



BMA

Food for thought: promoting healthy diets among children and young people

July 2015



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The board of science, a standing committee of the BMA, provides an interface between the medical profession, the government and the public. The board produces numerous reports containing policies for national action by government and other organisations, with specific recommendations and areas for action affecting the medical and allied professions.

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- Professor Mike Rayner (Professor of Population Health, Director, British Heart Foundation Centre on Population Approaches for Non-Communicable Disease Prevention Nuffield Department of Population Health, University of Oxford).

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Declaration of interest

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Abbreviations

ADHD	attention deficit hyperactivity disorder
ASA	Advertising Standards Authority
BAPEN	British Association for Parenteral and Enteral Nutrition
BMI	body mass index
CAP	Committee of Advertising Practice
CASH	Consensus Action on Salt and Health
CHD	coronary heart disease
COMA	Committee on Medical Aspects of Food and Nutrition Policy
CPI	consumer price index
CSR	corporate social responsibility
DALY	disability adjusted life year
DfES	Department for Education and Skills
DEFRA	Department for Environment Food and Rural Affairs
DfE	Department for Education
DRV	dietary reference value
ESRC	Economic and Social Research Council
FCTC	Framework Convention on Tobacco Control
FoP	front of pack
FSA	Food Standards Agency
g	grams
GDA	guideline daily amount
HSE	Health Survey for England
INFORMAS	International Network for Food and Obesity/non-communicable Diseases Research, Monitoring and Action Support
IPTFA	industrially produced trans fatty acid
ISBA	Incorporated Society for British Advertisers
kcal	kilocalories
LCFS	Living Costs and Food Survey
LDL	low density lipoprotein
LIDNS	Low Income Diet and Nutrition Survey
LRNI	lower reference nutrient intake
mmol	millimoles
NCD	non-communicable disease
NDNS	National Diet and Nutrition Survey
NHSS	National Healthy School Status
NICE	National Institute for Health and Care Excellence
NMES	non-milk extrinsic sugars
NSP	non-starch polysaccharides
OfCom	Office of Communications
OFT	Office of Fair Trading
PLACE	patient-led assessments of the care environment
PHE	Public Health England
QALY	quality adjusted life year
RCP	Royal College of Physicians
RI	reference intake
SACN	Scientific Advisory Committee on Nutrition
SFVS	School Fruit and Vegetable Scheme
SGF	Scottish Grocers' Federation
TTIP	Transatlantic Trade and Investment Partnership
WCRF	World Cancer Research Fund
WHO	World Health Organization

Foreword

In the UK, the traditional public health challenges of undernutrition and unsafe food and water have been largely replaced by the risks of poor diet. As a nation, young and old, we over consume foods high in fat, sugar and salt, and do not eat enough fruit, vegetables, fibre and oily fish. This type of diet underlies many of the chronic diseases that cause substantial suffering, ill health and premature death.

I am particularly distressed that poor diet is such a feature of the lives of our children and young people. We should not tolerate that the next generation is growing up with the normality of regularly consuming processed and fast-food, or that there are children who have no concept of where their food comes from. Central to this is creating an environment where it is normal, easy and enjoyable for children and young people to eat healthily.

Addressing the commercial influences that have such a strong impact on diet will be key. These range from the way unhealthy food and drink products are promoted and made widely available and affordable, to industry influence on the development of food and nutrition policies. Without a stronger regulatory framework, commercial interests will continue to overshadow public health interests. Beyond regulation, schools need to be supported in creating a healthy food environment. The nutritional content of processed foods must be improved. Public health messages need to be high impact and complemented by accessible and easy to use consumer information. The NHS should be an exemplar of best practice. As a profession we should be embarrassed that our hospitals are so unhealthy for staff, patients and visitors alike.

This report sets out the measures needed to help promote healthier diets among children and young people. Many of these will not sit comfortably with the government's approach to partnership working with industry. It recommends a range of interventions focused on improving attitudes and knowledge; limiting unhealthy cues and irresponsible retailing practices; and creating a healthy food environment. Some of the measures aim to directly protect children and young people, while others are to help parents and carers in making the right choices. They will also have wider benefits. In the same way children are often susceptible to the marketing of unhealthy products, so are adults with learning disabilities. Reducing unhealthy content in processed foods will benefit all, not just children and young people.

It is not uncommon for reports like this to elicit cries of 'nanny state' and forceful objections that governments have no place in telling people how to live their lives. This view needs to be squarely challenged. My belief is that it is commercial interests that are excessively influencing people's decisions about their diet. How can we expect a child to develop normative behaviours about eating healthily when so many of the messages they are exposed to promote the opposite? Is it reasonable to expect a parent on low income to buy healthy foods for their children when unhealthy processed products are so cheap and heavily promoted?

Some might also question why it is the place of doctors to highlight these issues. The obvious answer is because of the substantial impact of poor diet on the health of the patients we serve, and on the healthcare service we work for. But our role extends beyond providing good quality patient care, to being advocates for the right of patients and the public to live in healthy environments. This is a particular strength of the BMA, bringing doctors together as advocates for better health, and supporting the government and other stakeholders in taking action. That is exactly what this report aims to do. I am therefore very grateful to the team who have helped produce it, and also to those who have guided its development.



Professor Sheila the Baroness Hollins



Professor Sheila the Baroness Hollins is emeritus professor of psychiatry of disability at St George's University of London, and prior to her retirement was chair of the academic division of mental health for three years. She holds an honorary chair in the Department of Theology and Religion, University of Durham. She was president of the Royal College of Psychiatrists for three years from 2005 to 2008, and was appointed an Independent member of the House of Lords in 2010. After qualifying at St Thomas's Hospital she was a GP in South London before training in psychiatry. Until she retired from clinical practice in 2006, she had been a consultant psychiatrist in learning disability in south west London for 25 years. She has had two secondments to the Department of Health as senior policy advisor in learning disability and autism. Her clinical and research expertise is in the mental and physical health of people with intellectual and developmental disabilities. She is the chair of Beyond Words, a community interest company, which promotes the use of pictures to communicate about health and wellbeing to people with learning and communication disabilities. She was BMA president from 2012-2013, and was appointed as BMA board of science chair in June 2013.

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Executive summary

1. Introduction

Doctors are increasingly concerned about the impact of poor diet on the nation's health. This is not only a significant cause of ill health and premature mortality, but a considerable drain on NHS resources. It also directly impacts on doctors who face the challenge of routinely managing patients with complex, chronic conditions caused by factors beyond their clinical influence. These factors include the social and economic inequalities that shape the environment in which individuals are born, grow, live, work and age – commonly referred to as the social determinants of health. While it is recognised that a wide range of actions are needed to address these inequalities, this report has a particular focus on key environmental factors such as the wide availability, promotion, and affordability of unhealthy food and drink products. Of particular concern is the adverse impact these factors have on children and young people's attitudes and dietary behaviours, which persist into adulthood. As too little emphasis has been paid to limiting their impact, children and young people in the UK are routinely exposed to a range of cues and prompts that favour unhealthy dietary patterns.

This report aims to highlight the need for comprehensive action to promote healthier diets among children and young people, and thus, reduce the substantial burden of diet-related ill health in the UK. It provides an overview of the population's dietary patterns, the adverse impact of a poor diet, and attitudes towards diet and health. The range of influences that affect dietary behaviour are discussed, before consideration is given to what interventions are needed to help promote healthy diets. The overarching focus of these interventions is to create an environment where dietary choices default to healthy options.

2. Diet and health in the UK – the call to action

The majority of children, young people and adults in the UK are not meeting dietary guidance. Of particular concern is the high intake of saturated fat, added sugars (sugars added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and unsweetened fruit juices) and salt; and insufficient levels of fruit, vegetables, fibre and oily fish. This poor dietary behaviour is most common among individuals from lower socioeconomic groups.

Individuals on low incomes, as well as other vulnerable groups (such as older people and disabled people), can experience food poverty and face significant challenges obtaining a healthy diet. This is strongly linked to the social determinants of health, including factors such as low income, social and material deprivation, poor educational opportunities, unemployment and adverse early childhood experiences.

An unhealthy dietary pattern is strongly associated and causally linked with a number of chronic, complex conditions such as obesity, cardiovascular disease, cancer and type II diabetes. Specific, modifiable dietary behaviours are known to be particularly important including: low consumption of fruit, vegetables and oily fish; high intake of energy-dense foods and drinks; and high intake of trans fats, saturated fats, added sugars, salt, and red meats and processed meats. These unhealthy dietary behaviours can lead to a range of metabolic/physiological changes – including hypertension (raised blood pressure), overweight and obesity, hyperglycaemia (high blood sugar) and hyperlipidaemia (excess lipids in the bloodstream) – that increase the risk of chronic ill health. A poor diet is also associated with malnutrition (undernutrition) and micronutrient deficiencies. Other effects include negative impacts on mental health, oral health and academic performance.

Worldwide, poor diet contributes to more disease than physical inactivity, smoking and alcohol combined. The burden of diet-related ill health in the UK is substantial, estimated to lead to 70,000 premature deaths annually, which represents around 12 per cent of the total number of deaths. Poor diet has the highest impact on the NHS budget, costing around £6 billion per year, greater than alcohol consumption, smoking and physical inactivity.

3. Knowledge and attitudes towards diet

Many children and adults in the UK are aware of the importance of consuming a healthy diet, and are concerned about the amount of unhealthy content in food and drink products. This contrasts starkly with how the majority of children and adults do not meet dietary guidance, and demonstrates the need to consider the range of factors beyond an individual's knowledge and attitudes that impact on their dietary behaviour.

4. Influences on children and young people's diet

A range of influences affect children and young people's dietary patterns, whether directly changing their attitudes and behaviours, or indirectly through their parents/carers.

The developmental environment before birth and in infancy – nutrition during fetal and infant development is of critical importance for how a child responds to future lifestyle challenges (such as their future food environment), and in turn significantly impacts on their future health and wellbeing. This is partly based on epigenetic processes (ie processes that alter the ways in which genes are switched on and off) that can affect body composition of the offspring, as well as various physiological and psychobiological systems.

Interactions with others – parents and carers can directly and indirectly influence their children's dietary preferences, as they will typically have a strong influence over the components of their diet, and young children model their parent's intake. An important consideration related to this is the parent's knowledge about what a healthy diet is, and skills for dietary planning, food purchases, storage, preparation and cooking. This highlights the need to consider parents and carers in policies aimed at promoting healthier diets. As the child grows older they are also likely to be influenced by what their peers eat.

Education and health promotion – a range of education and health promotion interventions can influence children and young people's knowledge about healthy diets. Mass media and school-based educational programmes can help in raising awareness and changing attitudes, but do not lead to changes in behaviour when used in isolation. The use of a whole-school approach – where curricula-based learning is supported by the wider school environment and engagement with parents/families and the community – is a useful approach for supporting healthy dietary behaviours in schools. Advice from healthcare professionals may help some patients change their dietary behaviour, but typically is only effective when they already recognise the need to change.

Consumer marketing – children and young people are exposed to a range of food and drink marketing tactics that work in combination to influence demand for their products. These relate to how the product is developed and priced, how it is made available to a consumer, and what marketing communications are used to promote it. Developing a brand is particularly important for marketing a product. Branding is critical to product choice, especially for children and young people who are typically seen as key targets for marketers. Food and drink products are known to be some of the most highly branded items that lend themselves to major advertising campaigns. As processing can add value for the customer (eg longer shelf life) and results in a higher net worth for the product, it is advantageous for companies to market processed goods over commodities. Manufacturers aim for their food and drink products to be very widely available with a view to maximising sales. Various aspects of the in-store environment are also important marketing tools (eg location and prominence on shelf-space). Companies use a range of marketing communications to promote their products. Mass media advertising is known to have a direct impact on children and young people's dietary choices and an indirect effect on their dietary preferences, consumption and behaviour. While television has been the traditional form of mass media advertising, other strategies, such as through the Internet and digital media, are widely used. There are a range of other marketing communication tactics beyond mass media advertising, including attractive packaging, celebrity endorsement, linkage with fictional characters (eg popular film and television characters), sponsorship and sales promotions.

Stakeholder marketing – many companies aim to influence policy makers through stakeholder marketing, typically in the form of corporate social responsibility. This has the purpose of strengthening a company's brand and enhancing consumer trust. Stakeholder marketing also helps fend off statutory regulation, providing a platform for companies to influence the public health agenda through the development of public-private partnerships.

Access and availability – children and young people’s diets are influenced by the food and drink products available in their surrounding environment. While there is limited evidence about how the density of fast-food outlets impacts on diet and health outcomes, they have been found to be concentrated around schools, and are frequently accessed by school-children. The school environment can be an important influence on children and young people’s diets, with evidence suggesting that the availability of unhealthy products in school vending machines is associated with poor dietary behaviour.

Deprivation – deprivation can significantly impact on the diet of children and young people living in low-income households. This is strongly linked to the social and economic inequalities that determine an individual’s health and wellbeing. Rising food prices have led to trading down to cheaper food products (which tend to be less healthy) or consumption of less food. This is compounded by the higher levels of poorer quality housing in areas of deprivation, which limits the ability to safely store and prepare healthy foods. Individuals on low incomes are likely to have less money to pay for energy bills for some cooking facilities. There is also a strong association between the density of fast-food outlets and increasing deprivation, which adversely impacts on the ability of residents in poorer communities to access affordable, healthy food.

Social changes – social changes that have promoted a culture of convenience can impact on children and young people’s dietary behaviour. This is associated with the consumption of pre-prepared meals, snacking and the increasing availability of energy dense food and drink products.

5. Interventions to promote healthier diets

A range of comprehensive measures are needed to promote healthier diets among children and young people, from those governing the supply of food and drink products, to policies seeking to modify the demand for specific types of product. A key focus is to tackle the environmental influences that have created a social norm of unhealthy dietary behaviour in the UK. These include the wide availability, promotion and affordability of unhealthy food and drink products. Tackling these influences will help address the modifiable dietary risk factors that underlie the burden of diet-related ill-health.

Progress will only be achieved through measures to limit commercial influences – from better protection from pervasive marketing tactics to effective controls on where and how products are sold. These measures should be supported by education and health promotion initiatives that ensure children and young people (and their parents and carers) have the right knowledge to make informed choices.

Implementing these measures will require action at every level; from families, communities, schools, local authorities, industry and national government, to international collaboration on cross-border issues. They also need to be implemented collectively in the form of an integrated food and nutrition policy framework where the policies complement each other. The range of measures necessarily involves, and will benefit, large proportions of the population. This reflects the fact that children and young people grow up and live in the same environment as the rest of the population, and that those around them (particularly parents/carers, family and friends) can have a direct or indirect influence on their dietary behaviour. Reflecting on how poor nutrition is linked to wider social and economic inequalities, the recommended interventions need to be considered within a framework of action that addresses the social determinants of health.

5.1 A new approach to tackle diet-related ill health

Through the use of public-private partnerships, the government has placed too much emphasis on industry involvement in developing food and nutrition policy in the UK. This has led to a disproportionate focus on personal responsibility and voluntary action by industry, which has delivered limited or negligible public health gains. The approach of partnership working has also provided a platform for companies to promote and enhance their brand, meaning that commercial companies are the main beneficiaries, and limited attention has been paid to government intervention or wide-scale policy changes. In light of the scale and burden of diet-related ill health, there is a need to ensure that a strong regulatory framework is a central feature of the strategy to improve dietary patterns in the UK, with the role of

manufacturers, retailers and caterers limited to implementing and supporting, as opposed to developing, food and nutrition policy.

5.2 Improving attitudes and knowledge about healthy dietary behaviour

Education, social marketing and health promotion

There is a need to ensure that education and health advice – from mass media campaigns and school-based programmes to the advice given by healthcare professionals – is tailored to support healthy dietary behaviour.

Various short-lived, mass-media public health campaigns have been used in the UK aimed at promoting healthier diets. While these can increase knowledge and awareness, they have been found to be ineffective in changing behaviour. This highlights the importance of using them alongside a strong regulatory framework that reduces the wide availability, promotion, affordability and accessibility of unhealthy food and drink products. Their use also needs to take account of the impact of industry marketing of opposing messages. To be effective in increasing knowledge and awareness, these campaigns should be sustained and provide high-impact messages, and should adopt the key success factors of commercial marketing practices. Consideration should also be given to the need to reach vulnerable groups, such as those with an intellectual disability.

Schools can be an important closed setting for improving knowledge and attitudes. Much of the focus in UK schools is curricula-based learning about healthy diets and practical skills for cooking and food preparation. Delivering on these curricula-based objectives requires consideration of resources, such as the adequate provision of facilities for cooking and food preparation classes, as well as training, support and guidance for teachers. Adopting a whole-school approach is important. Examples include school-based cooking classes that involve parents, school cooks, teachers and volunteers from the school community (eg local chefs), as well as food-growing programmes that link up with local community allotments and educate about where food comes from. While the use of a whole-school approach is starting to gain momentum in the UK, there is a need for its wider implementation. This will require leadership from head teachers and should be supported by local authorities.

All healthcare professionals have a responsibility to provide advice and support to children, young people and their parents/carers on healthy dietary behaviour where possible and clinically appropriate. This requires adequate resources, including long-term, sustainable investment in general practice to allow for longer patient consultation times, thus enabling dietary concerns to be raised and behaviour modifying counselling to be undertaken. A range of practical behaviour change techniques should be used, with varying approaches needed depending on an individual's motivation to change, and whether the interventions are primarily aimed at a child, young person or their parent/carer. Consideration needs to be given to factors such as an individual's cultural background, as well as how to support vulnerable groups, such as patients with intellectual disabilities. To support their role, healthcare professionals will require a comprehensive understanding of nutrition supported by adequate training and education opportunities.

Consumer information

Efforts to increase knowledge and awareness of healthy dietary behaviour need to be supported by consistent and clear information for consumers about the products they are purchasing. This is complicated by the provision of limited and variable nutritional information on product labels. While there has been some progress towards a standardised approach to front of pack labelling in the UK, this is reliant on voluntary commitments and has led to the co-existence of multiple schemes that confuse consumers. One particular criticism is the way the different labelling schemes provide information in different locations on the product and use different colours/colour shades.

Further action is needed to provide standardised, consistent and clear information on packaging. This should be through a mandatory requirement for all pre-packaged products to have front of pack labelling, based on a system of traffic lights/colour coding, combined with information on reference intakes and high/medium/low text. The use of traffic-light labelling in particular is popular with the public, and accessible for children and young people.

5.3 Limiting unhealthy cues and the promotion of unhealthy food and drink products

Restrictions on mass media advertising and other marketing communications

A range of marketing communications aim to promote unhealthy food and drink products. These include mass media advertising (on television, radio, billboards and the Internet), sponsorship, celebrity endorsement and packaging. Companies spend vast amounts on these forms of promotion, which sits in stark contrast to government expenditure on public health communications. Common product categories that are heavily promoted include pre-sugared breakfast cereals, soft drinks, savoury snacks, confectionery and fast-foods.

While some restrictions have been implemented to reduce the levels of promotion to children and young people – through broadcast regulations (governing television and radio advertisements) and non-broadcast regulations (governing advertisements in various electronic and printed media) – gaps remain and children and young people are still heavily exposed to the marketing of unhealthy products. A particular area of concern is the proliferation of marketing online and via social media. While the BMA would ultimately like to see a ban on all marketing of unhealthy food and drink products to children and young people, there is a need to look at how this is achieved in practice. In the short-term, existing controls should be strengthened by revising the broadcast and non-broadcast regulations to ensure they prevent the marketing of unhealthy products that appeal in any way to children and young people (including the use of promotional offers, licensed characters and celebrity endorsements). Restrictions should also be developed in areas not covered by these regulations, such as marketing activities involving sponsorship of events, activities, individuals or groups.

There is also a need to look specifically at regulations governing the marketing of food and drink products in schools (eg through commercial sponsorship and branding of educational packs, goods and equipment). Existing guidance is vague, and there are no sanctions on companies which fail to adhere to the guidelines.

Regulating industry practices and changing the retail environment

Sales promotions are routinely used to encourage consumers to purchase products, including quantity increases, discount pricing, money-off coupons, multipacks and multi-buys, free samples, and special features (eg limited editions). These have been found to be disproportionately used to promote unhealthy food and drink products and therefore will contribute to a retail environment that favours unhealthy dietary behaviour. While a small number of retailers have developed policies about the use of sales promotions for unhealthy products, there has been limited voluntary action in this area. This highlights the need to look at stronger policy options to ensure retailers use sales promotions to encourage healthy dietary patterns.

Consideration also needs to be given to specific features of the in-store environment. This is relevant to the placing of unhealthy products at shop entrances, near checkout counters and at the end of aisles. They are often situated at eye-level or within easy reach of young children, which may encourage them to use peer power to persuade their parents to purchase snacks. While some companies in the UK have voluntarily chosen not to sell unhealthy products in such areas, this practice is still widespread.

The purchase decisions of consumers may also be influenced by retail staff behaviour where consumers are specifically offered discounted unhealthy products at checkout counters. These practices demonstrate the need to strengthen the regulatory framework for the way unhealthy products are promoted in the retail environment.

5.4 Creating an environment that promotes healthy dietary behaviour

The physical availability of unhealthy and healthy products

The spread of global fast-food chains and independent fast-food stores has led to increased access and availability of unhealthy food items on the high street, with particularly high concentration in city centres and along arterial routes, in close proximity to schools, and in areas of deprivation. This creates a local environment where consumption of fast-food is a normal, everyday occurrence. It also increases the likelihood of children and young people consuming fast-food items because they are readily available. As these premises can often

be opened without applying for planning permission, one useful step is to provide local authorities with the powers to limit the future number, clustering and over-concentration of fast-food outlets locally. While this is being taken forward in some localities, it should be implemented more widely.

Food in schools

Regulating the food provided in schools – through food and nutrition standards – is an important way to support healthier diets among children and young people. All devolved administrations have set legal standards for school lunches and for foods available during the day. While these cover all state schools in Northern Ireland, Scotland and Wales, the recently implemented standards in England are less comprehensive. The way they have been implemented means that the standards are not mandatory in over 3,500 academy schools and 200 free schools, which will instead rely on their governing board voluntarily agreeing to meet the standards. This raises the concern of a greater likelihood of poor quality food being provided in these schools, and illustrates a need to ensure the mandatory food standards are extended to cover all academy schools and free schools in England.

