g. gut microbiome, chronobiology)

4. Be able to give realistic basic advice to a patient about a weight reducing diet in line with current evidence-based Government recommendations and recognise when to refer on to a UKVRN Registered Nutritionist, Dietitian and/or bariatric services. Know where to signpost to or how to refer to local weight management services.
5. Understand about weight stigma and weight bias and how this may affect someone living with overweight or obesity and thus the need to support individuals with empathy, and use of non-stigmatising or discriminatory language . Be aware of the potential impact of this stigma on healthcare provision and perception.

6. Have knowledge of the current graded obesity care pathway and be able to refer patients to appropriate services/resources:
  - Tier 1 – universal services to promote lifestyle behaviour modification (changing diet, reducing energy intake, less sedentary life style and increased physical activity, digital approaches)
  - Tier 2 - behavioural weight management services
  - Tier 3 - specialist weight management services with multidisciplinary team, pharmaceutical approaches
  - Tier 4 – bariatric surgery
7. Be aware of pharmaceutical approaches to weight management.
8. Have knowledge of the current evidence-based diets recommended for weight loss by officially recognised health organisations. Be aware of highly restrictive and common popular diets with limited/weak evidence bases and their risks/potential unintended consequences and long term acceptability for individuals.
9. Have knowledge of the indications for bariatric surgery (weight loss and metabolic disorders), understand its complications (nutritional, psychological) and the prolonged nutritional follow up and support needed after the surgery.

## F. Specific Dietary Requirements

### Curriculum Statement F:

Be aware of dietary approaches in specific situations and when to refer to a UKVRN Registered Nutritionist or Dietitian.

### Teaching Points for Curriculum Statement F

1. Be able to advise upon the following diets and obtain help with providing them:
  - Calorie deficit dietary approaches
  - Weight increasing, energy/protein dense diets (including for growth and management of undernutrition)
  - Other diets to support health and reduce disease risk e.g. cardiovascular disease
2. Recognise the impact of frailty, age and dementia on eating and obtain help with providing weight increasing and/or varied diets.
3. Be aware of dietary restrictions for medical purposes, cultural/religious or ethical reasons and the potential nutritional risks.

These include:

- Gluten free diets (for coeliac disease)
  - Lactose free
  - Low fibre
  - Low FODMAP diets (IBS)
  - Ketogenic diets (childhood epilepsy)
  - Low phenylalanine/protein diets (for phenylketonuria)
  - Vegetarian diets (including vegan diet in which it is important to know medicines/feeds that are free of animal products)
  - Religious/cultural diets (kosher, halal, jainism etc)
  - Food allergies & common diagnosed intolerances (nuts, milk, soya etc)
  - Foods to be avoided or restricted during pregnancy
4. Know evidence-based dietary strategies used to help treat / manage illnesses and recognise that the evidence is often evolving (e.g. FODMAPS, probiotics)
    - Irritable Bowel Syndrome
    - Inflammatory Bowel Disease
    - Perioperative (Pre and post-surgical) care
    - Diabetes (Type 1 and 2)
    - Renal disease

## G. Hydration

### Curriculum Statement G:

Be able to maintain water and electrolyte balance in health and disease.

### Teaching Points for Curriculum Statement G

1. Understand the importance of hydration for both physical and mental wellbeing in health and disease/injury prevention, along with official population level recommendations and how these might be affected by working environment, temperature, activities etc.
2. Recognise the clinical symptoms, signs and observations (weight / fluid balance) of over- and underhydration.
3. Be aware of the fluid needs of patients of different ages (e.g. frail elderly patients) and in different situations (e.g. septic, post-operative, dysphagia).
4. Recognise overhydration (especially saline excess in surgical patients) and impact on recovery, mortality, complications and the duration of hospital admission.
5. Know how to calculate fluid requirements according to patient weight/condition and monitor fluid balance with daily weight and fluid balance charts.
6. Be able to interpret sodium balance information with a urinary sodium concentration and know the importance in patients' with a small bowel stoma/fistula.
7. Know the principles of an intravenous infusion regimen for a patient taking nothing by mouth, taking into account losses (e.g. nasogastric aspirate, small bowel stoma/fistula output).
8. Have strategies to prevent dehydration and be aware that it can cause acute and chronic kidney injury and other adverse outcomes.



## H. Nutrition In Health Promotion And Illness Prevention (Public Health)

### Curriculum Statement H:

Be safe and competent to provide basic nutrition and hydration advice for the maintenance of health / prevention of disease and when to refer on to a UKVRN Registered Nutritionist or Dietitian.