A further approach to improving the school food environment is the provision of free fruit and vegetable schemes, which help support children in meeting dietary guidance. While a comprehensive scheme is in place for all grant-maintained schools in England, this does not apply to primary schools with academy status, or which operate as free schools. In Scotland, it is up to each local authority to provide this scheme, and there are no comparable schemes in Northern Ireland and Wales. To ensure equal provision, free fruit and vegetable initiatives should be available for all primary school children across the UK.

Different arrangements also exist across the UK for the provision of free school meals. These are particularly important in providing access to a healthy meal each day for children from low-income households. In England and Scotland, free school meals are provided universally for children aged between four and seven, while they are only provided in Northern Ireland and Wales to children whose parents are in receipt of certain benefits and support payments. As evidence suggests that universal provision of free school meals is beneficial, consideration should be given in Northern Ireland and Wales to extending the provision of free school meals to be universal rather than based on entitlement.

The healthcare environment

The healthcare environment provides a closed setting suitable for promoting and supporting healthy behaviours, and doctors believe this setting should be an exemplar of best practice. One key aspect is the food provided to hospital patients. Different standards apply across the UK for hospital food, and evidence from various surveys show that the food can vary significantly in quality, including meals that are unhealthy and unappetising. Action to develop a consistent, UK-wide approach to hospital food standards would reduce this variability. There is also a need to move to a statutory approach for hospital food standards to improve monitoring and enforcement, and ensure the standards are evenly applied across all hospitals throughout the UK.

A further key aspect is the sale of unhealthy food items in hospitals – through on-site fast-food franchises, retail outlets and vending machines. This is commonplace, to the extent that doctors have described their workplaces as a toxic hospital food environment. Of significant concern is the normality with which high-street franchises that predominantly offer unhealthy products are present in hospitals. This sets a poor example to patients and visitors, and challenges an employer's responsibility to promote workplace health and wellbeing for NHS staff. While various regulations are in place governing the food sold in hospitals, these do not adequately limit the sale of unhealthy products. Doctors would ultimately like to see an end to the sale of all unhealthy food and drink products in all NHS hospital across the UK. In recognising that food services (including vending machines, on-site shops and food outlets) may not be under the direct control of the hospital, this will require a phased approach through renegotiation with leaseholders and contractors, and supported by the development of UK-wide mandatory regulations.

Beyond hospitals, there are a wide range of social care homes (notably nursing homes and residential care homes) that typically have responsibility for providing food and drink to

their residents. While standards for the care provided in these homes have been developed, they only include overarching requirements for the food to be nutritionally balanced, varied and appetising. There are no specific standards related to nutritional content of the food and drink provided. This increases the likelihood of residents receiving unhealthy content in meals, and does not give sufficient priority to this aspect in inspection and monitoring. Action is therefore needed to develop specific nutritional standards for care homes in the UK, which should be implemented on a statutory basis.

Regulating the nutritional content of processed food and drink products

Food processing can increase levels of trans fats, saturated fats, added sugars and salt. These are known to have adverse impacts on health when consumed in high levels, and are over consumed by the UK population. This is particularly relevant for low income groups, who commonly rely on cheap, processed food and drink products as a part of their diet. Action is therefore needed to regulate the nutritional content of processed food and drink products.

Trans fats

Many countries have introduced different strategies to reduce trans fats intake, ranging from improved product labelling, to industry targets and mandatory restrictions on artificial trans fats levels. The introduction of mandatory limits has been found to be the most effective strategy. The main approach in the UK has focused on encouraging voluntary action by manufacturers and retailers to not use ingredients that contain artificial trans fats/remove artificial trans fats from their products. This has led to some reductions in the levels of artificial trans fats in processed products, and data show that average intake is below recommended maximum levels. There is concern that certain subgroups may have substantially higher intakes than the reported population average (ie individuals who regularly use partially hydrogenated vegetable oils for cooking, or who eat a high proportion of industrially processed or fast-food). To ensure equal protection across the population, and learning from international experiences, efforts should be strengthened to further reduce trans fats intake in the UK. This should be achieved by the implementation of a one-year target for industry to eliminate artificial trans fats from all products sold in the UK, with legislation introduced if this target is not met.

Salt

As one of the first European countries to develop a national salt reduction strategy, some progress has been made in the UK in reducing the salt content of many processed foods, and in reducing average salt intakes. This has been based on raising public awareness through an advertising and social marketing campaign; the introduction of traffic-light labelling for salt content; and engagement with industry on a voluntary basis to set reduction targets. As mean salt intake for adults and children remains above recommended levels, and previous voluntary salt reduction targets have not been met, action should be prioritised to meet the revised set of targets agreed in 2014, with a view to achieving the recommended maximum population intake of 6g per day by 2017. Regulatory measures should be considered if these targets are not met.

Fat, saturated fat, added sugars and calories

Compared to action on trans fats and salt, considerably less attention has been given to reducing intakes of fat, saturated fat, added sugars and calories. While various voluntary commitments have been made in England to reduce calorie and saturated fat levels, there are a lack of targets covering specific food and drink product categories, no defined timescale for action, and patchy progress has been made against the commitments. A voluntary approach has also been adopted in Scotland focused on reformulation targets to reduce calories and/or energy density, fats and added sugars in the following product categories: soft drinks with added sugar; chocolate and chocolate confectionery; biscuits; cakes; pies and pastries; dairy products; sausages; savoury snacks; and chips, fried and roast potatoes and products. While the focus on specific product categories is welcome, there is no defined evaluation strategy, and the targets are relatively short-term (set for achievement by 2015). There is a need to build on the approach in Scotland through the development of UK-wide targets for manufacturers, retailers and caterers to reduce calorie, fat, saturated fat and added sugars levels across key product categories. This should include a goal to achieve the targets by 2020, supported by regulation if these targets are not met.

Fiscal measures that favour healthy diets

The use of taxation measures on unhealthy food and drink products has consistently been found to have the potential to improve health, with relatively high taxation levels (in the region of 20%) needed to achieve positive health outcomes. While taxing a wide range of products is an important long-term goal, a useful first step would be to implement a duty on sugar-sweetened beverages (all non-alcoholic water based beverages with added sugar, including sugar-sweetened soft drinks, energy drinks, fruit drink, sports drinks and fruit-juice concentrates) by increasing the price by at least 20 per cent. This reflects that the strongest evidence of effectiveness of taxation approaches is for sugar-sweetened beverages; that these products are typically high in calories and low in essential vitamins and minerals (often referred to as 'empty calories'); that the intake of added sugars by many children and adults in the UK far exceeds recommended levels; and that a high intake of added sugars is a risk factor for a range of health conditions.

The use of subsidisation can be used to promote consumption of healthier products, and may alleviate the regressive nature of food taxes and reduce diet-related disease. The most obvious food groups to focus on are fruit and vegetables. The majority of the UK population do not consume these at recommended levels, and they are one of the food groups most affected by recent food price rises. Consideration should therefore be given to the introduction of fiscal measures to subsidise the sale of fruit and vegetables in the UK, which could be funded by the introduction of a tax on sugar-sweetened beverages.

5.5 International cooperation on nutrition

International cooperation and coordination is essential to regulate cross-border issues such as international marketing, advertising and trading of food and drink products. This is particularly important in light of the impact of European Union regulations on food and nutrition policy in the UK. While various non-binding agreements exist to support coordinated action between countries, there has been limited progress by governments across the world in implementing policy and regulatory changes. This highlights the need for a comprehensive international framework to support countries in strengthening their policy and regulatory approaches. This could be achieved through a global Framework Convention on Healthy Nutrition. To be effective, this should include legally binding provisions for action to tackle the availability, promotion, affordability and accessibility of unhealthy food and drink products, supported by measures to limit industry influence on policy development.

6. Recommendations

Overall approach to diet-related ill health

- A strong regulatory framework should be central to the approach to reducing the burden of diet-related ill health in the UK, focused on interventions that limit commercial influences on people's dietary behaviour and encourage healthy dietary patterns.

Improving attitudes and knowledge about healthy dietary behaviour

Education, social marketing and health promotion

- High impact and sustained social marketing campaigns should be used to improve attitudes and knowledge about healthy dietary behaviour and the health risks of a poor diet. These should learn from the key success factors of commercial marketing practices, and must be supported by a strong regulatory framework that reduces the accessibility, availability and promotion of unhealthy food and drink products.
- Local authorities should work collaboratively with schools to achieve the wider implementation of the whole-school approach for promoting healthier diets throughout the UK. This should include a focus on developing cooking skills and improving knowledge about where food comes from.

- There should be adequate resources to support all healthcare professionals in addressing dietary behaviour where possible and clinically appropriate. This should be complemented by comprehensive education and training opportunities – integrated throughout the undergraduate and postgraduate curricula, and continuing professional development – to ensure all healthcare professionals have the necessary knowledge and skills to assess nutritional status, provide advice on dietary behaviour, and utilise practical behaviour change techniques in the clinical setting.

Consumer information

- A mandatory, standardised approach for displaying nutritional information – based on traffic lights/colour coding, reference intakes, and high/medium/low text – should be introduced for all pre-packaged food and drink products. This will require regulatory changes at a European level.

Limiting unhealthy cues and the promotion of unhealthy food and drink products

Restrictions on mass media advertising and other marketing communications

- Regulations should be developed to prohibit the marketing of unhealthy food and drink products to children and young people. In the short-term, this should focus on:
 - revising the UK Code of Broadcast Advertising to prohibit advertisements in or around any programmes that appeal in any way to children and young people
 - revising the UK Code of Non-broadcast Advertising, Sales Promotion and Direct Marketing to include specific provisions preventing the marketing via non-broadcast media (including the use of promotional offers, licensed characters and celebrity endorsements) that appeal in any way to children and young people
 - developing regulations that prohibit any marketing activities involving sponsorship of events, activities, individuals or groups that appeal in any way to children and young people.
- The marketing of unhealthy food and drink products in schools (eg commercial sponsorship and branding of educational packs, goods and equipment) should be prohibited.

Regulating industry practices and changing the retail environment

- The UK health departments should commission a review of how the regulation of sales promotions can be strengthened to ensure they favour healthy options and deliver public health benefits.
- Regulations should be developed that prohibit retailers from:
 - displaying unhealthy food and drink products at checkouts and in queuing areas
 - the use of schemes that require retail staff to promote unhealthy food and drink products at checkouts.

Creating an environment that promotes healthy dietary behaviour

The physical availability of unhealthy and healthy products

- Local authorities should be provided with the power to restrict the future number, clustering and concentration of fast-food outlets locally.

Food in schools

- Legislation should be introduced in England to ensure that mandatory school food standards apply to all academy schools and free schools.
- A free fruit and vegetable scheme should be available to all primary school children throughout the UK five days per week.
- Consideration should be given to extending the provision of free school meals in Northern Ireland and Wales to be universal rather than based on entitlement.

Hospital food standards

- The UK health departments should work together to develop and implement consistent and comprehensive hospital food standards, which should be introduced as a statutory requirement.

Other food available in the hospital environment

- The sale of all unhealthy food and drink products should be phased out in all NHS hospitals, supported by the development and implementation of UK-wide mandatory regulations.

Food standards in social care settings

- Nutritional standards should be developed and implemented for the provision of food in all care homes in the UK, and should be a statutory requirement.

Regulating the nutritional content of processed food and drink products

- A one-year target should be set for manufacturers, retailers and caterers to not produce or sell any food and drink products containing artificial trans fats in the UK. Regulatory measures should be implemented if this target is not met.
- All manufacturers, retailers and caterers should prioritise action to systematically reduce salt levels in all food and drink products sold and produced in the UK in line with the revised UK-wide 2017 targets, with a view to meeting the 6g per day population intake goal for adults. Regulatory measures should be implemented if this target is not met.
- UK-wide targets, to be achieved by 2020, should be set for manufacturers, retailers and caterers to reduce calorie, fat, saturated fat and added sugar levels for the following product categories: soft drinks with added sugar; chocolate and chocolate confectionery; biscuits; cakes; pies and pastries; dairy products; sausages; savoury snacks; chips and fried and roast potatoes. Regulatory measures should be used if these targets are not met.

Fiscal measures that favour healthy diets

- A tax should be introduced on all sugar-sweetened beverages, which increases the price by at least 20 per cent.
- Consideration should be given to the introduction of fiscal measures to subsidise the sale of fruit and vegetables.

International cooperation on nutrition

- The UK Government should lobby for, and support the World Health Organization in developing and implementing an international treaty on food and nutrition in the form of a Framework Convention on Healthy Nutrition. This should include legally-binding provisions to tackle the availability, accessibility and promotion of unhealthy food and drink products, as well as a directive to ensure that food and nutrition policies are developed independently of commercial interests.

1. Introduction

An individual's diet – ie the mixture of food and drink they consume – has a powerful influence on their health and wellbeing in the short, medium and long-term. A healthy diet provides the necessary nutrients to help maintain mental and physical wellbeing, and provides a protective effect against a range of chronic diseases. Poor diet is a major contributor to the national and global burden of disease.¹ In the UK, the majority of children, young people and adults are consuming too much saturated^a fat, added sugars^b and salt, and not enough fruit, vegetables, fibre and oily fish.² This poor dietary behaviour is a risk factor for many health conditions including cardiovascular disease, type II diabetes, some forms of cancer, dementia, nutritional deficiencies, and obesity.

Why is the BMA publishing this report?

The burden of diet-related ill health in the UK is substantial, causing tens of thousands of premature deaths annually,³ and significantly affecting the quality of life of many more. Aside from the considerable economic and social costs of diet-related ill health, its impact on the demand for healthcare services is costing the NHS around £6 billion annually.⁴ It also directly impacts on doctors, who are routinely faced with the challenge of managing patients with complex, chronic conditions caused by factors beyond their sphere of influence.

There is growing recognition that the policy response to this burden is inadequate throughout the UK, with a disproportionate emphasis on personal responsibility and on partnership working with industry (ie manufacturers, retailers and caterers). This has led to an over reliance on ineffective voluntary agreements and industry self-regulation.

Responding to the burden of diet-related ill health requires consideration of the range of influences on children and young people's dietary preferences, as well as the factors that enable or derail them from making healthy choices. This is important as dietary preferences acquired in early childhood typically extend into adulthood. Parents and caregivers play a key role in the development of children and young people's dietary preferences, as they will normally have a strong influence over the components of their diet. As children grow older, they start to make their own independent dietary choices, and their social networks become increasingly important.⁵ While parents and caregivers often aim to provide healthy and nutritious food to their children, the environment in which they live can make choosing the healthy option more difficult. As emphasised throughout this report, of particular concern are individuals and families from lower socioeconomic groups who are more likely to suffer excessive consumption of unhealthy foods with insufficient intakes of healthier options.

Key environmental factors powerfully affect children and young people's dietary intake, whether by direct influence on their dietary choices or indirectly through the decisions of their parents or caregivers. These include the availability, affordability and acceptability of unhealthy food and drink products. These environmental influences are also likely to impact on social norms in the UK, affecting children and young people's sense of what constitutes a healthy diet.

It is therefore crucial that dietary behaviours developed by children and young people provide them with a good foundation to maintain healthy diets throughout their lives. This requires an environment that enables, promotes and sustains healthy choices.

- a Those that only contain fatty acids where each individual carbon atom is "saturated" with a hydrogen atom (ie contains no double bonds between the carbon atoms). Unsaturated fats contain at least one double bond (monounsaturated) or multiple double bonds (polyunsaturated). The different composition of saturated and unsaturated fats impacts on their physiochemical and functional properties.
- b For the purposes of this report, the term 'added sugars' relates to sugars added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and unsweetened fruit juices. This is also equivalent to the definition of 'free sugars' that is used by the World Health Organization. Draft guidance published by the Scientific Advisory Committee on Nutrition in June 2014 recommended that the definition for 'free sugars' be adopted in the UK (final guidance is due to be published in Summer 2015).

While the particular focus of this report is on tackling key environmental factors that promote unhealthy dietary patterns, it is important to recognise the need for wider action on the social and economic inequalities that shape the environment in which individuals are born, grow, live, work and age. These are commonly referred to as the social determinants of health, and they underlie health risks such as unhealthy nutrition.

Action to address these inequalities has been comprehensively covered elsewhere, most notably in the 2010 Marmot Review,⁶ which set out a range of universal actions to improve health and wellbeing for all. This highlighted the need for action to tackle the social gradient in health, where the lower a person's social position, the worse his or her health. It identified the following six overarching policy objectives:

- give every child the best start in life – through action to increase the proportion of overall expenditure allocated to the early years; to support families to achieve progressive improvements in early child development; and to provide good quality early years education and childcare
- enable all children, young people and adults to maximise their capabilities and have control over their lives – through action to ensure that reducing social inequalities in pupils' educational outcomes is a sustained priority; to prioritise reducing social inequalities in life skills; and to increase access and use of quality lifelong learning opportunities
- create fair employment and good work for all – through action to prioritise active labour market programmes; to encourage, incentivise and, where appropriate, enforce the implementation of measures to improve the quality of jobs; and to develop greater security and flexibility in employment
- ensure a healthy standard of living for all – through action to develop and implement standards for minimum income for healthy living; remove 'cliff edges' for those moving in and out of work and improve flexibility of employment; and to review and implement systems of taxation, benefits, pensions and tax credits to provide a minimum income for healthy living standards and pathways for moving upwards
- create and develop healthy and sustainable places and communities – through action to prioritise policies and interventions that reduce both health inequalities and mitigate climate change; to fully integrate the planning, transport, housing, environmental and health systems to address the social determinants of health in each locality; and to support locally developed and evidence-based community regeneration programmes
- strengthen the role and impact of ill-health prevention – through action to prioritise investment in ill health prevention and health promotion; to implement an evidence-based programme of ill health preventive interventions; and to focus core efforts of public health departments on interventions related to the social determinants of health proportionately across the gradient.

The BMA has also published its own guidance on ways in which doctors can take action on the social determinants of health.⁷

What is the aim of this report?

This report aims to highlight the urgent need for a stronger and more comprehensive policy response to the increasing burden of diet-related ill health in the UK. It has a particular focus on children and young people,^c as they often cannot take personal responsibility for their own choices. The report starts by providing an overview of dietary behaviour in the UK, as well as the impact of a poor diet on health and wellbeing. It goes on to examine children and young people's attitudes to their diet, and the different types of influences that affect dietary behaviours. The report concludes by considering the areas of action needed to promote healthy diets among children and young people, with a view to updating and unifying existing BMA policy.^d It is intended for policy makers with strategic or operational responsibility for food and nutrition policy in the UK. It will also be of interest to medical professionals, the public and parents/caregivers.

While the report is focused on promoting healthier diets in children and young people, many of the measures recommended in **Section 5** will also have the benefit of creating a healthier food environment for adults in the UK. This is particularly relevant for adults with learning disabilities, who are vulnerable to unhealthy influences on their diet in a similar way to children and young people.

Although not covered in this report, it is worth noting the important role physical activity has in maintaining good health and wellbeing. Not only is it a means of weight management, it can help protect against a range of conditions such as obesity, hypertension, CHD (coronary heart disease), stroke and mental illness.^{8,9} Physical activity levels in the UK are low, with less than half of adults meeting recommended guidelines, and the amount of physical activity children undertake decreasing as they get older.¹⁰ The need to improve physical activity levels has been covered in other publications from the board of science, including *Healthy transport = Healthy lives*¹¹ (2012) and *Preventing childhood obesity*¹² (2005).

What is a healthy diet?

A healthy diet is one that provides nutrients^e in quantities that prevent deficiencies and excesses. In the UK, guidance on the components of a healthy diet was developed two decades ago in the form of the 'eatwell plate'.¹³ This aims to highlight the different types of food that make up an individual's diet, and shows the proportions that they should be consumed in. It recommends that individuals try to:

- eat plenty of fruit and vegetables as these are a vital source of vitamins and minerals (eating at least five portions of a variety of fruit and vegetables every day)
- eat plenty of potatoes, bread, rice, pasta and other starchy foods (opting for wholegrain varieties) as these are a good source of energy, fibre and other key nutrients
- eat some milk and dairy foods as they are good sources of protein and calcium (opting for lower-fat milk and dairy foods)
- eat some meat, fish, eggs and beans as they are good sources of protein and a range of vitamins and minerals (limiting fat by choosing lean cuts of meat and cutting fat off, grilling meat and fish, poaching or boiling eggs)
- limit intake of foods that are high in saturated fats (including fatty cuts of meat, sausages, meat pies, cheese, butter, cakes, cream/ice cream, biscuits and pastries)

c The term 'children and young people' is a broad term used to refer to individuals under the age of 18. In common use, 'children' typically refers to younger age groups below the age of 14, and 'young people' to those aged between 14 to 17 years of age. The United Nations Convention on the Rights of the Child defines a 'child' as a person below the age of 18.

d An overview of the previous board of science publications in relation to diet and health is provided in **Appendix 1**, including *Growing up in the UK: ensuring a healthy future for our children* (2013), *Early life nutrition and lifelong health* (2009), *Preventing childhood obesity* (2005) and *Adolescent health* (2003).

e Substances in foods that are essential for normal physiologic function of the body. Macronutrients are the main source of energy, and are the nutrients consumed in the largest quantities. They are commonly categorised in three main groups: carbohydrates, proteins and fats. Micronutrients are those nutrients that are needed in much smaller quantities, such as vitamins and minerals. Nutrients are also categorised as 'essential' or 'non-essential'. Essential nutrients are those that the body is unable to synthesise on its own – or not to an adequate amount – and must therefore be provided by the diet. They include a range of vitamins, dietary minerals, essential fatty acids, and essential amino acids.

- limit intake of foods with high salt content (eg bacon, soups, sauces, processed savoury products)
- limit intake of foods and drinks that are high in added sugars (eg sugary fizzy drinks and juice drinks, sweets, cakes, biscuits and chocolate).¹³

Board of science members have highlighted two important aspects when considering what constitutes a healthy diet. These relate to the decisions made about what individuals consume and how they consume it (ie their dietary behaviour).

Firstly, food types can vary significantly in their nutritional value and health benefits. Boiled or baked potatoes, for example, are a good source of complex carbohydrates and dietary fibre, and are low in calories and fat. Potato chips or crisps, however, have high levels of salt and saturated fat. An individual who consumes fresh fruit and vegetables in their diet will benefit from this being a good source of energy (as they naturally contain unrefined^f carbohydrates), as well as providing a range of vitamins and minerals. By contrast, fast-food^g and processed food and drink products typically contain high levels of added, refined carbohydrates (eg sweets, cakes, packaged cereals, biscuits, chocolate, white bread, pizza bases, burger buns, chips, and some fizzy drinks and juice drinks). These are much less healthy by comparison, as they will be high in calories and energy dense but typically have few other nutrients. The issue of satiety (ie how foods and drinks satisfy hunger) also has an impact. For example, calories consumed as sugary drinks typically only have a short-lived effect on relieving hunger, while whole foods containing reasonable levels of fibre (eg vegetables, fruit, wholemeal bread and foods high in olive oil or unsaturated fat) suppress hunger for a longer period.

Secondly, the quantity of food and drink an individual consumes is important. In this context, a healthy diet is one that avoids health problems associated with excess of energy, fat (particularly saturated fat) and added sugar. One common focus for healthy dietary behaviour is often on consuming the right amount of food for an individual's energy needs. This is typically discussed in relation to calorie^h intake. While a range of factors can affect the amount of energy an individual needs (including age, lifestyle/activity levels, weight/height, hormone levels, medications etc), it is broadly recommended that an average man requires approximately 2,500 kcal (kilocalories) a day, and that a woman requires approximately 2,000 kcal. These calorie requirements are substantially lower for young children (aged 1-12 for boys and 1-10 for girls), but higher during adolescent years.¹⁴

A deficiency or excess of energy, protein or other nutrients in an individual's diet – known as malnutrition – is associated with adverse effects on tissue/body form (body shape, size and composition) and function and clinical outcome. Malnutrition encompasses 'undernutrition' where an individual has insufficient intake of nutrients, and 'overnutrition', where an individual's nutrient intake exceeds requirements. The former can increase vulnerability to illness, increase complications and in very extreme cases, cause death, while the latter is associated with a range of chronic health conditions (see **Section 2.2**). In common use, malnutrition is typically used in reference to undernutrition.

^f Carbohydrates in their natural state, which contain all the naturally occurring nutrients that are beneficial to the body. Refined carbohydrates are those that are either processed or altered with the addition of artificial chemicals and sugars, and their natural nutrients such as fibres, vitamins and minerals have been reduced or eliminated.

^g Food that can be prepared quickly and easily, and is sold in snack bars and restaurants as a quick meal or to be taken away.

^h A 'calorie' can describe two different units of energy: either the amount of energy needed to raise the temperature of one gram of water by one degree Celsius (known as a small calorie or gram calorie), or the amount of energy needed to raise the temperature of one kilogram of water by one degree Celsius (known as a large calorie). In relation to diet, it provides a measure of food energy content, typically in reference to the large calorie or a 'kilocalorie'. The terms 'calorie' and 'kilocalorie' are therefore commonly used interchangeably.

What should be considered as an unhealthy food and drink product?

There is considerable debate in the academic and scientific literature regarding what constitutes a healthy food or drink. Attempts to provide a comprehensive definition of the nutritional quality of food and drink products in the UK – in absolute terms and in relation to other products – have derived from the UK-wide nutrient profile model developed by the FSA (Food Standards Agency). This aims to define how products refer directly to a person's health (ie healthy/healthier and unhealthy/unhealthier).^{15,16} The main application of the model has been to provide OfCom (The Office of Communications) with a tool to differentiate products on the basis of their nutritional composition in the context of television advertising.

The nutrient profile model uses a simple scoring system where points are allocated on the basis of the nutritional content of 100g (grams) of a product. It applies equally to all food and non-alcoholic drinks.¹⁵ Foods scoring four or more points, and drinks scoring one or more points, are classified as 'less healthy' and are subject to OfCom's controlsⁱ on the advertising to children and young people under the age of 16 on television.¹⁵ **Figure 1** provides some examples of food and drink items that can and cannot be advertised according to the model, and further details on its application are provided in **Appendix 2**.

Figure 1 – Examples of the types of food and drink that can and cannot be advertised according to the nutrient profile model*

Food that can be advertised (points <4 for foods; <1 for drinks)	Food that cannot be advertised (score ≥4 for foods; score ≥1 for drinks)
Wholemeal and white bread	Potato crisps including low fat
Muesli and wheat biscuit cereal with no added sugar	Most breakfast cereals
Fresh fruit	Cheddar cheese, half and full fat
Most nuts	Butter and margarine
Takeaway salads with no dressing or croutons	Most sausages and burgers
Most brands of baked beans	Raisins and sultanas
Some brands of baked oven chips	Cookies
Some brands of chicken nuggets	Confectionary
Fish fingers	French fries
Chicken breast	Peanut butter
Unsweetened fruit juice	Mayonnaise, reduced and full calorie
Skimmed, semi-skimmed and whole milk	Most pizzas
Diet cola	Sweetened milkshakes
	Cola and other carbonated sweetened drinks

Source: Rayner M, Scarborough P, Lobstein T (2009) *The UK OfCom nutrient profiling model: defining 'healthy' and 'unhealthy' foods and drinks for TV advertising to children*. Oxford: British Heart Foundation Health Promotion Research Group. Reproduced with permission of Professor Mike Rayner (Director, British Heart Foundation Centre on Population Approaches for Non-Communicable Disease Prevention, Nuffield Department of Population Health, University of Oxford).

*Some of these classifications depend on the particular recipe for the product.

The model has faced industry criticism. Various commercial companies and industry bodies have argued that the allocation of points based on 100g of a product should take account of the amount and frequency of consumption and the portion size.¹⁷ While it is recognised that there are some limitations to this model, it is the most advanced and widely used in the UK to date. It has also been adapted (to take account of cultural and other differences), and used in other countries such as Ireland and Australia.

For the purpose of this report, the term 'unhealthy' refers to any food or drink items that are classified as less healthy by the FSA's nutrient profile model.

i These include: a) a ban on advertising unhealthy products in programmes made for children aged 4-15; b) a ban on advertising unhealthy products in programmes likely to be of particular appeal to children aged 4-15; c) a ban on sponsorship in the name of unhealthy products in programmes made for children or likely to be of particular appeal to them; and d) restrictions on unhealthy food advertising targeting children of primary school age or younger, including bans on the use of licensed characters and celebrities popular with children, on health claims, and on promotional offers.

2. Diet and health in the UK – the call to action

Poor diet is a major risk factor for ill health and preventable premature death. This section provides a brief overview of dietary behaviour in the UK, considers the ways in which an individual's diet can impact on their health, and highlights the costs of diet-related ill health.

2.1 Dietary behaviour in the UK

The NDNS (National Diet and Nutrition Survey)^j provides an indication of the diet, nutritional intake and nutritional status of the general population in the UK (see **Figure 2**). This shows that the UK population is consuming too much saturated fat, added sugars and salt, and not enough fruit, vegetables, fibre and oily fish.² It is apparent that these unhealthy dietary patterns develop in children and young people, and persist in adulthood.

Figure 2 – Diet, nutritional intake and nutritional status in the UK – key statistics from the NDNS 2008/2009 – 2011/2012²

Diet

- Only 10 per cent of boys and seven per cent of girls aged 11 to 18 years, and 30 per cent of adults aged 19 to 64, met the recommendation of at least five portions of fruit and vegetables every day. Mean consumption was 3.0 and 2.7 portions per day for boys and girls aged 11 to 18 years respectively, and 4.1 portions per day for adults aged 19 to 64 years.
- Mean consumption of oily fish⁴ in all age groups was well below the recommended one portion (140g) per week. This was equivalent to 11g per week for those aged 11 to 15 years, 21g per week for those aged 16 to 24 years, and 47g per week for those aged 25 to 49 years.
- In males, mean consumption of red meat was lowest in the 11 to 15 years age group (69g per day), highest in the 16 to 24 years age group (92g per day), and was 86g per day and 82g per day respectively for males aged 25 to 49 years and 50 to 64. Mean consumption increased by age in females from 45g per day for those aged 11 to 24 years, to 62g per day for those aged 50 to 64 years. It is recommended that, for adults, average intakes of red and processed meat⁵ should not exceed 70g per day.

Macronutrients

- Mean intake of saturated fat exceeded the DRV (dietary reference value) of a population average of no more than 11 per cent daily food energy (excluding alcohol)/10 per cent daily total dietary energy in all age/sex groups.
- Mean intake of trans fats⁶ provided 0.6-0.7 per cent of food energy for all age/sex groups, which was lower than the DRV of a population average of no more than two per cent daily food energy/daily total energy intake.
- Mean intake of NSP (non-starch polysaccharides)⁷ for adults aged 19 to 64 years was well below the DRV minimum level of 18g per day.
- Mean intake of NMES (non-milk extrinsic sugars)⁸ far exceeded the DRV of a population average of no more than 11 per cent daily food energy/10 per cent of daily total dietary energy⁹ for all age groups, most notably for children aged four to 10 years (14.7%) and 11 to 18 years (15.6%). For children, the main source of NMES was soft drinks and fruit juice – soft drinks provided 30 per cent of NMES intake in the 11 to 18 years age group. Cereals and cereal products were also major contributors to dietary sugars in childrens' diets, mainly from breakfast cereals, cakes and biscuits. For adults, table sugar and confectionery, soft drinks and fruit juice, and cereals, cakes and biscuits, made similar contributions to sugar intake.
- Among adults aged 19 to 64 years who consumed alcohol, average energy intake from alcohol was 8.4 per cent. For those children and young people aged 11 to 18 who consumed alcohol, it provided an average energy intake of 5.9 per cent for boys and 5.6 per cent for girls.

^j A rolling cross-sectional survey, designed to assess the diet, nutritional intake and nutritional status of the general population aged 18 months upwards living in private households in the UK. The survey is carried out in all four countries of the UK and the survey involves an interview, a four-day dietary diary, blood pressure measurements and urine samples.

Micronutrients

- Intakes of the majority of vitamins were adequate apart from vitamin D. Sub-optimal vitamin D status was common in all age/sex groups.
- Intakes below the LRNI (lower reference nutrient intake) were found in a proportion of the 11 to 18 years age group for vitamin A (13%), riboflavin (15%) and folate (girls only, 8%), and 12 per cent of women aged 19 to 64 years had intakes below the LRNI for riboflavin.
- Mean daily intake of iron from food sources was below the RNI (reference nutrient intake) for 57 per cent of girls aged 11 to 18 years, and 78 per cent of women aged 19 to 64 years. Forty-six per cent of girls aged 11 to 18 years, and 23 per cent of women aged 19 to 64 years had intakes below the LRNI.
- There was evidence of low intakes for some minerals (particularly magnesium, potassium and selenium) in a substantial proportion of older children and adults, and low intakes of calcium and iodine in a substantial proportion of girls aged 11 to 18 years.

Salt

- Mean salt intake for older adults aged 65 years and over was 7.2g per day, which is above the maximum of 6g per day recommended by the SACN (Scientific Advisory Committee on Nutrition).
- Mean salt intake in children aged 4-18 years exceeded the SACN recommendations for each age group[†] except for children aged 7-10 years.
- A separate 2011 NDNS survey found that the mean estimated salt intake for adults in England aged 19 to 64 years was 8.1g per day (9.3g per day for men and 6.8g per day for women).¹⁸ Similar findings have been shown in Scotland and Wales.^{19,20}

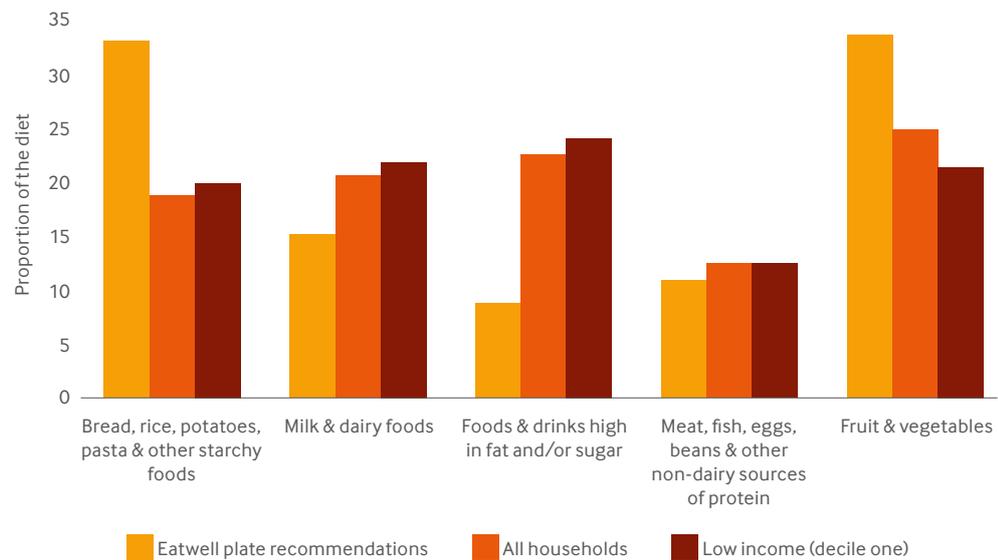
Explanatory notes

- [€] Oily fish is an important source of long-chain omega-3 (n-3) polyunsaturated fatty acids. Types of oily fish include anchovies, carp, trout, mackerel, herring, jack fish, pilchards, salmon, sardines, sprats, swordfish, tuna (fresh only) and whitebait.
- [∞] While there is no generally agreed definition of processed meat, it is commonly used to refer to meats (usually red meats) preserved by smoking, curing, or salting, or by the addition of preservatives.
- [§] The term given to a form of unsaturated fatty acid with one or more of their double bonds in the 'trans' orientation rather than the common 'cis' configuration. This altered state has an impact on its physiochemical and functional properties.
- ^Σ A form of non-digestible carbohydrate, also known as dietary fibre, found in foods such as wholegrain cereals, fruits and vegetables.
- [†] A number of different terms are used internationally to define the types of sugars described in dietary recommendations. The terms all refer to extrinsic sugars, which are those not contained within the cellular structure of a food (as opposed to intrinsic sugars that are naturally found in the cellular structure). The World Health Organization has used the term 'free sugars' to describe sugars (monosaccharides and disaccharides) added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates. In the UK, as extrinsic sugars in milk and milk products (eg lactose) are exempt from the classification of sugars in dietary recommendations, the term 'non-milk extrinsic sugars' has been used. These are sugars added to food (eg sucrose, fructose, dextrose, maltose etc), sugars naturally present in honey, syrups fruit juices and fruit concentrates, and 50 per cent of the fruit sugars from stewed, dried or canned fruit. Draft guidance published by the Scientific Advisory Committee on Nutrition in June 2014 recommended that the definition for 'free sugars' be adopted in the UK (final guidance is due to be published in Summer 2015). The term 'added sugars' is used in dietary recommendations in the US, and describes sugars and syrups that are added to foods during processing and preparation, and does not include naturally occurring sugars such as lactose in milk or fructose in fruits. The European Food Safety Authority defines sugars as total sugars, including both indigenous (sugars naturally present in foods such as fruit, vegetables, cereals and lactose in milk products), and added sugars. The latter refers to sucrose, fructose, glucose, starch hydrolysates (glucose syrup, high-fructose syrup, isoglucose) and other isolated sugar preparations used as such, or added during food preparation and manufacturing.

- ¥ The Scientific Advisory Committee on Nutrition's draft revised guidelines for sugar intake recommended that mean total dietary energy provided by free sugars should be a mean population intake of five per cent (final guidance due to be published in Summer 2015). The World Health Organization also published new guidelines on sugar intake for children and adults in March 2015 which strongly recommended that intake of free sugars should be less than 10 per cent of total dietary energy intake, and suggested that a further reduction to below five per cent would be beneficial.
- ^ The Scientific Advisory Committee on Nutrition recommend that children aged from one to three years should consume no more than 2g of salt a day (0.8g sodium); from four to six years should consume no more than 3g of salt a day (1.2g sodium); and from seven to 10 years a maximum of 5g of salt a day (2g sodium)

Consideration of household expenditure on food and drink provides further information on dietary behaviour. Data from the LCFS (Living Costs and Food Survey) demonstrated that the average UK diet in 2012 compared poorly to the diet recommended in the eatwell plate (see Figure 3).²¹ Of particular note is the overconsumption of foods and drinks rich in fat, salt or added sugars, and low consumption of fruit, vegetables and fibre.²¹

Figure 3 – Comparison between UK household foods and drinks purchases with the eatwell plate, 2013^k



Source: Department for Environment, Food and Rural Affairs (2014) *Family food 2013*. London: Department for Environment, Food and Rural Affairs. Reproduced under the terms of the Open Government Licence.

Socioeconomic factors are known to influence dietary intake among children, young people and adults in the UK.⁶ While the diets are relatively similar, as **Figure 3** shows, the main difference between low income households (equivalised income decile one) and all households is slightly lower consumption of fruit and vegetables (19% compared to 24%), and slightly higher intakes of foods and drinks high in fat and/or added sugars (24% compared to 22%).²¹ Data from the NDNS also show that, with the exception of those aged 65 years and over, mean fruit and vegetable consumption was significantly lower in all age/sex groups in the lowest income quintile compared with the highest quintile.²

^k This figure compares the proportion of food groups recommended by the eatwell plate with the average UK diet for all households and low income households (based on food and drink purchases for household supplies grouped approximately into the five eatwell plate groups).

Compared to the general population (using NDNS data), the 2007 LIDNS (Low Income Diet and Nutrition Survey) reported a greater consumption of processed meats, pizza, whole milk, fat spreads and soft drinks by children and young people aged four to 18 years from low-income households in the UK.²² Men and women with a lower level of educational achievement also tended to have a less healthy dietary pattern than men and women with a higher level of education.²²

Similar themes emerge from analysis of purchasing patterns. A regression analysis of data for take-home food and beverage purchases from 25,674 British households in 2010 found that lower socioeconomic groups generally purchased a greater proportion of energy from less healthy categories (including sweet snacks and puddings, processed potatoes and low-fibre bread products) than those in higher socioeconomic groups (65% and 60% respectively).²³ Higher socioeconomic groups were found to purchase a greater proportion of energy from healthier categories (28% versus 24%), including low-fat milk and dairy, high fibre cereals, fresh fruit and vegetables.²³

These findings highlight the issue of food poverty – the inability of individuals and households to obtain a healthy diet. This typically affects a range of vulnerable groups including people living on low incomes or who are unemployed, households with dependent children, older people, and disabled people. Food poverty is linked to the following factors:

- affordability – price differentials between nutrient-dense and nutrient-poor foods
- accessibility – the absence of local shops or the difficulty in travelling to local shops because of poor public and private transport links
- availability – poor provision of nutritious and affordable options
- awareness – the lack of necessary knowledge and skills required to buy, store and cook nutritious foods, and a lack of understanding of and ability to interpret public health messages.

The concept of food security – developed by the World Health Organization – has a similar focus. This refers to having physical and economic access to sufficient, safe, nutritious food to maintain a healthy and active life.

The issue of food poverty/insecurity needs to be considered in the context of the social determinants of health.⁶ An individual or family's level of income can strongly influence the quality of diet in their household, with low income predisposing people to material and social deprivation. As the level of deprivation increases, the less likely individuals and families are able to afford the basic prerequisites of health, such as food and housing that has adequate facilities for cooking, preparation and storage (see **Section 4.7**). Education is also an important determinant. It is highly correlated with an individual's level of income and employment opportunities, and impacts on overall literacy and understanding of healthy behaviour. This latter aspect can mean individuals lack the knowledge about what constitutes a healthy diet, and do not have adequate skills for dietary planning, food purchases, storage, preparation and cooking.

Unemployment can lead to material and social deprivation by reducing income and removing the benefits associated with being employed. It also increases the likelihood of unhealthy coping behaviours, such as poor dietary patterns. Early childhood experiences can predispose children to poor health in later life, where, for example, poor quality maternal diets can lead to low birth weight (see **Section 4.1**). Children living under conditions of material and social deprivation are more likely to show adverse health and developmental outcomes.

Key messages

- The majority of children, young people and adults in the UK are not meeting dietary guidance. They are consuming too much saturated fat, added sugars and salt, and not enough fruit, vegetables, fibre and oily fish. Poor diets are most common in individuals from lower socioeconomic groups.
- Individuals experiencing food poverty/insecurity face significant challenges obtaining a healthy diet. This is strongly linked to the social determinants of health, including factors such as low income, social and material deprivation, poor educational opportunities, unemployment and adverse early childhood experiences.

2.2 Diet and health outcomes

An unhealthy dietary pattern is a major, preventable behavioural risk factor for a number of NCDs (non-communicable diseases), including cardiovascular disease, cancer and type II diabetes.^{24,25,26} It can lead to four key metabolic/physiological risk factors: hypertension (raised blood pressure); overweight and obesity; hyperglycaemia (high blood sugar); and hyperlipidaemia (excess lipids such as total and LDL (low density lipoprotein) cholesterol in the bloodstream).²⁷

2.2.1 Modifiable behavioural risk factors

Fruit and vegetable consumption

Low fruit and vegetable consumption is linked to poor health and an increased risk of NCDs. Various meta-analyses and systematic reviews indicate that adequate consumption of fruits and vegetables can help reduce the risk of CHD,^{28,29,30} stroke,^{30,31,32} and certain types of cancer.^{33,34} Limited evidence suggests that fruit and vegetable intake may help to prevent unhealthy weight gain when consumed as part of a diet low in fat, sugars and salt.^{34,35,36} There is very limited evidence that suggests possible links between fruit and vegetable consumption and osteoporosis,^{34,37} and type II diabetes, though the latter may be a result of potential effects on body weight.^{38,39,40}

Total energy intake

There is convincing evidence that energy balance is critical to maintaining healthy body weight and ensuring optimal nutrient intakes, regardless of macronutrient distribution between the proportions of total fat and total carbohydrate.⁴¹ The intake of high quantities of energy-dense foods and drinks is a key contributor to an energy imbalance, which promotes overweight and obesity.^{26,42}

Fat, saturated fats and trans fats intake

Total fat intake of more than 30-35 per cent of total energy intake significantly increases the risk of unhealthy weight gain (ie overweight and obesity).^{26, 41,43} There is strong evidence that consumption of trans fats increases the risk of cardiovascular disease,^{26,41,44,45,46,47,48} and some evidence that it increases the risk of metabolic syndrome¹ and diabetes.^{41,49} Studies have shown that regular consumption of long-chain omega 3 polyunsaturated fatty acids (n-3 fatty acids), derived from oily fish, is associated with a reduced risk of CHD and sudden cardiac death.^{41,50} Dietary guidance reflects a wide body of evidence that saturated fat increases the risk of CHD, and its replacement with polyunsaturated or monounsaturated fats has a cardio-protective effect.^{26,41,51,52,53,54,55,56} While this dietary guidance has been challenged by a 2014 systematic review and meta-analysis,⁵⁷ the findings of this analysis have been disputed as they do not consider which macronutrient replaces saturated fat.^{58,59,60,61,62,63} A possible positive relationship between saturated fat intake and increased risk of diabetes has been identified;⁴¹ although research from a 2014 case-cohort study suggests this may depend on the type of fatty acids considered.⁶⁴

¹ A medical term used to describe a cluster of metabolic abnormalities including hypertension, an inability to control blood sugar levels (dysglycaemia), raised blood triglycerides, low blood high density lipoprotein cholesterol, and an increased waist circumference (of 102cm or more in men and 89cm or more in women).