### Teaching Points for Curriculum Statement H

1. Recognise the epidemiological evidence and metabolic mechanisms linking dietary, nutritional and activity related risk factors (including sedentary behaviour) and health conditions such as cardiovascular disease (BP and lipids), cancers, osteoporosis and diabetes, as well as understanding the role of diet and activity in their risk, management and treatment.
2. Recognise there is a risk of macronutrient/micronutrient excess or inadequacy in individuals and populations, and identify relevant interventions for common conditions and referral pathways.
3. Understand major evidence based national government recommendations for a healthy balanced diet for health promotion and disease prevention (e.g. reduction of: energy, and salt, processed meats, saturated fats and free sugars and increasing , fruit and vegetables, unsaturated fats including oily fish, fibre including wholegrains).
4. Be aware of current advice on nutrition and on food/drinks (e.g. alcohol and caffeine) and how this takes into account cultural/religious beliefs and different life stages. Be able to provide cultural and language appropriate advice about a healthy balanced diet with an awareness of low levels of health literacy in the population.
5. Recognise that doctors have a responsibility in nutritional care and management, and how the role of doctor in nutrition advice may differ in primary, secondary and tertiary care settings, but are important in all three.
6. Be aware that a doctor's advice on diet and nutrition is often highly regarded by a patient and thus may be very influential and effective in diet-related health conditions.
7. Be aware of own limitations and know when to refer the patient to a nutrition or dietetic professional for additional advice or support.
8. Recognise and appreciate the role of other health professionals in managing nutrition including an appreciation of the role of:
  - Midwives and health visitors in managing nutrition in pregnancy and in infancy, and their importance in encouraging breastfeeding;
  - Speech & Language Therapist (SLT) in swallowing disorders;

- Dietitians for their unique knowledge in clinical nutrition management and treatment, with specialties including diabetes, cancer, burns, ICU and renal disease
- UKVRN Registered Nutritionists for their expertise in public health nutrition, weight management, disease risk reduction, education and food science.

Along with appreciation of support roles that influence food intake such as chefs, family and feeding volunteers.

DRAFT

# Implementation Support

We are currently undertaking a project to identify:

- the Nutrition Leads within UK Medical Schools,
- the common attributes that are required for this role to increase the success of nutrition being implemented within the medical curriculum, and
- the factors which support Nutrition Leads to increase the nutrition content and prominence within the UG medical curriculum.
- case studies and exemplars from medical schools where nutrition has been embedded into the core curriculum, showcasing a range of different formats for implementing nutrition teaching within the teaching framework.
- links to implementation resources
- links to sources of information, official recommendations and public health/intervention programmes or initiatives

## Glossary

**Malnutrition** is defined by the World Health Organization as referring to “deficiencies, excesses or imbalances in a person’s intake of energy and/or nutrients. The term malnutrition covers 2 broad groups of conditions. Energy balance and net weight is one factor of malnutrition. The 2<sup>nd</sup> factor is macro and micronutrient intake. Deficiencies or insufficiencies can occur in both over- and underweight individuals. Malnutrition therefore includes on one hand stunting, wasting, underweight and micronutrient deficiencies or insufficiencies, and on the other overweight, obesity and diet-related non-communicable diseases.

A “**healthy balanced diet**” is used to indicate evidenced based healthy sustainable eating guidelines/dietary patterns from officially recognised sources e.g. Public Health England, Public Health Scotland, Public Health Wales and Food Standards Agency NI.

The **essential components of a diet** are macronutrients (carbohydrate, fat and protein), water, minerals (includes those often referred to as electrolytes (Na, K, Cl, Mg, Ca, P) and trace elements (e.g. Se and Zn)) and vitamins

“**Good nutrition**” is used in terms of foods, food groups and dietary patterns to provide the required nutrients to promote overall health and prevent chronic diseases, although lifestyle and sustainability aspects should also be considered for a more holistic perspective.

**Artificial nutrition** is defined by the European Society for Parenteral and Enteral Nutrition (ESPEN) as including oral nutritional supplements (ONS), enteral nutrition (EN) or parenteral nutrition (PN). Enteral delivery of nutrients includes nasogastric and nasogastrojejunal tubes or percutaneous endoscopic gastrostomy (PEG) or jejunostomy (PEG-J) or surgically induced feeding tubes. Parenteral delivery includes can involve peripheral intravenous access or central venous access.

**Artificial hydration** is the provision of water or electrolyte solutions by any other route than the mouth. This can be achieved by tubes, intravenous and subcutaneous (¼ dermoclisis) administration

**A Nutrition Support Team** is multi-professional and within an in-patient setting should include (at least) doctors, nutrition nurse specialist(s), dietitian(s) and pharmacist(s). It brings together nutritional experts from medicine/surgery, nursing, dietetics and pharmacy who can co-ordinate the contributions of each of these specialties into coherent nutritional support. The team’s operational focus within a hospital in-patient setting is on the safe provision of artificial nutrition. Within outpatient settings and the wider community, education and public health settings, nutrition support teams should also bring in the expertise of UK Voluntary Register of Nutritionists (UKVRN) Registered Nutritionists, chefs, dietetic assistants, midwives and community support workers.