Sugar intake

The intake of added sugars has been found to be a determinant of body weight, and that this is associated with an alteration in energy balance rather than a physiological or metabolic consequence of sugars.^{65,66,67} The most consistent association has been between a high intake of sugar-sweetened beverages^m and an increased risk of type II diabetes, weight gain and a higher BMI (body mass index).^{n,65,66,67} There is limited evidence of the effect on cardiovascular disease risk factors independent of body weight.⁶⁸ Concerns have also been expressed about the impact of substituting artificial sweeteners^o (non-caloric sweeteners) for added sugars. Although some observational studies have suggested that their use may increase the risk of obesity and cardiometabolic diseases,^{69,70,71,72} this is not supported by evidence from randomised controlled trials and prospective cohort studies.^{73,74,75,76}

Several major reviews have highlighted how excessive sugar consumption is contributing to the rising levels of overweight and obesity and therefore significantly increasing cancer risk.^{33,77,78} Increased intake of sugars and sugars-containing foods and beverages is also associated with a greater risk of dental caries (tooth decay),^{66,67,79,80,81} which can lead to irreversible cavities, fillings or loss of teeth structure. A 2014 systematic review concluded that there is consistent evidence supporting a relationship between the amount of sugars consumed and dental caries development, with more caries associated with higher sugar intake (more than 10% energy).⁸²

Salt intake

There is consistent evidence that high dietary salt intake is one of the main risk factors for hypertension and overall cardiovascular risk.^{83,84,85,86,87,88,89} There is some evidence that high salt intake has harmful effects independent of its effect on blood pressure, including increased risk of stroke, left ventricular hypertrophy and renal disease,⁸⁸ but this needs further confirmation.

Red meat and processed meat consumption

The WCRF (World Cancer Research Fund) has noted that there is convincing evidence that high intake of red meats and processed meats can cause colorectum cancer, and limited evidence suggesting an increased risk of other cancers (such as oesophageal and lung cancer).³³ There is also limited evidence that consumption of processed meats is associated with higher risk of cardiovascular disease and type II diabetes.^{90,91}

In the spotlight: a Mediterranean diet

A Mediterranean diet varies by region but is typically based on vegetables, fruits, beans, whole grains, olive oil and fish. This type of diet has been associated with significant reductions in overall mortality, mortality from cardiovascular diseases and cancer; a lower incidence of cancer, Parkinson's disease and Alzheimer's disease; and a lower risk of depression.^{92,93,94,95,96,97,98,99}

2.2.2 Metabolic/physiological risk factors

Unhealthy dietary patterns can lead to a number of consequent metabolic/physiological changes that increase the risk of chronic conditions such as cardiovascular disease, cancer and type II diabetes.

- m For the purposes of this report, the term 'sugar-sweetened beverages' refers to all non-alcoholic water based beverages with added sugar, including sugar-sweetened soft drinks, energy drinks, fruit drink, sports drinks and fruit-juice concentrates. The term does not include milk-based products, 100 per cent fruit juice or non-sugar sweetened beverages (ie artificial, non-nutritive or intensely sweetened).
- n A measure for a human body shape based on an individual's mass and height. The calculation is: weight (in kilograms) divided by height (in metres) squared. A body mass index from 18.5-25 is considered a healthy weight. Someone with a body mass index of below 18.5 is considered underweight, and a body mass index of above 25 is considered overweight.
- o Chemical processed substances that are used to provide sweetness to foods and drinks in place of sugars without adding extra calories (including aspartame, sucralose, saccharin, stevia, acesulfame K and neotame).

Hypertension

Hypertension is known to be a major risk factor for ischaemic and haemorrhagic stroke, myocardial infarction, heart failure, chronic kidney disease, cognitive decline and premature death.¹⁰⁰ Around a quarter of the UK adult population (aged 16 and over) are affected by hypertension^p – 29 per cent in England,¹⁰¹ 27 per cent in Northern Ireland,¹⁰² 29 per cent in Scotland,¹⁰³ and 20 per cent in Wales.¹⁰⁴

Overweight and obesity

Overweight and obese individuals are at a greater risk of developing a number of diseases, including type II diabetes, hypertension, CHD and stroke, metabolic syndrome, liver and gallbladder disease, sleep apnoea, gallstones, reduced fertility, pregnancy complications (such as gestational diabetes or pre-eclampsia), osteoarthritis, and several types of cancer.¹⁰⁵ A dose-response relationship has been observed, where risk of disease is shown to increase steadily from a BMI of 25 upwards.¹⁰⁶ Approximately a quarter of the UK adult population (16 and over) are obese – 26 per cent of men and 24 per cent of women in England,¹⁰¹ 24 per cent of men and 21 per cent of women in Northern Ireland,¹⁰² 25 per cent of men and 29 per cent of women in Scotland,¹⁰³ and 22 per cent of men and 23 per cent of women in Wales.¹⁰⁴ The prevalence of obesity among children aged between two and 15 is 16 per cent for boys and 15 per cent for girls in England,¹⁰¹ 10 per cent for boys and girls in Northern Ireland,¹⁰⁷ 17 per cent for boys and 15 per cent for girls in Scotland,¹⁰³ and 20 per cent for boys and 19 per cent for girls in Wales.¹⁰⁸ Rates of overweight and obesity in children and young people in the UK are among the highest in Europe.¹⁰⁹ As highlighted in the 2014 board of science report, *Recognising the importance of physical health in mental health and intellectual disability*, people with an intellectual disability, and young people with mental health problems, are particularly at risk of overweight and obesity.¹¹⁰

Hyperlipidaemia

Excess total and LDL cholesterol in the bloodstream is known to significantly increase the risk of CHD, stroke and other vascular diseases.¹¹¹ While there are limited data for the UK, over half of the population is estimated to have raised total cholesterol (equivalent to 5 mmol (millimoles)/L or above) – 56 per cent of men and 57 per cent of woman in England,¹¹² and 52 per cent of men and 56 per cent of women in Scotland.¹¹³

Hyperglycaemia

High blood sugar usually only affects people with diabetes or the metabolic syndrome, which is itself a risk factor for a number of conditions, including cardiovascular disease and stroke, kidney failure, blindness, dementia, and premature death.^{114,115} Survey data suggest that over one in 20 adults in the UK have diagnosed diabetes¹¹⁶ – 6.2 per cent in England,¹⁰¹ 5.0 per cent in Northern Ireland,¹⁰² 5.6 per cent in Scotland,¹⁰³ and 7.0 per cent in Wales.¹⁰⁴ There is evidence that increasing numbers of young adults (under the age of 40) are being diagnosed with type II diabetes.¹¹⁷ The shift towards younger age groups is also being seen with an increasing prevalence of type II diabetes among children and young people.^{118,119,120,121,122} The rise in the levels of type II diabetes among younger age groups has been found to correspond to the rising levels of overweight and obesity.^{123,124,125}

2.2.3 Other aspects of diet and health*Malnutrition (undernutrition) and micronutrient deficiencies*

There are a range of adverse consequences associated with an insufficient intake of nutrients, ranging from a reduced ability to fight infection, to heart and kidney problems and poor mental health. Among children and adolescents, it can result in growth failure and stunting; delayed sexual development; reduced muscle mass and strength; impaired intellectual development; rickets; and increased lifetime risk of osteoporosis. According to BAPEN (the British Association for Parenteral and Enteral Nutrition), undernutrition affects over three million people in the UK, of which 1.3 million are over the age of 65 and 2.8 million live in the community.¹²⁶

p Defined as a systolic blood pressure at or above 140mmHg or diastolic blood pressure at or above 90mmHg or on medication prescribed for high blood pressure.

Low intakes of specific micronutrients can increase the risk of developing a number of disease conditions. While micronutrient deficiencies are a substantial global public health problem,¹²⁷ the focus in the UK is mostly on sub-optimal levels of vitamin D and iron. Prolonged low vitamin D levels – from inadequate sun exposure and dietary intake – is known to cause rickets in children and osteomalacia (bone weakness and fragility) in adults.¹²⁸ The SACN has also found evidence that low vitamin D status may also be associated with the development of other diseases (including osteoporosis, some types of cancer, tuberculosis, cardiovascular disease, multiple sclerosis, and type I diabetes).¹²⁸ A separate review by the SACN, has highlighted evidence that iron deficiency anaemia may affect children's cognitive, motor and behavioural development, although the level of risk and causality is unclear.¹²⁹

Diet and mental health conditions

A range of mental health disorders have been shown to have a possible link to overweight and obesity. Overweight and obese individuals may experience weight-related stigma and discrimination, social isolation and socioeconomic disadvantage.^{130,131,132,133,134,135,136,137}

A 2010 systematic review and meta-analysis found that a reciprocal link may exist between depression and obesity, where both conditions increase the risk of developing the other.¹³⁸ While confirmatory studies are required, attempts have also been made to identify specific dietary risk factors for depression, which include: fried foods, refined grains, sugary products, and beer;¹³⁹ and also high levels of processed food,^{139,140} and fast-food or baked goods.¹⁴¹

People with schizophrenia tend to have a poor diet often characterised by a high intake of saturated fat and a low consumption of fibre, fruit and vitamins,¹⁴² although this may in part be explained by the impact of pharmacological treatments. Diet has frequently been reported as having a direct effect on the behavioural symptoms of ADHD (attention deficit hyperactivity disorder) in children.^{143,144,145} A 2013 systematic review and meta-analysis found that dietary interventions can be a successful treatment for ADHD, with a specific focus on free fatty acid supplementation (using omega-3 and omega-6 supplements) and artificial food colouring exclusion.¹⁴⁶

Other effects

Dietary habits involving excessive intake of energy-dense foods and drinks with low nutrient-density can have the compounding effect of causing overweight and obesity (resulting from excess calorie intake) coupled with micronutrient deficiency (resulting from insufficient intake of vitamins and minerals). Individuals from lower socioeconomic groups and deprived communities are most at risk of being overweight/obese and suffering from micronutrient deficiencies.¹³⁷

A poor diet may have a negative impact on academic performance.^{147,148,149} Children who experience malnutrition and micronutrient deficiency have decreased attention in class, lower attendance levels and poorer academic performance.^{150,151,152} There is also a well-established link between educational performance and overweight or obese individuals (who may also be malnourished through lacking key micronutrients).^{153,154}

Key messages

- An unhealthy dietary pattern is strongly associated and causally linked with a number of chronic, complex conditions such as obesity, cardiovascular disease, cancer and type II diabetes. Modifiable risk factors include low consumption of fruit, vegetables and oily fish; high intake of energy-dense foods and drinks; and high intake of trans fats, saturated fats, added sugars, salt, red meats and processed meats.
- Unhealthy dietary behaviours can lead to a range of metabolic/physiological changes – including hypertension, overweight and obesity, hyperglycaemia and hyperlipidaemia – that increase the risk of chronic ill health.
- A poor diet is also associated with micronutrient deficiencies. Other effects include negative impacts on mental health, oral health and academic performance.

2.3 Diet-related morbidity, mortality and disability

Various data and estimates provide an indication of the burden of diet-related ill health. According to The Lancet Global Burden of Disease Study 2010, worldwide, poor diet contributes to more disease than physical inactivity, smoking and alcohol combined.¹ When taken together, the impact of the range of individual dietary risk factors^q was found to account for 16.3 million deaths (13% of global DALYs (disability adjusted life years)^r), compared to 6.3 million for smoking (6.3% of DALYs), 4.9 million for alcohol (5.5% of DALYs), and 3.2 million for inactivity (2.8% of DALYs).¹

A 2008 analysis by the UK Cabinet Office Strategy Unit estimated that diet-related disease leads to approximately 70,000 premature deaths in the UK annually.³ This represents about 12 per cent of the total number of deaths in the UK (based on data from 2013)^s. The same analysis estimated that a shift to the recommended diet could avoid a total of 663,000 QALYs (quality adjusted life years)^t.³ A 2005 analysis by Rayner et al estimated that approximately 10 per cent of DALYs are diet related in countries such as the UK. It is likely that the greatest burden is disproportionately felt by vulnerable groups, including the individuals previously noted who experience food poverty.¹⁵⁵ The economic cost of diet-related ill health in the UK is substantial (see **Figure 4**). This includes personal health costs, healthcare costs and the impact on employment. These data highlight that, as a modifiable risk factor, addressing poor diet could have a major impact on disease prevention and health promotion in the UK and globally.

Figure 4 – The economic and social costs of diet-related ill health

While there is no overall estimate of the economic and social cost of diet-related ill health in the UK, it has been suggested to cost the NHS around £4 to £6 billion each year.^{155,156} A 2011 analysis of the economic burden of a range of risk factors for chronic disease emphasised that poor diet is the largest economic burden to the healthcare service in the UK. It estimated that diet-related ill health cost the NHS £5.8 billion in 2006/07.⁴ This was compared to smoking and alcohol-related ill health that each cost £3.3 billion, and £0.9 billion on physical inactivity-related ill health.⁴

The overall economic and social cost of diet-related ill health is likely to be substantially higher when the impact of diet-related morbidity and mortality on individuals and families are accounted for, as well as the loss of productivity and profitability in the workplace. For example, it is clear from the data outlined in **Section 2.1** that a significant proportion of the UK working age population is likely to be affected by diet-related morbidity and premature mortality.¹⁵⁷

Key message

- Worldwide, poor diet contributes to more disease than physical inactivity, smoking and alcohol combined. The burden of diet-related ill health in the UK is substantial. It is estimated to lead to 70,000 premature deaths annually, and is associated with significant economic and social costs. Poor diet has the highest impact on the NHS budget, costing around £6 billion per year, greater than alcohol consumption, smoking and physical inactivity.

q Diets low in fruit; diets high in sodium; low in nuts and seeds; low in whole grains; low in vegetables; and low in omega 3.

r A measure of the impact of a disease or injury in terms of healthy years lost.

s In 2013, there were 506,790 deaths in England and Wales, 54,700 in Scotland, and 14,968 in Northern Ireland (a total for the UK of 576,458).

t A measure of the state of health of a person or group in which the benefits, in terms of length of life, are adjusted to reflect the quality of life.

3. Knowledge and attitudes towards diet

Before considering ways to promote healthier diets, it is necessary to examine knowledge and attitudes towards food, as well as how this links to dietary behaviour.

3.1 Children and young people

A range of data describe children and young people's attitudes to their diet. These broadly show that most children and young people are aware of the positive benefits of a healthy diet, and that some are trying to improve their diets, and to cut down on unhealthy food and drinks.¹⁵⁸

A comprehensive survey on this topic was commissioned by the FSA in 2007.¹⁵⁹ Children and young people aged seven to 16 in Great Britain were interviewed about their dietary choices, concerns about food, ideas about healthy eating, and parental influences. Almost all respondents (95%) agreed that healthy eating was important and would help them to grow and be healthier, while four in 10 said that fast-food and ready-meals were 'not that bad for them'.¹⁵⁹ The survey also found that:

- 69 per cent of respondents had some choice over the food they ate at home, while 16 per cent felt they chose all the food they ate at home
- there was concern about the amount of fat in food and some other nutritional aspects, including the amount of sugar and salt
- many children and young people had positive feelings towards cooking and mealtimes, with 71 per cent of respondents enjoying cooking
- 58 per cent of respondents said they were trying to cut down on at least one type of food containing sugar, and over a quarter were trying to cut down on salt
- the majority of children and young people were twice as likely (72%) to consume snacks less healthy than fruit and/or vegetables (33%) between meals. Since half of respondents (50%) who snacked between meals ate just one type of snack in the day, it was more likely that this one snack was not fruit and vegetables.¹⁵⁹

These findings were supported by the 2007 HSE (Health Survey for England), which found that more than four in five children and young people in England regarded their diet as healthy, with most children agreeing it was 'quite healthy'.¹⁶⁰ The survey also found that 63 per cent of boys and 73 per cent of girls aged 11-15 years accurately reported that five portions of fruit and vegetables should be consumed per day. Only 22 per cent of boys and 21 per cent of girls could identify a correct portion from a list of options.¹⁶⁰

The British Nutrition Foundation National Pupil Survey 2014 – of 27,504 children and young people aged between five and 16 in the UK – found that while most children knew how to eat healthily, there was limited knowledge about where food comes from.¹⁶¹ Seventeen per cent of the children aged between five and eight thought that fish fingers came from chicken, and 26 per cent of five to eight year olds thought that cheese came from plants. While limited information is available regarding children's knowledge about cooking and food skills, the National Pupil Survey 2014 broadly found that most children know about food safety issues (eg basic hygiene practices and foods that need to be cooked before being eaten).¹⁶¹

3.2 Adults

A 2012 *Food and You survey*, commissioned by the FSA, collected information on adult's attitudes, knowledge and behaviours towards food. The Northern Ireland and Scotland reports, which include more detailed analysis, found that:

- 87 per cent of respondents in Northern Ireland and 83 per cent in Scotland said that eating fruit and vegetables was very important for a healthy lifestyle
- 78 per cent of adults in Northern Ireland and 71 per cent in Scotland said limiting food and drinks high in sugar was very important for a healthy lifestyle
- approximately three in 10 respondents in Northern Ireland and Scotland correctly reported the recommended number of daily calories
- 86 per cent of respondents in Scotland and 90 per cent of respondents in Northern Ireland gave the correct answer of five portions of fruit and vegetables per day; with two per cent thinking it was higher than this and seven per cent stating that it was lower than five portions

- there was limited knowledge of adults' maximum daily salt intake, with nine per cent in Scotland and ten per cent in Northern Ireland stating the correct recommended maximum daily intake of salt for adults (6g)
- only one per cent of men and six per cent of women in Northern Ireland and Scotland stated the correct recommended maximum daily intake of total fats (95g for men and 70g for women).^{162,163,164}

The 2012 DEFRA (Department for Environment Food and Rural Affairs) *Food Statistics Pocketbook* found that 49 per cent of UK adults were concerned with the amount of salt in food.¹⁶⁵ Between November 2011 and May 2012, it was found that there was also an increased level of concern regarding:

- the amount of fat in food – up from 40 per cent to 45 per cent
- the amount of sugar in food – up from 38 per cent to 42 per cent
- food aimed at children – up from 23 per cent to 27 per cent.

The 2013 version of the Food Statistics Pocketbook found a slightly lower level of concern about these food issues compared to 2012, with the exception of increased concern about the amount of sugar.¹⁶⁶

The 2007 HSE (Health Survey for England) and the 2005 LIDNS found that the key barriers to a healthier diet were difficulty in changing current habits, a lack of time, and the cost of healthy foods.^{160,167} It is also important to consider specific vulnerable groups. Although there is limited research in this area, individuals with an intellectual disability, for example, typically lack an understanding of the concept of a healthy diet, which can lead to poor dietary choices.^{168,169}

3.3 Linking knowledge and attitudes with dietary behaviour

The data discussed in this section highlight that the majority of children and adults have an understanding of what constitutes a healthy diet, are aware of its benefits, and would like to improve their dietary habits. This needs to be contrasted with the data presented in **Section 2.1** that broadly show that most adults and children in the UK do not eat a healthy diet. This reflects the fact that an individual's knowledge, attitudes and positive intentions are not the sole determinant of healthy dietary behaviour, but the product of a multitude of interrelated factors. As highlighted by the 2011 House of Lords Science and Technology Select Committee report on behaviour change, the influencing factors can be broadly characterised as comprising: genetics, individual thoughts and feelings, the physical environment, social interaction (with other individuals), social identity (interaction within and between groups), and the macro-social environment.¹⁷⁰ The extent to which these factors influence dietary behaviour are considered in the following section.

Key message

- Many children and adults in the UK are aware of the importance of consuming a healthy diet, and are concerned about the amount of unhealthy content in food and drink products. This contrasts starkly with the data showing that the majority of children and adults are not meeting dietary guidance, and demonstrates the need to consider the range of factors beyond an individual's knowledge and attitudes that impact on their dietary behaviour.

4. Influences on children and young people's diet

Children and young people's attitudes and behaviours towards their diet are influenced by their sense of what is normal. This in turn is affected by the behaviour of those around them, and the messages and values attached to different behaviours. Before considering any policy measures, it is important to examine the direct and indirect influences that affect children and young people's diets.

4.1 The developmental environment before birth and in infancy

The board of science has previously highlighted how cues from the developmental environment during fetal and infant life – based on nutrition during these periods – can impact on how an individual responds to the challenges they encounter in their environment later in life.¹⁷¹ This is in part based on epigenetic processes^u, which can affect body composition of the offspring (in terms of numbers of fat cells), as well as psychobiological and physiological systems controlling appetite, dietary preference, metabolism, fat deposition, and insulin secretion and sensitivity.^{171,172} This reflects how humans, during development, attempt to match the structure and functions of their organs and tissues to the world in which they expect to live. The prediction is based on cues from the mother's environment via the placenta and her milk,¹⁷¹ which through flavour exposure, can influence the development of preferences.^{173,174}

This 'priming' can influence a child's responses to future lifestyle challenges – poor quality maternal diets, for example, can lead to low birth weight,¹⁷¹ which is associated with an increased risk of many of the chronic conditions outlined in **Section 2.2**. This has important policy implications – as highlighted in the 2009 board of science report *Early life nutrition and lifelong health*, improving the nutrition of young women of childbearing age will have a positive influence on the way in which mothers feed their children, as well as their own diets.¹⁷¹ There is also emerging evidence from animal studies about the role of microorganisms in the gastrointestinal tract in the development of overweight and obesity.^{175,176,177,178,179} Further research is needed to determine whether the gut microbiota is playing an active causative role, or whether the obesity-associated profile of microbiota reflects an obese state or the underlying diet.¹⁸⁰

Key message

- Nutrition during fetal and infant development is of critical importance for how a child responds to future lifestyle challenges, and in turn significantly impacts on their future health and wellbeing.

4.2 Interactions with others

Social interactions are an important factor in the development of dietary preferences in children and young people. Observational learning and modelling play a significant role as children and young people look to peers, parents, carers and role models for cues as to what is appropriate. These indirect and direct influences are key determinants and need to be considered in any policy measures aimed at promoting healthy diets.

Shared environmental influences have been found to be the predominant drivers of dietary intake in very young children, which highlights the importance of factors such as the home food environment and parental behaviours.¹⁸¹ As children grow older, their reluctance to try new foods (neophobia) can impact on the development of preferences.¹⁸² Children are more likely to overcome neophobia if they are repeatedly exposed to foods they initially express a dislike to or are unfamiliar with.¹⁸³ Parents are typically responsible for making food available, and can have a strong influence on the development of their dietary habits during this developmental stage.¹⁸²

^u Processes that alter the ways in which genes are switched on and off.

Parents influence the food and drink that is available in the home environment. They are usually responsible for purchasing food and cooking for their children, and tend to have food and drink items available in the home that they like to consume. An important consideration related to this is the parent's knowledge and skill base. There is an increased likelihood of poor dietary patterns among children when their parents lack an understanding of what a healthy diet is, or do not have adequate skills for dietary planning, food purchases, storage, preparation and cooking. This is in turn related to wider levels of overall literacy and education attainment.

Children can also influence parent's purchasing decisions, commonly referred to as 'pester-power'. This can be defined as '[t]he actions of children, such as multiple requests and complaining, to persuade parents to purchase goods that parents might not otherwise intend to purchase.'¹⁸⁴ Focus group research from Australia from 2004 showed that children can influence household food decisions in a significant manner. The authors suggested that 'child-centred' approaches to parenting (ie where children's dietary choices are driven by their wants and desires rather than forced upon them), alongside the influence of mass media advertising, has gained children more decision making power in the household.¹⁸⁵

Parents can also indirectly affect their children's dietary preferences by example. Children tend to model their parent's intake and beliefs about food, and an unhealthy dietary pattern among parents is associated with a similar diet in their children.^{183,186} The attitudes of carers can also play a role, and in some cases, such as carers for people with intellectual disabilities, this can be significant.

There is a strong relationship between children and young people's attitudes to food and parent's social class, marital status, level of education, and employment status.⁶ The 2007 FSA survey found that children and young people from lower-income households were 30 per cent more likely to choose all of their food than those from wealthier households (18%). Those from single parent families were also more likely to choose their food at home than children and young people with married, widowed, separated or divorced parents. Children and young people from higher income families were more likely to agree that their parents made them eat healthy food, and were more likely to sit at the table with parents during mealtimes.¹⁵⁹ Children and young people's nutritional knowledge increases significantly with the educational level of the mother and father.¹⁸⁷ Parents with limited nutritional knowledge may not be aware of how to create healthy meals and the benefits of repeated exposure to new foods, which can impact on children and young people's preferences towards unhealthy foods in later life.¹⁸⁸

As children grow older they are also likely to be influenced by what their peers eat. According to the 2007 FSA survey, 31 per cent of respondents said that they received information about healthy diets from friends and family. Children and young people's preferences for, and intake of, certain foods can increase as a result of peer influence; for example, children and young people are more likely to choose to eat vegetables if their peers are also eating vegetables.¹⁸⁹

Key message

- Parents and carers can directly and indirectly influence their children's dietary preferences, as they will typically have a strong influence over the components of their diet, and young children model their parent's intake. This highlights the need to consider parents and carers in policies aimed at promoting healthier diets. As the child grows older they are also likely to be influenced by what their peers eat.

4.3 Education and health promotion

There are a range of diet-related education and health promotion interventions that aim to influence children and young people's dietary behaviour. These interventions can be delivered at an individual, community or population level.

4.3.1 Public health communications and educational programmes

Children and young people's knowledge and understanding about their diet can be influenced by population and community-level health education programmes, such as mass-media campaigns and information provided in schools.

Mass media communications can be effective in raising awareness and changing attitudes on a population level, but exposure to these campaigns is generally passive and does not always lead to changes in behaviour when used in isolation. Their impact tends to be limited, largely short-term, and not effective in sustaining behaviour change.^{190,191,192,193,194} As health promotion mass media campaigns are aimed at the population as a whole, there is a risk that they will not always lead to universal improvements in the population's health (eg they may not provide appropriate messaging for vulnerable groups such as children and young people with intellectual disabilities).¹⁹⁵ The likelihood of success of health promotion campaigns is increased by the application of multiple behaviour change interventions (ie reducing the effects of all types of unhealthy influences), as is the case with smoking, where educational initiatives are supported by a strong regulatory framework.¹⁹⁶

It is also important to recognise that children and young people are more likely to be influenced by commercial food and drink marketing than public health campaigns. This suggests that the development of public health campaigns should learn from the successful techniques used in commercial marketing. As Hastings highlights in the 2013 book, *The Marketing Matrix*, the discipline of social marketing is critical, as it '...takes the principles and practice that have been honed by commercial marketers to craft our consumption behaviour and applies them to our social and health behaviour.'¹⁹⁷ This is discussed further in **Section 5.2.1**.

Schools can influence children and young people's diets through the provision of school-based education programmes,¹⁹⁸ and because children and young people consume 25-33 per cent of their daily energy from food eaten at school.¹⁹⁹ As highlighted by the WHO 'Healthy settings' initiative,²⁰⁰ this reflects how schools are a closed setting, where it is possible to actively use and shape a child's environment to promote health in a way that goes beyond simply imparting knowledge.

Multi-level interventions – such as a mix of school policies, guidelines, social marketing campaigns and individual level behaviour change strategies – have been shown to influence children's dietary habits more than standalone interventions.²⁰¹ The use of a 'whole-school' approach has received considerable attention. This has a focus beyond simply teaching about nutrition as a part of curricula, and recognises the significance of the school environment (including culture, policies and standards of behaviour, attitudes of staff etc), as well as links with parents/families and the community. This approach has been found to be effective at promoting healthier diets.^{202,203} A 2012 systematic review that evaluated the implementation and effectiveness of the whole-school approach found that it can:

- increase participants' consumption of high-fibre foods, healthier snacks, water, milk, fruit and vegetables
- reduce participants' 'breakfast skipping', as well as reduce intakes of low-nutrient dense foods, fatty and cream foods, sweet drinks consumption and eating disorders
- help to develop hygienic habits and improved food safety behaviours.²⁰⁴

The review highlighted the importance of using long-term interventions as a part of the whole-school approach, reflecting that the formation of healthy dietary habits is a lengthy process.²⁰⁴

4.3.2 Advice from healthcare professionals

Healthcare professionals can have a direct role in advising parents and their children on establishing healthy dietary habits. The 2013 AoMRC (Academy of Medical Royal Colleges) *Measuring up* report notes that doctors continue to be a trusted and respected source of advice and can potentially have great influence over an individual's lifestyle choices.²⁰⁵

There is, however, limited and inconsistent evidence on the effectiveness of advice from healthcare professionals in relation to establishing healthy dietary habits. While this sort of advice may increase awareness and knowledge, it is likely that its impact on behaviour is dependent on an individual's circumstances. Patients are more likely to benefit from

health promotion advice if they already recognise the need and intend to change their behaviour.^{206,207,208} Advice from healthcare professionals, therefore, may have more impact for individuals who are at risk of, or suffer from, chronic diseases. Nevertheless, healthcare professionals can still play a role in promoting healthy diets among children, which is discussed further in **Section 5.2.1**.

Key messages

- Mass media and school-based educational programmes can help in raising awareness and changing attitudes about healthy diets, but do not lead to changes in behaviour when used in isolation.
- The use of a whole-school approach – where curricula-based learning is supported by the wider school environment and engagement with parents/families and the community – is an effective approach for promoting healthy dietary behaviours in schools.
- Advice from healthcare professionals may help some patients change their dietary behaviour, but typically is only effective when they already recognise the need to change.

4.4 Consumer marketing

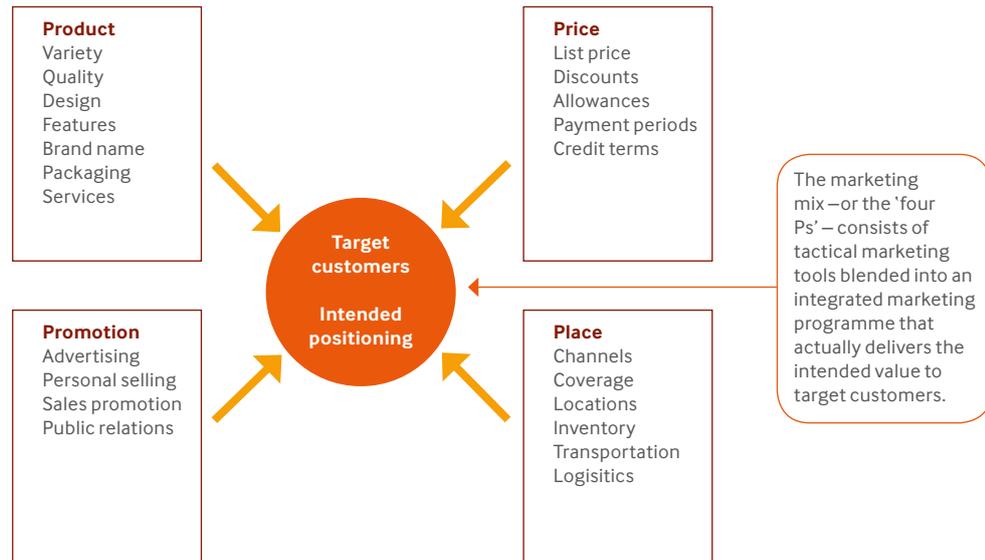
Children and young people are exposed to a range of food and drink marketing, including mass media advertising, sponsorship, online and digital media, packaging, sales promotions, in-store marketing, and experience marketing. These are commonly referred to under the guise of the 'four Ps'^v of marketing:

- product – the combination of goods and services a company offers to the target market
- price – the amount of money customers must pay to obtain a product
- place – company activities that make a product available to target consumers
- promotion – the activities that communicate the merits of a product and persuade target consumers to buy it.^{209,210}

As shown in **Figure 5**, these different forms of marketing are not intended to act as independent levers, but work in combination in an 'integrated marketing mix' that forms a company's marketing strategy and the product's brand. As Kotler et al highlight, the integrated marketing mix '...consists of everything the firm can do to influence demand for its product.'²¹⁰ Of particular importance is how the different elements need to be coherent and self-reinforcing to maximise effect.¹⁹⁷ Marketing is built into every stage of the process, from the development of the product and activities used to promote it, to the price of the product and where it is sold.

v The concept of the 'four Ps' of marketing has been used as the principal foundation on which a marketing plan is based. Additional variables have been added to the 'four Ps' over the years. The 2002 World Health Organization publication, *Globalization, diets and noncommunicable diseases*, classified marketing activities into 'five Ps', which included 'public relations' as an additional form of marketing. In the 'four Ps' model, public relations is considered part of 'promotion'. Some marketers refer to the 'seven Ps' in order to address the different nature of service provision. This includes process (the process of providing a service) and physical evidence (elements within the store, ie the store front, the uniforms employees wear, signboards etc). The 'four Ps' is still commonly used when referring to food and drink products.

Figure 5 – The integrated marketing mix



Source: Kotler, Philip; Armstrong, Gary, *Principles of marketing, 15th Ed.*, ©2014, p. 54. Reprinted by permission of Pearson Education, Inc., New York, New York.

4.4.1 Product

Developing and managing a product is the first and most basic marketing consideration. Food and drink items are typically considered convenience products (ie a product that customers usually buy frequently, immediately and with minimal comparison and buying effort). Marketers therefore aim to make them readily available, and they are usually low-priced.²¹⁰ In developing products, basic decisions are made around quality, features, style and design, with the aim of adding customer value.

4.4.1.1 Packaging and labelling

In marketing terms, the design and production of a food and drink product's container or wrapper goes beyond holding and protecting the product. Innovative packaging and specific features can give companies a competitive advantage (eg the 'fridge-door-fit' shape or child-friendly opening).²¹⁰ Packaging is also an important promotional tool for attracting attention and building brand recognition (see **Section 4.4.4**). Product labels and brand logos also provide several functions – helping customers to identify products and brands, describing a product (including legal requirements describing ingredients and safety warnings), and helping to promote a brand's positioning.²¹⁰

4.4.1.2 Product development

Offering modified or new products is an important component of a company's marketing strategy. The rate of product development has meant there is a wide range of food and drink products available in the UK, with associated marketing and promotional activities (see **Section 4.4.4**). Many of these products have unhealthy content as a result of food processing, and typically dominate shelf space in the retail environment. This has had a detrimental impact on intakes of salt and added sugar – the largest contributors to salt intake include various processed meat products, while soft drinks and confectionary are significant contributors to added sugar intake.²¹¹ Some product development has provided positive benefits, such as the emergence of vegetable oil-based spreads that have lower saturated fat levels compared to butter spreads.

4.4.1.3 Branding

Beyond developing a product and defining its attributes, marketers aim to build and manage a brand,^w which can add value to a product.²¹⁰ As Boyland et al note, branding is critical to product choice, particularly for children and young people.²¹² Food and drink products are known to be some of the most highly branded items,²¹³ thereby lending themselves to major advertising campaigns, and the majority of child-orientated food adverts take a branding approach.²¹⁴

Children and young people are critical targets for marketers in developing brands. This reflects their level of independent spending power – with food and drink purchases being products over which they have particular influence²¹⁵ – as well as the fact that they have a key influence on family purchasing.^{212,216} This means that different marketing strategies aim to cater for children and young people, and their parents and carers. Marketers will also aim to cultivate brand loyalty among children and young people as they represent long-term ‘market potential’.²¹⁷

Brand loyalty can be established at a very early age, including making requests for specific named branded goods from before being able to read.²¹⁷ This early exposure is likely to be important for the creation of emotional attachments to the brand,²¹⁸ and is thought to more strongly imbed brand relationships compared to exposure at an older age.²¹⁹ The impact of such branding has also been found to be strong – children have been found to prefer the taste of food and drink items in branded packaging compared to identical products in matched, but unbranded, packaging;²²⁰ and overweight children have been shown to have greater responsiveness to food branding.²²¹

Companies aim to build strong brands in various ways. Firstly, they position their brand with their target customers. This can range from positioning a brand on product attributes and benefits, to portraying beliefs and values about a brand. There are also different options for how a product is brought to the market:

1. Manufacturers can sell their products under their own brand, or may sell to a retailer or wholesaler to create a store brand. As retailers have the advantage of controlling what products are stocked, shelf space and what prices they charge, manufacturer brands typically have to compete through strong promotional activity to maintain high awareness and preference.²¹⁰
2. Manufacturers may market licensed brands, using names or symbols previously created by other manufacturers; names of well-known celebrities (eg television sports presenter Gary Lineker and “Walkers®” crisps or Pelé as global ambassador for “Subway®”); or characters from popular movies (see **Figure 6**) and television programmes.
3. Two companies can co-brand the same product (eg “KFC® Malteser™ Krushems™”), which has the advantage of creating broader consumer appeal. The individual companies are also able to increase awareness of their existing brand in a new market.

Figure 6 – Examples of the use of licensed movie characters



w Kotler et al define a brand as ‘...a name, term, sign, symbol or design, or a combination of these, that identifies the maker or seller of a product or a service.’²¹⁰

Finally, companies look to develop their brands by extending existing brand names to new forms, colours, sizes, ingredients or flavours of an existing product (eg “KitKat® 2 Finger”, “KitKat® 4 Finger” and “KitKat® Chunky”); extending a current brand name to a new or modified products in a new category (eg “Kellogg’s Rice Krispies®” cereal and “Kellogg’s Rice Krispies Squares®”); and marketing many different brands in a given product category (eg the Unilever Group makes and sells products under a wide range of ice cream brands, including “Viennetta®”, “Wall’s®”, “Cornetto®”, “Ben & Jerry’s®”, “Magnum®”, “Solero®” and “Carte D’Or®”).

4.4.2 Pricing

Pricing is the second important tool in the integrated marketing mix. In establishing a pricing strategy, companies need to consider several factors: their business objectives (ie to maximise profits, sales targets etc); the need to meet the cost of production (from research and development to promoting the product); the pricing of competing products/brands; and customer expectations. The latter point is related to a consumer’s perception of value. Examples of the use of pricing as a marketing tool include the way many UK supermarkets have developed premium and budget food ranges, and how companies combine several products in a bundle that is offered at a reduced price (eg fast-food restaurants selling a burger, fries and a soft drink at a combined price). Price is also often used in the form of sales promotions (see **Section 4.4.4**).

A particular consideration for pricing is the significance of ‘value-added processing’. This relates to the steps in the production process that add value for the customer and result in a higher net worth for the product. Commodities (such as potatoes) are undifferentiated from each other and are relatively cheap to buy. When foods undergo processing (eg from potatoes to crisps) – and are marketed in a way that offer consumers greater benefits (such as greater convenience, taste, attractive packaging etc) – the value of the product is increased. It is advantageous, therefore, for companies to market processed goods over commodities.²²² As Stuckler et al note ‘[u]nhealthy commodities are highly profitable because of their low production cost, long shelf-life, and high retail value. These market characteristics create perverse incentives for industries to market and sell more of these commodities.’²²³ The important link to make here is that it is processed products that typically have the unhealthiest content, that are commonly marketed most aggressively. The value added can increase further when the sale of the goods are developed into a service (ie selling crisps at a sporting or entertainment event). The highest added value is achieved when it is developed into an experience (eg themed restaurants, factory tours and flagship stores) (see **Section 4.4.3.1**).²²²

4.4.3 Place

Where food and drink products are sold, and the specific features of the retail environment, are the third component of the integrated marketing mix. Many companies have sophisticated distribution networks that aim to make their food and drink products very widely available with a view to maximising sales. This is illustrated by global distribution network operated by “Coca-Cola®”:

‘While many view our Company as simply “Coca-Cola,” our system operates through multiple local channels. Our Company manufactures and sells concentrates, beverage bases and syrups to bottling operations, owns the brands and is responsible for consumer brand marketing initiatives. Our bottling partners manufacture, package, merchandise and distribute the final branded beverages to our customers and vending partners, who then sell our products to consumers.

All bottling partners work closely with customers – grocery stores, restaurants, street vendors, convenience stores, movie theaters and amusement parks, among many others – to execute localized strategies developed in partnership with our Company. Customers then sell our products to consumers at a rate of more than 1.9 billion servings a day.’²²⁴

Food and drink companies may take different organisational approaches to selling their products, including chain stores (eg “Greggs®”, “Harvester®”, “Millie’s Cookies®”, “Wimpy®”) and franchises. The latter is particularly common for fast-food restaurants (eg “McDonalds®”, “Subway®”, “Papa Johns®”, “The Perfect Pizza Company®”).

4.4.3.1 In-store marketing

Beyond decisions about where and how products are sold, the in-store environment is an important marketing tool. This reflects the fact that the majority of brand choice decisions are made in-store, yet consumers only evaluate a fraction of the products available.^{225,226}

The widely used promotional strategy of 'impulse marketing' – through the placement of food and drink products within retail environments – can attract people to buy certain products,^{225,227} and it is estimated that 70-83 per cent of confectionary sales are impulse driven.²²⁸ Often unhealthy products are positioned within easy reach for children and their parents to make impulse purchases.^{227,229} In-store marketing is not a new phenomenon. Marketing research from 1974 found that sales of fruit and vegetables increased by approximately 40 per cent when their shelf-space was doubled.²³⁰ An experimental study from 1982 found that products with prominent shelf space, as well as end-of-aisle or within-aisle displays, had an impact on unit sales.²³¹ A 2009 modelling study suggested that product displays can increase impulse purchases by 40 per cent from the baseline level.²²⁵ The importance of shelf-space and the prominence of items in influencing consumer behaviour are well documented, yet there is limited public health research on this topic. A 2014 observational study looking at the effect of in-store placement on sales of different types of drinks found that end-of-aisle displays had a large impact on sales volumes.²³²

As noted in **Section 4.4.2**, value is added to a product by developing it into an experience.²²² There has been a proliferation in the use of 'experience marketing' that aims to directly engage consumers and encourage them to develop a relationship with the brand. These include dedicated shops and retail areas where consumers are immersed in an environment focused on promoting a particular brand or product (see **Figure 7**), as well as personalised products. While evidence is limited in this area, well executed strategies are likely to result in a positive change in consumer behaviour and attitudes towards a particular product. These experiences are also likely to be more emotionally impactful than other forms of communication because there are two way interactions, and the experience can also be shared with friends/family.

Figure 7 – Examples of experience marketing



4.4.4 Promotion – marketing communications

The final component of a company's marketing strategy is promotion, with the aim of communicating the value of their food and drink products to consumers. This typically involves a range of promotion tools – also known as the marketing communications mix – such as advertising, sponsorship, sales promotions and online marketing. These activities are coordinated to provide a clear and consistent message.

It is worth noting that the way these marketing communications influence consumer choice and behaviour is complex, and does not necessarily act at a cognitive level (ie where a consumer sees an advertisement and actively takes the message in). Advertising, for example, can act subliminally to prime product choice under certain conditions, such as goal-relatedness, physical need satisfaction, or implicit motivation.^{233,234} This means that education about how marketing works, or efforts to improve media literacy, will not affect the unconscious way in which advertising can influence their choices. Children may also not understand the difference between education/information on television and in advertisements – qualitative studies have found that children have difficulty appreciating the aims of television advertising before about seven or eight years of age,²³⁵ and struggle even more with advertisements online.²³⁶

4.4.4.1 Mass media advertising

Mass media advertising through popular media – such as films, television, radio, magazines and other press – is known to impact on young people’s dietary preferences.^{212,237,238} It is worth noting that these different forms of mass media advertising have a cumulative effect, working in combination to promote the product. This has important policy implications in the sense that comprehensive controls are required on all forms of mass media advertising, rather than focusing on specific types of advertising.

When asked what influences dietary choices, just over half of respondents to a 2007 FSA survey agreed that television and/or magazine advertisements made them want to eat certain foods, and that the mass media was a common source of information.¹⁵⁹ A 2003 systematic review of the effects of food promotion to children and young people found that:

- food promotion had little influence on children and young people’s general perception of what a healthy diet was, but did influence specific areas of nutritional knowledge (eg the ability to determine real fruit content after seeing soft drink and cereal advertisements)
- children and young people’s preferences and their purchasing behaviour was influenced by food promotion (eg exposure to advertising influenced the foods children and young people claimed to like, what was purchased from vending machines, and what children ate for a play-time snack)
- there was little research that showed a direct link between food promotion and diet or obesity directly due to the complexity of the research required. Research suggested a strong link based on proxies, such as using the amount of television viewing as a proxy for advertising exposure, which showed a clear association between television viewing and diet, obesity, and cholesterol levels.²³⁷

The authors concluded that:

- children and young people enjoyed and engaged with food promotion
- food promotion was having an effect, particularly on children and young people’s preferences, purchase behaviour and consumption
- the advertised diet is less healthy than the recommended one
- this effect was independent of other factors and operated at a brand and category^x level.²³⁷

The same authors did a systematic review for the WHO in 2006.²³⁸ This found that children and young people in the developed and developing world had extensive recall of food and drink advertising, and that food and drink advertisements were among their favourite types of advertising; the most popular being for chocolate, sweets, soft drinks and other snacks. The review also highlighted that children and young people were interested in trying advertised food and drink products, and often asked their parents to buy them. It was noted that parents often respond to these requests, especially if from disadvantaged backgrounds.²³⁸ The authors concluded that television is the most important medium for promoting food and drink products to children and young people, although it is noticeable that television advertising has been the subject of the majority of research in this area.

An extensive independent survey of existing research commissioned by OfCom also found that:

- television viewing plays a role in contributing to the problem of children and young people’s unhealthy diet
- television advertising has a modest direct effect on children’s (age 2-11) dietary preferences as those exposed to particular messages are influenced in their preferences when compared with those who did not see those messages
- although experiments identify causal relations between advertising and choice, it remains unclear how these operate alongside the complex conditions of daily life at home and school
- a growing body of well-conducted national and international surveys show a modest but consistent association between overall television exposure and weight/obesity for children and young people.²³⁹

x Operating at a brand and category level means that not only do advertisements for a product increase the chance of buying that brand but also of all products like it (eg advertisements for a particular brand of chocolate increase the chance of buying that brand and increase the chance of purchasing any kind of chocolate).

Various experimental studies have explicitly examined the impact of advertising on children's dietary preferences and intake, and shown that:

- exposure to television food advertisements can produce an obesogenic food preference response in normal weight children that is typically found in overweight and obese children²⁴⁰
- children who regularly watch television are more susceptible to the effects of food television advertising compared to those who watch less television, and show an increased preference (particularly for branded foods) following exposure²⁴¹
- exposure to food advertising increases food and calorie intake all children,^{242,243} and that the increase was largest in obese children,²⁴³ suggesting the latter group is more responsive to this type of food marketing.

Other reviews have found that the advertising to children relies on themes of fun, happiness, taste and flavour, and are designed to attract attention through music, sound effects, humour and repetition.^{244,245}

Although television has traditionally been the primary medium for marketing to children and young people, many other types of mass media channels are used, such as advertisements on radio, in magazines, the Internet and via billboards and other outdoor signage.^{216,246}

Online marketing and digital media

Digital media are also becoming increasingly important for advertising, with manufacturers using a variety of promotional activities via the Internet and social media to encourage demand for their product. This can be seen with the proliferation in the use of 'advergaming' (ie advertising through online games), which is used to promote brand loyalty among children.^{247,248,249,250,251} These immerse the child in the brand, reward interaction through enjoyment and achievement, and through competition and social media, work to engage and recruit peers. The popularity of social media websites, such as "Facebook®" and "Twitter®", is also an important consideration, including in relation to user-generated content. These new forms of communication can extend across national borders and reach out to large numbers of young people at any given time.

Many companies also reach young consumers, often without their parent's knowledge, via their mobile phones and tablets – through text messages, e-mails and mobile apps.²⁵² For example, researchers from Yale University found 34 apps from soda and energy drink brands in 2010 available for US-based "iPhone®" users.²⁵² These sorts of apps are popular among young people, with a separate Yale University study finding that 41 per cent of individuals who downloaded "Red Bull Racing Challenge" app were 12-17 years old.²⁵³

4.4.4.2 Beyond mass media advertising – other marketing communications

Beyond mass media advertising, a range of other communication tactics can influence children and young people's dietary preferences.^{246,254} A 2009 systematic summary of the international evidence on the nature of food marketing found that marketers use a variety of creative strategies – such as attractive packaging, free gifts, linkage with fictional characters (eg popular film and television characters) and sponsorship – that can attract children and young people's attention and stimulate their demand for the product.²⁵⁴ When used in combination, these different forms of marketing have a direct effect on children and young people's knowledge, preferences, purchase behaviour, consumption patterns, and diet-related health.²⁵⁴ Companies also market their products in schools through the provision of branded goods, equipment or the promotion of samples and educational materials.^{255,256,257}

Packaging

One area that has been studied in detail is the packaging of products. Packaging is becoming an increasingly important marketing tool due to its influence at the point-of-sale (where consumers are making purchasing decisions). Packaging influences what children, young people and parents think about products. The size, shape, colour and design can be used to attract attention, build brand recognition, and create an emotional bond with customers.^{258,259,260} Parents are also more likely to buy products for their children if their packaging is reusable and easy to open and close, as a way of saving time, or for greater convenience.^{258,260} In many cases, the re-use of brand packaging or containers is likely to extend the level of exposure to this form of promotion.

A common marketing strategy aimed at children is to make food and drink products appear more enjoyable, fun and exciting.²⁶¹ **Figure 8** provides examples of packaging likely to appeal to children. Themes of fun and fantasy or taste, rather than health and nutrition, are used to promote products to children.²³⁷ A 2008 Canadian study examined the phenomenon of 'fun food' packaging and fun food messages. Through a content analysis process, fun foods were categorised by the study as having at least two of the following indicators on their packaging:

- direct claims linking fun and play on the package
- the use of cartoons and lettering directed towards children
- tie-ins with children's television programmes or other marketing strategies
- competitions, quizzes, games etc
- unconventional product names, flavours, strange shapes and unusual colours. These were set against what the expected packaging should look like and whether the product flavour was discernible as an actual flavour.²⁶²

The study stated that fun foods were frequently marketed to children, and the majority of these foods (89%) were classified as being of poor nutritional quality due to high levels of fat, salt and sugar. The research concluded that the promotion of fun foods detracts children's attention away from understanding that food is a source of nutrition.²⁶² A further study using small focus groups has even found that children '...could tell if a product was healthy simply by seeing whether the package looked serious or not...', and that '[f]un packages, regardless of the presence of nutrition claims, are not evaluated under the lens of health.'²⁶³ As noted in **Section 4.2**, children can influence parents' purchases through pester power, which is more likely when the product is packaged in a way that appeals to them.

Figure 8 – Examples of packaging likely to appeal to children



Celebrity endorsements

As well as promotional offers, marketers use celebrity endorsements to promote their products (see **Figure 9**). Experimental research shows a positive relationship between the credibility of the celebrity endorser and the credibility of the brand.²⁶⁴ Celebrity endorsements are effective at increasing children's preferences for the product being promoted,^{265,266} and are thought to enhance the products worth and increase sales.²⁴⁵ Boyland et al show that the use of celebrity endorsers in television food and drink advertising extends beyond his or her role in the specific endorsed commercial, to prompting increased consumption of the endorsed brand even when the endorser has been viewed in a non-food context.²⁴⁵

Figure 9 – Examples of promotions using celebrity endorsement



“Walkers®” radio advert

Aired on Capital FM in January 2014

“Crazy scenes at the great Walkers® sale. The queue is... well it's... it's just Gary Lineker.

Gary, why are you camping at the supermarket?

Gary Lineker: Because you can get bags of Walkers crisps for 10p if you buy a 20 pack.

Gary, you're blue! How long have you been out here?

Gary Lineker: 12 days!

So when does the sale start?

Gary Lineker: Now! Out the way!

The great Walkers® sale is on – with Walkers® crisps for 10p. That's bags of value.”

Sponsorship

A number of food and drink companies sponsor large-scale events, such as music festivals and sporting competitions, or are sponsors for sports teams. There is some evidence, based on qualitative research, suggesting that brand sponsorship can have an impact on brand recall, awareness and attitudes towards the brand.²⁶⁷ The WHO notes that sponsorship of global events featuring internationally-recognised celebrities and sports stars (eg the “Olympic Games®”/ “Paralympic Games®”/Special Olympics, the “Commonwealth Games®” and the “FIFA World Cup®”) cuts across national boundaries, and can effectively reinforce consumer ties with the brand.²³⁸ Sponsorship of these sorts of high profile events clearly provides significant advertising exposure for children and young people. It also helps develop the image of the brand as socially responsible – as a 2012 BMJ article notes ‘[b]y associating their brand images with sporting events such as the Olympics, companies such as Coca-Cola and McDonald's can portray themselves as part of the solution, not the problem.’²⁶⁸ This approach to social responsibility is discussed further in **Section 4.5**.

Sales promotions

There are a number of sales promotion strategies used to encourage consumers to purchase products – these include quantity increases, discount pricing, money-off coupons, multipacks and multi-buys, free samples, in-pack premiums (eg free toys and gifts), and special features (eg limited editions).^{197,269} These forms of promotion are usually non-media communications that are largely aimed at consumers with short-term or delayed incentives to purchase the product. They are typically described as being ‘below the line’, where determining the real value of making the purchase is complicated by the influence of the price promotion. To illustrate, a consumer may decide to purchase a large quantity of a product because it is promoted at discounted price (eg ‘get a third off when you buy two or more’), but may not assess the total costs involved, or whether they wanted that much of

the product in the first place. This reflects the fact that the ultimate purpose of such sales promotions is to increase sales.²⁶⁹

Some types of sales promotions are likely to particularly appeal to children and young people, such as in-pack premiums in the form of a free toy or collectable. Examples include the “Kellogg’s®” ‘Rio Ball’ (available in special promotional packs in April 2014), and “McDonald’s® Happy Meal®” link up with ‘Shaun the Sheep Movie’ (available in February 2015). Parents have indicated that premium offers, such as toys, giveaways and competitions, have a strong impact on children’s dietary habits.²⁷⁰ This can occur from a young age – for example, a 2012 US observational study found that healthy meals paired with a collectable toy were favoured over unhealthy meals (without a collectable toy) by children aged three to five years.²⁷¹

While research on the impact of these sales promotions for food and drink products is limited, other publications from the board of science have shown them to be important promotional tools in other areas, such as for alcohol and tobacco.^{272,273}

Sales promotions may be a useful tool for promoting healthy diets.²⁷⁴ Two small-scale community-based intervention studies by French and colleagues considered the relationship between these promotions and purchasing decisions in controlled environments.²⁷⁵ Their 2001 study investigated the effects of different pricing and promotion strategies on low-fat snack sales from vending machines at 24 sites (12 secondary schools and 12 workplaces).²⁷⁶ This revealed that sales of low fat snacks increased significantly and proportionately with increasing price reductions. The study did note that while moderate price reductions of 10 per cent did not increase total sales volume (ie suggesting that customers were substituting regular snacks with a low-fat snack), larger price reductions of 50 per cent did increase total sales volume. This undesired effect of the larger price reduction may be because of an increase in the amount of purchases made of low-fat snacks and, therefore, increasing total energy intake. Their 1997 study examined the effects of price reductions on purchases of fresh fruit and vegetables in two secondary school cafeterias.²⁷⁷ It found that during the price reduction period, sales of fresh fruit increased four-fold from 14 items per week to approximately 63 items per week, and sales of baby carrots increased two-fold from 37 packets per week to 77 packets per week. With the reinstatement of usual prices, sales returned to baseline levels. The findings of these studies suggest that price incentives can be an effective intervention strategy to influence individual food purchases, but that the effect of price increases and decreases of various magnitudes merits further research.

In the spotlight: breakfast cereals, sports and energy drinks, and fruit-based drinks and smoothies

Breakfast cereals

Various snapshot analyses have highlighted that many mainstream and own-brand breakfast cereal products have high levels of added sugars.^{278,279,280} These findings are compounded by the fact that televised children's promotions are dominated by breakfast cereals, and marketing strategies can draw attention away from the negative aspects of the product.^{258,278} A systematic review of the evidence by the WHO noted that cereal companies regularly use nutritional appeals, regardless of whether or not these appeals are misleading.²³⁸

Sports and energy drinks

A wide range of sports and energy drinks^y are available on the market. Both types of product are widely promoted, in many cases with high profile campaigns, sponsorship and celebrity endorsement that are likely to appeal to children and young people. Concerns have been expressed about the adverse health impact on children and young people of the high levels of added sugar in many of these products, and in the case of energy drinks, the levels of stimulants such as caffeine and guanine.^{281,282,283} For example, a 2015 snapshot analysis found that some energy drinks contained up to 20 teaspoons of sugar (78g) per 500ml serving.²⁸⁴ While there are no robust data on use among children and young people, according to the British Soft Drinks Association, 150 million litres of sports drinks were consumed in the UK in 2013 (2.4 litres per person), and 500 million litres of energy drinks (7.9 litres per person).²⁸⁵

The way sports drinks are marketed – suggesting optimisation of athletic performance and replacement of fluid and electrolytes lost in sweat during and after high intensity exercise – has been the subject of more detailed research. This has shown that there is a lack of robust evidence to support claims regarding improved sports and athletic performance.^{286,287} The broader concern in relation to this report is the use of sports drinks by children and young people not involved in high intensity exercise. A 2014 survey commissioned by the National Hydration Council, for example, suggests that nearly a third of teenagers drink these types of sports drinks while at the cinema, watching television, or gaming.²⁸⁸ Even more significantly, data on levels of physical activity clearly show that the vast majority of children do not undertake enough physical activity to benefit from sports drinks – in 2012, only 21 per cent of boys and 16 per cent of girls in England were classified as meeting the government's recommendations for physical activity (a minimum of 60 minutes of moderate intensity physical activity each day).²⁸⁹

Fruit-based drinks and smoothies

Fruit-based drinks and smoothies are now an increasingly dominant feature of shelf space in UK stores. One snapshot analysis – of 50 fruit juice and smoothie products from supermarkets, coffee shops and food outlets – found that more than half contained at least six teaspoons of sugar, and some over 20.²⁹⁰

The Children's Food Campaign has previously highlighted the particular concern with these types of products in the way they focus on the health benefits of consuming fruit, despite containing little or no fruit content.²⁹¹ Their 2011 survey concluded that many fruit-based drinks were associated with misleading marketing messages, that they believe '...are encouraging parents and children to consume drinks that contradict public health advice'. The Campaign found that many of the products they analysed were associated with packaging and advertising that misleadingly suggested significant fruit content and provided no indication of high sugar content. The high levels of sugar in many fruit-based drinks has even led leading experts to suggest that consumption of fruit juice (as a fruit-equivalent) should not be considered as one of the ways to reach the recommended target of consuming five portions of fruit and vegetables per day.^{292,293,294}

^y Sports and energy drinks are significantly different products. While there are no standard definitions, sports drinks are typically designed for individuals engaged in long periods of vigorous activity, and aim to provide the necessary carbohydrates, minerals and electrolytes to maintain athletic performance and hydration. Energy drinks are non-alcoholic drinks that contain stimulants (such as caffeine and taurine), in addition to other ingredients.

Key messages

- Companies use a wide range of marketing tactics that work in combination to influence demand for their products. These relate to how the product is developed and priced, how it is made available to a consumer, and what marketing communications are used to promote it.
- Developing a brand is particularly important for marketing a product. Branding is critical to product choice, especially for children and young people who are typically seen as key targets for marketers. Food and drink products are known to be some of the most highly branded items that lend themselves to major advertising campaigns.
- As the value of food and drink products is increased through processing, it is advantageous for companies to market processed goods over commodities.
- Manufacturers aim for their food and drink products to be very widely available with a view to maximising sales. Various aspects of the in-store environment are also important marketing tools (eg location and prominence on shelf-space).
- Companies use a range of marketing communications to promote their products. Mass media advertising is known to have a direct impact on children and young people's dietary choices and an indirect effect on their dietary preferences, consumption and behaviour. While television has been the traditional form of mass media advertising, other strategies, such as through the Internet and digital media, are widely used. There are a range of other marketing communication tactics beyond mass media advertising, including packaging, celebrity endorsement, linkage with fictional characters (eg popular film and television characters) sponsorship and sales promotions.

4.5 Stakeholder marketing

The forms of marketing described in the preceding section cover those that are aimed at the consumer. Many companies also focus on influencing politicians, policy makers and other decision makers – known as stakeholder marketing. This process is typically organised as a part of an organisation's CSR (corporate social responsibility) strategy.

A common component of CSR strategies is cause-related marketing, where an organisation associates itself with a worthy social cause. Examples include "Yum! Brands®" (owners of the restaurant brands "KFC®", "Pizza Hut®" and "Taco Bell®") and the 'World Hunger Relief' initiative,²⁹⁵ "Subway®" and "Red Nose Day®",²⁹⁶ and the partnership between the "Burger King McLamore FoundationSM" and the 'Room to Read' initiative.²⁹⁷

In recent years the food and drink industry has become increasingly involved in linking their advertising with public health messages. One example was a television advertisement run by "Coca Cola®" in 2013 that suggested consumers could burn off the calories contained in a can through 'happy activities' (see **Figure 10**). There has also been a shift to promote reformulated products with healthier nutrient profiles, with many examples of this enthusiastically promoted in the 2013 Food and Drink Federation report, '*Delivering healthy growth – UK food and drink manufacturing putting health at the heart of sustainable growth*'.²⁹⁸

Figure 10 – 139 HAPPY CALORIES

The following provides a description of a 2013 “Coca Cola®” television advertisement:

A 30-second television advertisement promoting “Coke Zero®” featured a picture of a “Coca Cola®” can and stated “= 139 HAPPY CALORIES” and “TO SPEND ON EXTRA HAPPY ACTIVITIES”. It featured various activities and on-screen text describing the activity, such as “25 MINUTES OF LETTING YOUR DOG BE YOUR GPS +” whilst showing dog-walking; “10 MINUTES OF LETTING YOUR BODY DO THE TALKING +” whilst showing dancing; “75 seconds of LAUGHING OUT LOUD +”; “1 VICTORY DANCE =” whilst showing someone celebrate a win at bowling; “139 HAPPY CALORIES”. Further text stated “BUT IF TODAY YOU DON’T FEEL LIKE DOING IT ... HAVE A COKE WITH ZERO CALORIES” and featured the “Coke Zero®” product. On-screen text stated “Calories burnt may vary”.

Source: www.asa.org.uk/Rulings/Adjudications/2013/7/Beverage-Services-Ltd/SHP_ADJ_225058.aspx (last accessed 20 May 2015)

While this form of social responsibility may appear beneficial, it is also the company’s purpose to strengthen their brand, and to enhance consumer trust by identifying the brand with local and global concerns.^{259,299} As Hastings highlights in *The marketing matrix*, CSR has a wider purpose of helping to ‘... fend off statutory regulation by talking a good voluntary game...’, and ‘... paves the way for a proactive policy of gaining access to the power which governments have.’¹⁹⁷ This is illustrated by the development of public-private partnerships that provide a platform for companies to promote and enhance their brand, and to influence the public health agenda. This is discussed further in **Section 5.1**.

It is clear that stakeholder marketing is counterproductive for public health. It also creates opportunities for promotion in a way that can offset or undermine public health messaging. There is evidence that little attention is paid to assessing the effectiveness of these strategies – the access to nutrition index^z, launched in 2013, found that ‘[a]lthough many companies are engaged in various efforts to educate consumers on healthy diets and active lifestyles, very few commission independent evaluations of the impacts of such programmes.’³⁰⁰

Key message

- Many companies aim to influence policy makers through stakeholder marketing, in the form of corporate social responsibility. This has the purpose of strengthening a company’s brand and enhancing consumer trust. Stakeholder marketing also helps fend off statutory regulation, providing a platform for companies to influence the public health agenda through the development of public-private partnerships.

4.6 Access and availability

Children and young people’s dietary choices are influenced by the food and drink products that are available to them in their surrounding environment. This includes what they are able to purchase directly, what is provided to them by their parents at home, or what is available in other settings such as nursery and schools.

4.6.1 Local neighbourhoods and other areas

The availability and accessibility of unhealthy food and drink products has increased in recent years. For example, a 2015 cross-sectional study in Norfolk found that the density of takeaway food outlets (such as fish and chip shops, kebab shops and Indian and Chinese takeaways) increased by 45 per cent between 1990 and 2008.³⁰¹ This equated to an increase from 2.6 outlets to 3.8 outlets per 10,000 residents over the 18 year period, with the largest increase in areas of highest deprivation (from 4.6 outlets to 6.5 outlets per 10,000

^z The access to nutrition index is a global initiative that evaluates food and beverage manufacturers on their policies, practices, and performance related to obesity and undernutrition. The index was funded by the Global Alliance for Improved Nutrition, the Bill & Melinda Gates Foundation, and the Wellcome Trust.

residents).³⁰¹ Fast-food outlets now typically have longer operating hours, commonly provide options for delivery/takeaway, and are often situated in convenient locations such as shopping malls, cinemas and train stations.

Evidence on the relationship between the density of unhealthy food outlets in local neighbourhoods with diet and body weight is limited and, generally, inconsistent.^{302,303,304,305,306,307,308,309,310} Systematic reviews have found few studies showing positive associations with unhealthy dietary outcomes.^{306,307} While there is also limited research on the relationship between the density of food outlets and children and young people's dietary habits,^{311,312} a 2014 systematic review by Engler-Stringer et al found moderately strong evidence that community and consumer food environments may influence diet affect diet among children and young people.³¹³

Away from the boundaries of residential neighbourhoods, there is emerging evidence that areas around workplaces and commuting routes are important – a population-based cohort study of 10,452 adults aged 29-62 in Cambridgeshire, UK found that exposure to takeaway food outlets in home, work, and commuting environments combined was associated with marginally higher consumption of takeaway food, greater body mass index, and greater odds of obesity.³¹⁴ There is also strong evidence of a positive association between availability of unhealthy food outlets and increasing deprivation (see **Section 4.7**).

4.6.2 In and around schools

One area that has received considerable attention is the availability of fast-food outlets around schools. A 2010 semi-systematic review found evidence that schools have more fast-food outlets in close vicinity than would be expected by chance,³⁰³ and various UK-based observational studies have shown that school-children access them frequently before and after school, and during breaks.^{315,316,317} There is, however, limited and inconsistent evidence on the impact this has on children's food purchases, consumption and body weight. A 2014 systematic review found very little evidence for an effect of the retail food environment surrounding schools on food purchases and consumption, but some evidence of an effect on body weight.³¹⁸ The authors noted that it is possible that the effect on body weight is a result of residual confounding.

The environment within schools can be an important influence on children and young people's dietary choices.¹⁹⁸ For example, international evidence highlights how the availability of unhealthy products in school vending machines has been associated with poor food choices,³¹⁹ decreased participation in school lunch programmes,³²⁰ and increased intake of sugar-sweetened beverages.³²¹

Focus group discussions from 2010 with children and young people in UK schools found that they were more likely to buy products from the vending machine, because of frustration with long queues, short lunch breaks, the amount of seating space, pressure to save time and desire to socialise with their friends.³²²

Key messages

- Children and young people's diets are influenced by the food and drink products available in their surrounding environment.
- While there is limited evidence about how the density of fast food outlets impacts on diet and health outcomes, they have been found to be concentrated around schools, and are frequently accessed by school-children.
- The school environment can be an important influence on children and young people's diets, with evidence suggesting that the availability of unhealthy products in school vending machines is associated with poor dietary behaviour.

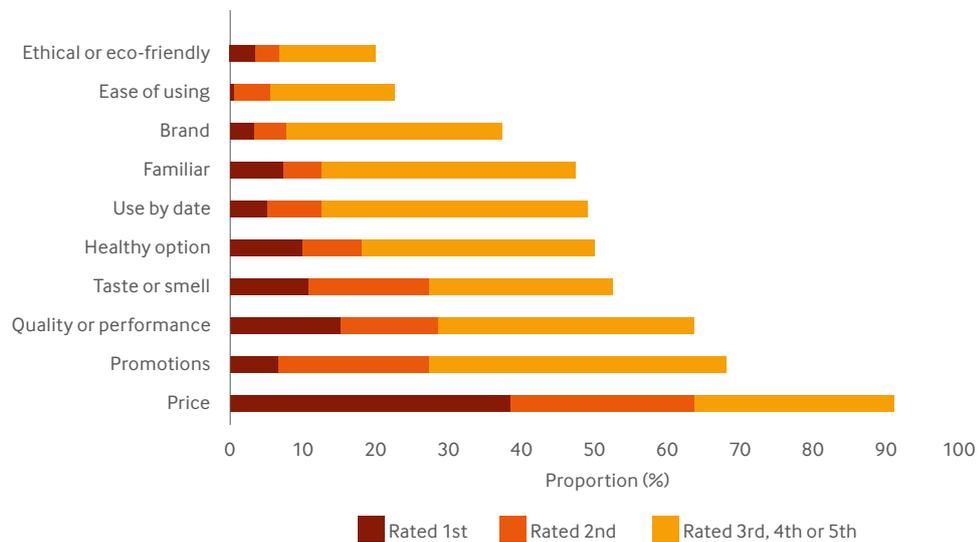
4.7 Deprivation

As noted in **Section 2.1**, a range of vulnerable groups live in food poverty/insecurity, which is linked to the affordability, accessibility and availability of healthy foods, as well as awareness of how to eat healthily. This can be particularly apparent in areas of deprivation where incomes are typically low, housing quality is poorer, levels of educational attainment are low, and there are higher levels of unemployment. These social and economic inequalities are important determinants of health and important factors underlying poor dietary patterns.

4.7.1 The price of food

In addition to being a marketing tool, price is a key driver of product choice and diet. In 2013, 39 per cent of shoppers named price as the most important factor in food purchasing decisions, with more than 90 per cent listing it within their top five influences.¹⁶⁶ Only nine per cent named healthy options as the most important influence (see **Figure 11**).¹⁶⁶ Focus group discussions in two cities in the Netherlands also showed that residents of deprived neighbourhoods view price as a main factor in food choice.³²³

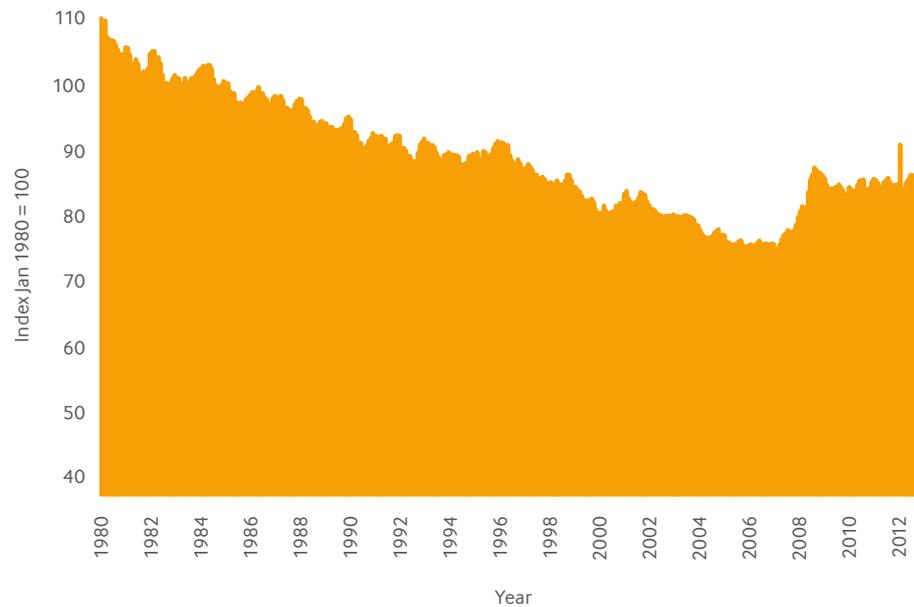
Figure 11 – Consumer perceptions of the factors influencing product choice



Source: Department for Environment Food and Rural Affairs (2014) *Food statistics pocketbook 2013*. York: Department for Environment Food and Rural Affairs. Reproduced under the terms of the Open Government Licence.

Figure 12 shows the UK trend in food prices from 1980 to 2013. Following a long-term decline (relative to household income) between 1975 and 2007, food prices have risen by 12 per cent since 2007 (the start of the recession).¹⁶⁶ This increase has affected all food groups, with variation between different food types – butter, margarine and cooking oils increased the most since 2007; and prices for fish, fruit and vegetables, bread and meat have all risen by more than 30 per cent since 2007.¹⁶⁶

Figure 12 – UK trend in food prices in real terms, January 1980 to July 2013



Source: Department for Environment Food and Rural Affairs (2014) *Food statistics pocketbook 2013*. York: Department for Environment Food and Rural Affairs. Reproduced under the terms of the Open Government Licence.

A 2013 report from the Institute for Fiscal Studies has documented how the food purchases of households in the UK have changed over the recent economic crisis and food price rises.³²⁴ This found that:

- British households have cut real expenditure on food brought into the home
- they have reduced the amount of calories they buy and substituted to cheaper food
- households with young children reduced real expenditure, calories and real expenditure per calorie more, on average, than other household types
- these changes coincided with an increase in the calorie density of foods, as households switched to foods with more calories per kilogram
- the nutritional quality of the foods that households purchased reduced in quality, on average, over this period, with pensioner households, single-parent households and households with young children seeing the largest declines
- the decline in the average nutritional quality of foods purchased was primarily driven by a substitution towards processed sweet and savoury food and away from fruit and vegetables
- on average, all household types moved away from calories from fruit and vegetables, with the largest switches away being by households with young children and single-parent households.³²⁴

The rise in food prices has disproportionately affected low-income households, who spend a greater proportion of their income on food compared to affluent households.¹⁶⁶ Lower socioeconomic groups are more sensitive to price rises and have responded to monetary pressures either by trading down to cheaper products or by consuming less food – between 2007 and 2012, average households traded down to cheaper products to save nearly six per cent, while the lowest income households traded down to a much lesser extent, possibly as they were already buying cheaper products.¹⁶⁶ This reflects the fact that food is an elastic item in the household budget, where families can economise on their shopping bills more so than in other areas.

These data have important implications in light of the fact that cheaper products are typically less healthy. For example, a longitudinal study – linking CPI (Consumer Price Index) data with NDNS data from 2002-2012 – found that more healthy foods and drinks have been consistently more expensive than less healthy ones since 2002, with a growing gap between them.³²⁵ The price differential between unhealthy and healthy products can therefore lead to individuals and families in lower socioeconomic households consuming poorer diets.

As **Figure 13** illustrates, advertisements have developed new marketing opportunities linked to rising food costs and food prices.

Figure 13



“KFC®” radio advert

Aired on Capital FM in July 2014

“So money’s tight. What’s new? The real question is, what are you going to do? No need to sit there and count your pennies, because now you can go out and spend some money on things you know are worth it. Because you don’t have to be made of it. No more settling for second best. You can have it all, and the rest. And you know I’m not playing you for a mug see, cause you’ve got more sense than money. Make your pennies go further with the streetwise menu from “KFC®”. A delicious range of snacks, including hot wings, barbeque wraps, mini fillet burger and much more. All from just 99p.”

From a wider perspective, board of science members have expressed concerns regarding the increasing use and reliance on food banks associated with recent welfare reform and austerity policies.³²⁶ This matches the view taken in the 2015 interim report from the Fabian Commission on Food and Poverty, which noted that low-income households are being left behind by changes in the food system.³²⁷

4.7.2 Housing

Area deprivation is associated with poor quality housing, which can influence the ability for families to make healthy choices.³²⁸ In 2003, the BMA reported that one of the features of poor quality housing is a lack of adequate cooking, preparation and storage facilities.³²⁹ Under these circumstances, families typically resort to buying cheap and often unhealthy convenience food and pre-prepared meals. Individuals on low incomes are also likely to have less money to use an oven or pay for energy bills for some cooking facilities. As the Marmot Review Team have highlighted, at its most extreme ‘[p]oor families will face the choice to “heat or eat”: either less money can be spent on basics such as a sufficient, healthy diet (with obvious health impacts such as obesity or malnutrition), or less can be spent on heating their homes to a reasonable temperature.’³³⁰

4.7.3 Food deserts

While **Section 4.6** noted that the evidence on the association between food availability and diet is relatively weak, there is a positive association between the availability of unhealthy food outlets and increasing deprivation. The concept of ‘food deserts’ (ie poor communities, where residents do not have access to affordable healthy food) is well documented in the academic and scientific literature.^{331,332,333} The high prevalence of fast-food outlets in poorer areas has been acknowledged consistently in a number of countries, including the UK,^{303,332,334,335} The Netherlands³³⁶ and the US.^{337,338}

The implications of the link between deprivation and the availability of unhealthy food outlets have been examined in studies of specific localities in the UK. One, which looked at the availability and affordability of a healthy food basket in two areas of Preston – Deepdale (high South Asian population) and Ingol (largely white and working class) – found that the availability of healthy foods and the price of items varied greatly between the two areas.^{339,340} The Ingol area, with a large white working class population, was poorly served for those on low incomes, and the range of choices were restricted. The percentages spent on food to meet the requirements of the healthy baskets showed that more than the national average (in absolute and relative terms) would have to be spent to eat healthily.³³⁹ A 2009 research study from the London borough of Hackney found that while certain healthy food options were available, low-income Hackney residents had issues with physical access and affordability of these options.³⁴¹ Major supermarket branches were not necessarily the cheapest option, and local shops were more important in accessing a healthy diet. The study found that those who had a car could go outside the borough to shop in major supermarket chains where they could park, but shopping was more difficult for people without cars as they would have to visit multiple shops and negotiate inconvenient buses to fulfil their healthy dietary needs.³⁴¹

The link between deprivation and the availability of unhealthy food outlets is also apparent for children and young people. In 2010, FSA Scotland found that primary and secondary school children from more deprived areas reported that they were more likely to walk/cycle past places selling food or drinks on the way to or from school, and were more likely to purchase food or drinks on the way to or from school.³⁴² A 2012 observational study in a deprived inner-London borough found that more than half of the children and young people in the survey purchased food from fast-food or takeaway outlets twice or more a week, with one in 10 consuming fast-food or drinks from these outlets daily.³¹⁶

4.7.4 The cumulative effect of deprivation

The effects of rising food prices, food poverty, poor housing, and food deserts are cumulative and contribute to the unhealthy dietary patterns typically found in low income households (see **Section 2.1**). These factors also coexist with other forms of deprivation, such as lack of green spaces, poor transport facilities, and higher rates of crime.⁶ All these factors compound one another and reflect the social gradient in health.

Key messages

- Deprivation can significantly impact on the diets of children and young people living in low-income households. Rising food prices have led to trading down to cheaper food products, which tend to be less healthy, or consumption of less food. This is compounded by the higher levels of poorer quality housing in areas of deprivation, which limits the ability to safely store and prepare healthy foods.
- There is also a strong association between the density of fast-food outlets and increasing deprivation, which adversely impacts on the ability of residents in poorer communities to access affordable, healthy food.

4.8 Social changes

Over the past few decades, social changes have transformed the food culture of households in the UK, which can, in turn, impact on children and young people's dietary habits. These changes include longer working hours, increases in the numbers of working mothers, and in the numbers of time-poor/cash-rich parents.^{343,344} This has led to a culture of convenience, resulting in increased consumption of cheaper pre-prepared foods, out-of-home eating, children-only meals, and increased influence of children and young people over their own food choice. A 2004 review undertaken by OfCom analysed the impact of lifestyle changes, including working practices, on food intake and dietary preferences. It found:

- an upward trend of consumption of pre-prepared convenience foods inside the home and more eating outside the home
- an upward trend towards more snacking and the increasing availability of energy dense foods
- a decline in the number of occasions that a family eats together
- children and young people in general are having a greater say in what they eat
- older children have their own money, and can choose to spend it without parental supervision.³⁴⁴

Further research shows that the presence of the family at the dinner table during meals is positively associated with the consumption of fruit, vegetables and dairy foods, and negatively associated with soft-drink consumption.³⁴⁵

Key message

- Social changes that have promoted a culture of convenience can impact on children and young people's dietary behaviour. This is associated with the consumption of pre-prepared, snacking and the increasing availability of energy dense food and drink products.

5. Interventions – promoting healthy diets

A range of factors can contribute to poor dietary behaviours among children and young people, including a lack of food education, expensive healthy options, and the marketing of unhealthy^{aa} items. As shown in **Section 3**, children and young people are often aware that a healthy diet is important for good health, but their environment fails to enable healthy choices, and powerfully promotes unhealthy dietary patterns. This has led to a social norm in the UK where unhealthy food and drink products are typical features of everyday life for children and young people.

It is easy to imagine a typical day for a child beginning with their favourite breakfast cereal (with its child-friendly packaging and gimmicks) that is high in salt and added sugars. On their way to school, they may be tempted by the soft drinks and unhealthy snacks on display at a local shop, or head out to one of the array of high-street fast-food outlets during their lunch break and on the way home from school. This is compounded by the range of promotions they will be exposed to, from television, online and digital advertisements featuring brand characters, to merchandising and sponsorship links with their favourite sports stars and celebrities.

Given this range of influences and unhealthy cues, comprehensive measures are needed to promote healthier diets among children and young people, and address the social norm of unhealthy dietary behaviour in the UK. These cover a range of food and nutrition policies, from those governing the supply of food and drink products, to policies seeking to modify the demand for specific types of product. A key focus is to tackle the wide availability, promotion and affordability of unhealthy food and drink products. Action in these areas will help to address the modifiable dietary risk factors that underlie the burden of diet-related ill-health. Reflecting on how poor nutrition is linked to wider social and economic inequalities, the interventions recommended in this section need to be considered within a framework of action that addresses the social determinants of health. As the Marmot Review⁶ highlighted, this includes ensuring that:

- individuals and families achieve a minimum income for healthy living, supported by social welfare systems where necessary, to the level where they can afford a healthy diet
- there is access to affordable, healthy food options in all local areas
- there is access for all to good quality and affordable housing, including having adequate facilities to safely cook and store food
- individuals have the necessary knowledge to understand what constitutes a healthy diet, and adequate skills for dietary planning, food purchases, storage, preparation and cooking
- individuals are supported in gaining good quality employment, complemented by the provision of affordable childcare, which would provide sufficient household income to acquire a healthy diet.

5.1 A new approach to tackle diet-related ill health

The approach adopted in England to reducing the burden of diet-related ill health has recently emphasised 'nudge'^{ab} interventions, and a reliance on personal responsibility and voluntary action by manufacturers, retailers and caterers.²⁶⁸ This is typified by the Public Health Responsibility Deal on food, which aims to work in partnership with industry on a series of voluntary pledges. The Scottish Government has also considered a similar approach.³⁴⁶ This is despite strong evidence that voluntary approaches and self-regulation are of limited effectiveness.^{347,348,349}

Analysis of voluntary approaches have been found to have delivered some progress,³⁴⁸ including modest reductions in dietary salt in some countries,^{350,351,352} and limited restrictions on advertising.^{353,354} There is significant concern that in the absence of

aa As noted in **Section 1**, for the purposes of this report, 'unhealthy' refers to any food or drink items that are classified as 'less healthy' by the Food Standards Agency Nutrient Profile Model.

ab A 'nudge' is defined by Thaler and Sunstein as '...any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives' (Thaler RH & CR Sunstein (2008) *Nudge*. London: Penguin Books Ltd).

independent monitoring, evaluation and compliance programmes, the outcomes of these approaches are typically weak or negligible and uncertain, particularly for changing marketing practices that influence the food and drink purchases and diets of children and adolescents.^{354,355,356,357}

A common claim is that partnership working is a quicker and more effective alternative to regulation.³⁵⁸ This is contradicted by the evidence. Research by Panjwani and Caraher – specifically looking at the calorie reduction pledge of the Public Health Responsibility Deal in England – highlighted that ‘...it is the collaborative, voluntary working practices of the approach that have undermined its potential as a public health policy tool and hindered its ability to deliver at a population level.’³⁴⁹ A more recent analysis from 2015 – looking at the effectiveness of the responsibility deal – concluded that progress reports were of poor quality overall; that most partners appear to have committed to interventions that probably were already underway; and that the pledges do not reflect the most effective strategies to improve diet.³⁵⁹ As the House of Commons Health Committee have noted ‘...we cannot hang all our expectations in terms of all the things we need to achieve in public health on voluntary pledges.’³⁶⁰ A 2013 review by Bryden et al also noted that ‘[w]ithout any sanctions, or in the absence of a credible threat of legislation to encourage compliance, businesses may gain the benefits of participation whilst making little effort to achieve the targets, thus undermining the credibility of the agreement.’³⁶¹

This latter point highlights the wider concern about government partnership with the food and drinks industry, where the main beneficiaries of this form of stakeholder marketing (see **Section 4.5**) are likely to be commercial interests rather than public health.^{268,362} Companies can seek to control the public health agenda through the adoption of public-private partnerships that are framed as socially responsible in attempts to avoid stricter regulations.³⁵⁷ This can distort or undermine health priorities in ways that favour industry preferences (eg policies focusing on personal responsibility and choice).³⁶³ The overarching impact is to create an environment where commercial influences are likely to substantially and adversely impact on people’s dietary behaviours. As Brownell and Warner highlight, parallels can be drawn with the approach taken by the tobacco industry in response to concern that their products cause harm.³⁶⁴

Public-private partnerships also provide a platform for companies to promote and enhance their brand. This stark conflict of interest can be seen in the 2013 Food and Drink Federation report, *Delivering healthy growth – UK food and drink manufacturing putting health at the heart of sustainable growth*, where positive statements about the voluntary initiatives of many of the UK’s leading food and drink manufacturers sit alongside a foreword by Anna Soubry MP, then Parliamentary Under-Secretary of State for Public Health.²⁹⁸

The BMA is of the view that, through the development of public-private partnerships, the government has placed too much emphasis on the role of industry in developing food and nutrition policy in the UK.^{ac} This partnership approach has been at the expense of any significant government intervention in an area of public policy where it is required. Such an approach has led to insufficient attention being paid to regulatory measures that reduce the accessibility, availability and marketing of unhealthy food and drink products. These aspects should be a central feature of the strategy to improve dietary patterns, with the role of manufacturers, retailers and caterers limited to implementing and supporting, as opposed to developing, food and nutrition policy.

ac Further information on the Association’s views can be found in the 2012 position statement, Behaviour change, public health and the role of the state available at: <http://bma.org.uk/working-for-change/improving-and-protecting-health/behaviour-change> (last accessed 20 May 2015).

Recommendation

- A strong regulatory framework should be central to the approach to reducing the burden of diet-related ill health in the UK, focused on interventions that limit commercial influences on people's dietary behaviour and encourage healthy dietary patterns.

Action relevant to: Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Scottish Government/Welsh Government.

5.2 Improving attitudes and knowledge about healthy dietary behaviour

Children and young people's knowledge and attitudes about healthy food play an important role in the development and maintenance of healthy dietary habits. Adequate knowledge of a healthy diet can also help parents to make the best choices for their children. There is a need to ensure that education and health advice – from mass media campaigns and school-based programmes, to the advice given by healthcare professionals – is tailored to support healthy dietary behaviour. This needs to be supported by consistent and clear information available to consumers about the products they are purchasing.

5.2.1 Education, social marketing and health promotion

5.2.1.1 Public health communications

The use of mass media campaigns has increased since the mid-1980s.¹⁹⁶ These have notably been aimed at tobacco use and heart-disease prevention, but are also attempted for alcohol, cancer screening, diet and other health-related issues. Campaign messages are often placed via television or radio, as well as billboards, posters and print media.¹⁹⁶

Public health campaigns aimed at promoting healthy nutrition and exercise are often favoured over other strategies; over time they can reach large audiences repeatedly and do not impose direct restrictions on individuals. There is variation in the types of campaigns, including those that target overall diet and lifestyle factors, and others that are aimed primarily at specific foods or food groups.

A range of different campaigns have been implemented in the UK in recent years, with the aim of promoting exercise and healthy diets, including: *Change4Life* in England and Wales (to which the BMA is a partner); *Take Life On, One Step at a Time*, and more recently *Happier Mealtimes*, in Scotland; and Northern Ireland's *Get a life, Get Active* campaign. Such campaigns can raise awareness of diet-related ill health, but evidence shows that they are largely ineffective at changing behaviours. A 2012 report commissioned by the DH (Department of Health) found that while the *Change4Life* campaign increased awareness of obesity in England, the campaign materials had little impact on changing behaviour. Low engagement with the campaign was a key issue.³⁶⁵ This may in part reflect the reduced investment in the campaign from 2010 onwards. The 2012 report concluded that future mass media campaigns aimed to promote healthy behaviours should not be relied upon solely for behaviour change.³⁶⁵ There is also a need to acknowledge that government spending on these communications is dwarfed by industry spend on advertising food and drink products (see **Section 5.3.1**).

The EU-EATWELL project (Interventions to Promote Healthy Eating Habits: Evaluation and Recommendations) was launched from April 2009 to March 2013 to evaluate the effectiveness of past interventions to promote healthy dietary behaviour in Europe. The final report found that:

- while public health campaigns can increase knowledge and awareness, there is limited evidence of their effectiveness in terms of changing behaviour or improving health outcomes, such as lowered blood pressure and body-mass
- campaigns are more likely to be successful when implemented as part of a comprehensive strategy that incorporates other interventions such as fiscal measures, increasing the availability of healthy items and labelling.³⁶⁶

The EU-EATWELL project evaluation also found that short-lived social marketing campaigns are likely to fail due to pervasive industry marketing of opposing messages. This highlights the need for stronger regulations of industry marketing (see **Section 5.3.1**). There is also a need for social marketing campaigns about the risk of poor dietary habits to be sustained and provide high-impact messages. A smaller number of campaigns, with larger and longer-term investments, may also be more effective than the current multitude of short-term campaigns. A one-size-fits-all approach will not work. Consideration therefore needs to be given to the type of messages used, including the impact of campaigns on vulnerable groups such as those with an intellectual disability.

It is also important that social marketing campaigns adopt the key success factors of commercial marketing practices, and use them to promote healthier behaviour. This requires consideration of all the factors that make up the integrated marketing mix (see **Section 4.4**) so that improved knowledge and attitudes are complemented by healthy options that are affordable, available and attractive. At the same time, effective social marketing campaigns should not only target the individual to improve their knowledge and attitudes, but should also focus on policy makers and other stakeholders to encourage changes in the food environment.

Recommendation

- High impact and sustained social marketing campaigns should be used to improve attitudes and knowledge about healthy dietary behaviour and the health risks of a poor diet. These should learn from the key success factors of commercial marketing practices, and must be supported by a strong regulatory framework that reduces the accessibility, availability and promotion of unhealthy food and drink products.

Action relevant to: Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Public Health Agency (Northern Ireland)/Public Health England/Public Health Wales/NHS Health Scotland/Scottish Government/Welsh Government.

5.2.1.2 Health promotion in schools – developing a whole-school approach

As noted previously, there is an increasing recognition that schools can be an important, closed setting to promote healthy lifestyles.^{198,200} Much of the focus in UK schools is curricula-based learning – while there is variation across the different nations, this broadly covers the basic principles about healthy diets, as well as practical skills for cooking and food preparation (see **Appendix 3**). The BMA believes this sort of education should be simple, practical and understandable.

Delivering on these curricula-based objectives requires consideration of resources, such as the adequate provision of school facilities for cooking and food preparation classes. This reflects the fact that a number of schools do not have appropriate kitchen facilities – in England, for example, only 25 per cent of primary schools have been found to have a teaching kitchen.³⁶⁷ Consideration also needs to be given to adequate provision of training, support and guidance for teachers to ensure they have the necessary skills and nutritional knowledge.

As highlighted in **Section 4.3.1**, using a whole-school approach – where the aspects of the curricula are supported by the wider school environment and engagement with parents/families and the community – is the most effective approach for promoting healthy dietary behaviours in schools.^{202,203,204}

One example of this is school-based cooking classes, such as those supported by The School Food Trust's^{ad} *Let's Get Cooking* programme. These typically involve parents, school cooks, teachers, teaching assistants and volunteers from the school community, and have been found to increase use of cooking skills at home, and to be associated with healthier dietary

ad The School Food Trust began work as a non-department public body for the Department of Education and Skills, and currently leads on the implementation of the legal standards for school food in England.

behaviour.³⁶⁸ The involvement of local chefs in school programmes has also been found to improve confidence in handling and preparing food, knowledge about healthy diets, and consumption of fruit and vegetables.^{369,370}

Food-growing programmes also support a whole-school approach, and evaluation of one such programme in government primary schools in Australia shows that they can have a positive impact on pupils' nutrition and attitudes towards healthy dietary behaviour.³⁷¹ Board of science members have highlighted the importance of such initiatives in educating children about where food comes from. This can be facilitated on-site using school gardens or polytunnels, through activities such as farm visits, or by linking up with community allotments. Working with community allotments has the added advantage of helping children build social networks and provides an opportunity for physical activity.

Other aspects of the whole-school approach can include policies and standards that encourage healthy dietary behaviours in the school environment (see **Section 5.4.2**), as well as the way dining areas are designed and used so that they are fit for purpose and seen as an integral part of the school.

In the spotlight: the NHSP (National Healthy Schools Programme)

The NHSP was launched in England in 1999 by the DH and the DfE (Department for Education) (then the Department of Education and Skills). It was implemented with the aim of supporting schools to take a whole-school approach to promoting health and wellbeing, including the development of healthy dietary behaviours. The initiative was developed over time, with various criteria set for schools. These covered aspects of the whole-school approach including: leadership, management and managing change; policy development; curriculum planning and resourcing including working with external agencies; teaching and learning; school culture and environment; giving pupils a voice; provision of pupils' support services; staff professional development needs, health and welfare; partnerships with parents/carers and local communities and assessing, recording and reporting pupils' achievement. Schools were supported to self-review their practice against the criteria for NHSS (National Healthy School Status). While targets were initially set for the number of schools achieving NHSS, a different approach was taken by the coalition Government, with implementation and monitoring on a school-led basis.

A 2011 evaluation of the programme found that, during the evaluation period, changes schools made to promote healthy diets included improvements to the physical environment in canteens, introducing healthier menus, introducing practical cooking sessions and running gardening clubs.³⁷² The perceived impact of the programme on pupil level changes included: the take-up of school lunches; pupil behaviour in school; an increased awareness of nutrition and healthy dietary choices; and increased healthy dietary behaviour outside of school.³⁷² The analysis found that, over the two-year evaluation period, a school's engagement in the NHSP did not lead to any significant changes in pupil knowledge, attitudes or behaviour in relation to healthy diets either at primary or secondary level.³⁷² The fact that this programme was found to be a useful facilitator of change at a school level, but ineffective at changing pupil behaviour over the two-year evaluation period, reflects the need for sustained action in the long-term. It also highlights the importance of action to create healthier environments outside of the school boundaries.

Adopting a whole-school approach is starting to gain momentum in the UK, as can be seen with the recommendations set out in the School Food Plan^{ae} for England.³⁶⁷ In building on these developments, there is a need for its wider implementation throughout all schools in the UK. This will require leadership from head teachers, and needs to be supported by

ae In 2012, "Leon@" restaurant founders Henry Dibleby and John Vincent were commissioned to review ways to increase the number of children eating good food in schools. The 2013 School Food Plan is a report of this work – developed with the support of an expert panel – that sets out a range of actions to improve the quality and take-up of school food.

appropriate training for teachers. Local authorities also have a role in facilitating community links with schools (eg the provision of community allotments and town farms).

Recommendation

- Local authorities should work collaboratively with schools to achieve the wider implementation of the whole-school approach for promoting healthier diets throughout the UK. This should include a focus on developing cooking skills and improving knowledge about where food comes from.

Action relevant to: Convention of Scottish Local Authorities/Department for Communities and Local Government (England)/Department for Education (England)/Department of Education (Northern Ireland)/Department for Social Development (Northern Ireland)/Governors Wales/Local Government Association/National Association of Head Teachers/National Governors' Association/Northern Ireland Local Government Association/Scottish Government/The Association of Directors of Public Health/Welsh Government/Welsh Local Government Association.

5.2.1.3 The role of healthcare professionals

Healthcare professionals are well placed to provide advice and support to children, young people and their parents/carers on healthy dietary behaviour. This requires a life course approach from pre-pregnancy through to infancy,^{af} childhood and adolescence.

The AoMRC and the NHS Future Forum report have emphasised the importance of all healthcare professionals using every patient consultation, where possible and clinically appropriate, to address dietary behaviour.^{205,373} This will require adequate resourcing. In particular there is a need for long-term, sustainable investment in general practice to allow for longer patient consultation times, thus enabling dietary concerns to be raised and behaviour-modifying counselling to be undertaken.

As highlighted in the 2007 NICE guidance on behaviour change, varying methods may be required at different times to reach different people, which is dependent on factors such as an individual's motivation to change.¹⁹⁵ Different approaches will also be needed depending on whether the interventions are primarily aimed at a child, young person or their parent/carer, with consideration given to the influence of factors such as an individual's ethnic and cultural background. Particular attention should be paid to vulnerable individuals, such as those with intellectual disabilities, who may benefit from signposting to tailored resources, such as the Beyond Words publication *Food... Fun, Healthy and Safe*.³⁷

To support their role, healthcare professionals will require a comprehensive understanding of nutrition, including what constitutes a healthy diet, and how individuals have different dietary and energy requirements. Board of science members have highlighted that dietitians could play an important role in supporting this. There is also a need to provide adequate training that is integrated across the undergraduate^{ag} and postgraduate curricula, as well as through opportunities for continuing professional development. This should include how to assess nutritional status, provide advice on dietary behaviour, and utilise practical behaviour change techniques in the clinical setting.

af Interventions to improve nutrition for children under the age of five is considered in detail in the 2009 board of science report *Early life nutrition and lifelong health*, as well as the 2013 report *Growing up in the UK – ensuring a healthy future for our children*.

ag In 2013, the Intercollegiate Group on Nutrition of the Academy of Medical Royal Colleges published guidance on the components for an undergraduate curriculum in nutrition, which can be accessed at: www.aomrc.org.uk/doc_view/9764-uk-undergraduate-curriculum-in-nutrition (last accessed 20 May 2015).

Recommendation

- There should be adequate resources to support all healthcare professionals in addressing dietary behaviour where possible and clinically appropriate. This should be complemented by comprehensive education and training opportunities – integrated throughout the undergraduate and postgraduate curricula, and continuing professional development – to ensure all healthcare professionals have the necessary knowledge and skills to assess nutritional status, provide advice on dietary behaviour, and utilise practical behaviour change techniques in the clinical setting.

Action relevant to: Academy of Medical Royal Colleges and individual Medical Royal Colleges/British Medical Association/Committee of General Practice Education Directors/Conference Of Postgraduate Medical Deans/General Medical Council/Medical Schools Council/Health Education England/NHS Education for Scotland.

5.2.2 Consumer information

Consumers face many challenges when choosing products that support a healthy diet, including the provision of limited, variable and confusing nutritional information. A particular concern highlighted by board of science members is snack food and drinks served in larger quantities, where the nutritional information in relation to serving sizes requires estimation of how much is appropriate to consume in a single serving. More broadly, the lack of a standardised approach on all products, as well as variable and confusing information, is likely to be challenging for parents/carers when choosing products for their children, as well as for children and young people when making their own purchases.

To support all consumers, action is needed to provide standardised, consistent and clear information on packaging. This should be through a mandatory requirement for all pre-packaged products to have FoP (front of pack) labelling, based on a system of traffic lights/colour coding, combined with information on GDAs (guideline daily amounts) (now called RIs or reference intakes) and high/medium/low text. Opinion polls have found that an approach using traffic-light labelling is popular with the public, with 78 per cent supporting the policy.³⁷⁵ Research from the FSA has also shown that individuals with visual impairments and intellectual disabilities find the traffic-light system easier to use.³⁷⁶

Recent years have seen some progress towards more consistent labelling as a result of the 2011 EU regulation on food information to consumers (EU 1169/2011), which included the provision of mandatory nutrition information on packaged products.³⁷⁷ Under this regulation, information on energy, fat, saturated fat, sugars and salt may be provided voluntarily on the FoP. In light of the 2011 EU regulation, and in an attempt to work towards a clearer labelling scheme, a UK-wide consultation on FoP nutrition labelling was undertaken in 2012. In October 2012, the UK Governments announced that they would develop a voluntary, consistent approach to FoP labelling using traffic light/colour coding, GDA information, and high/medium/low text. There is an inherent weakness to this voluntary approach – for example, in England, while 23 partners have committed to the Public Health Responsibility Deal pledge on FoP labelling at the time of writing, there are notable exceptions such as Kellogg Company, Unilever UK Ltd and United Biscuits (UK) Ltd that produce a range of common high street brands.³⁷⁸ Voluntary commitments will also lead to the co-existence of multiple schemes, which confuses consumers.^{379,380,381} One particular criticism is the way the different labelling schemes provide information in different locations on the product and use different colours/colour shades.

It is clear that stronger action is needed to provide consistent and standard nutritional information to consumers. This can only be achieved through a mandatory requirement, which will require regulatory changes at a European level.

Recommendation

- A mandatory, standardised approach for displaying nutritional information – based on traffic lights/colour coding, reference intakes, and high/medium/low text – should be introduced for all pre-packaged food and drink products. This will require regulatory changes at a European level.

Action relevant to: Department of Health (England)/European Commission/Food Standards Agency Northern Ireland/Food Standards Agency Scotland/Food Standards Agency Wales/UK government.

5.3 Limiting unhealthy cues and the promotion of unhealthy food and drink products

As highlighted earlier in this report, a significant proportion of children and young people in the UK do not consume a healthy diet, which is largely driven by the investment and proliferation of unhealthy food and drink marketing techniques.²⁵⁹ This is to the extent that the promotion of unhealthy products is commonplace in the UK. As illustrated in **Figure 14**, producers whose range of products include unhealthy items are able to place high profile advertisements in areas like Piccadilly Circus, London, one of the UK's major tourist attractions.

Figure 14



5.3.1 Restrictions on mass media advertising and other marketing communications

Vast amounts of money are spent on advertising unhealthy food and drink products; which sits in stark contrast to government expenditure on public health communications. According to PHE (Public Health England), while the government's public health marketing programme Change4Life has an annual budget of £10 million, nearly £150 million was spent on marketing unhealthy food and drink products to the public in 2013.³⁸² This included £32 million on the marketing of added sugar fizzy drinks, £92 million on marketing chocolate bars and biscuits, £22 million on take-away pizza, and £3m on processed meat products.³⁸² Although the £10 million budget is supplemented by commercial sector funding (in the region of £50 million),³⁸² it is worth noting the concerns raised earlier in this report about how this partnership approach blurs the lines between public health and commercial objectives (see **Sections 4.5** and **5.1**). Other sources suggest that the industry advertising spend is considerably more than PHE's figures – the DH estimated that £838 million was spent promoting food and drink products in 2007.³⁸³

This level of advertising spend is particularly concerning given the fact that most of the food and drink products marketed to children are regarded as unhealthy.²⁴⁶ Common categories include pre-sugared breakfast cereals, soft drinks, savoury snacks, confectionery and fast-foods.²⁵⁴ Estimates of the proportion of marketing used to promote these product categories to children and young people vary from 60 to 90 per cent.²⁵⁴ This highlights the need for measures to protect these age groups from these commercial influences.

Some restrictions are already in place in the UK. In 2007, OfCom banned television advertising of all products high in fat, salt or sugar in and around programmes specifically made for children, and in and around programmes of particular appeal to children under 16. Similar

provisions are included under the UK Code of Broadcast Advertising, which applies to all advertisements and programme sponsorship credits on radio and television services licensed by Ofcom.³⁸⁴ While these do impose some restrictions, they are open to interpretation in what may particularly appeal to children, and there is evidence that children and young people are still heavily exposed to television advertisements for unhealthy products.³⁸⁵ Research by Which? shows that the top five most popular programmes watched by children on commercial channels are not covered by the restrictions.³⁸⁶ A 2014 analysis of over 750 adverts found almost one in four television adverts shown between eight and nine pm^{ah} were for food (22%), with viewers seeing as many as six junk food adverts per hour.³⁸⁷ Within these food adverts, the most frequently shown were unhealthy products from supermarkets (25%), followed by fast-food chains (13%), with chocolate and sweet companies the third most common (12%).³⁸⁷ There is also a significant gap in the use of product placement^{ai}. While this is restricted by OfCom regulations – including being prohibited for children’s programmes and the placement of products high in fat, salt or sugar – product placement in films and international programmes has been allowed on UK television for many years.³⁸⁸

The strategies used to market unhealthy products via non-broadcast media (ranging from advertisements and other marketing communications in newspapers, magazines, on billboards and in cinemas, to online advertisements, in-game advertisements and advergames) are governed by the UK Code of Non-broadcast Advertising, Sales Promotion and Direct Marketing.³⁸⁹ As with the broadcast regulations, the wording of the Code is vague and open to interpretation – for example, it broadly requires that marketing communications should not encourage poor nutritional habits or an unhealthy lifestyle in children, and focuses on the responsible use of promotional offers, licensed characters and celebrity endorsements. A particular area of concern is the proliferation of marketing online and via social media, which provide a number of different platforms to advertise. As the Children’s Food Campaign has highlighted, existing regulations governing online marketing are failing to protect children and young people – in April 2012, the Campaign submitted 27 complaints against 19 websites, who used online adverts to promote unhealthy products, child-friendly brand characters, misleading health or nutrition claims, inconsistencies in age guidelines, and a lax approach to age restrictions.³⁹⁰

There are also other marketing strategies that are not covered by the UK Code of Non-broadcast Advertising, Sales Promotion and Direct Marketing, ranging from product packaging to sponsorship of events, activities, individuals or groups. In the case of the latter, board of science members have expressed specific concerns regarding the way in which high profile public events are regularly linked with the marketing of unhealthy food and drink products. This can range from music festivals to leading sports teams and global sporting events such as the “Olympic Games®”/“Paralympic Games®”/Special Olympics, the “Commonwealth Games®” and the “FIFA World Cup®”. Such events are likely to appeal to children and young people, and typically provide high levels of exposure for companies in promoting their brands.

The limitations of the marketing regulations discussed in the preceding paragraphs highlight the need for stronger restrictions. This is particularly important given the way different marketing tactics work in combination to form an integrated marketing communications mix (see **Section 4.4.4**). While the BMA would ultimately like to see a complete ban on all marketing of unhealthy products to children and young people, consideration is needed for how this is achieved in practice. In the short-term, this should focus on three key areas.

1. There is a need to address the over-exposure of children and young people to the marketing of unhealthy products on television and radio. The regulations governing broadcast media should be revised to prohibit advertisements for unhealthy food and drink products in or around any programmes that appeal in any way to children and young people. This could be achieved by significantly lowering the threshold for determining which programmes appeal particularly to children and young people.

ah This analysis was from 25.10.13 to 13.12.13, including 20.75 hours of television and 784 adverts. Channels analysed were ITV and Channel 4. Programmes included were X Factor, “The Simpsons™” and Hollyoaks.

ai When a company pays a television channel or a programme-maker to include its products or brands in a programme.

2. The regulations governing advertising and other marketing communications via non-broadcasting media (including in newspapers, magazines, on billboards and in cinemas, to online advertisements, in-game advertisements and advergames) need to be urgently reviewed. This should be with a view to developing specific restrictions that prevent the marketing of unhealthy food and drink products via non-broadcast media (including the use of promotional offers, licensed characters and celebrity endorsements) that appeal in any way to children and young people.
3. Regulations should be developed that prohibit the promotion of unhealthy food and drink products through sponsorship of events, activities, individuals or groups that appeal in any way to children and young people. In recognition of how sponsorship deals are typically agreed through long-term contracts, these regulations should be phased in.

Recommendation

- Regulations should be developed to prohibit the marketing of unhealthy food and drink products to children and young people. In the short-term, this should focus on:
 - revising the UK Code of Broadcast Advertising to prohibit advertisements in or around any programmes that appeal in any way to children and young people
 - revising the UK Code of Non-broadcast Advertising, Sales Promotion and Direct Marketing to include specific provisions preventing the marketing via non-broadcast media (including the use of promotional offers, licensed characters and celebrity endorsements) that appeal in any way to children and young people
 - developing regulations that prohibit any marketing activities involving sponsorship of events, activities, individuals or groups that appeal in any way to children and young people.

Action relevant to: Advertising Standards Authority/Broadcast Committee of Advertising Practice/Committee of Advertising Practice/Department for Culture, Media and Sport (England)/Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/European Commission/Office of the First Minister and Deputy First Minister (Northern Ireland)/Scottish Government/The Office of Communications/Welsh Government/UK government.

There is also a need to look specifically at regulations governing the marketing of food and drink products in schools (eg through commercial sponsorship and branding of educational packs, goods and equipment). The only guidance that exists is a best practice principles document, produced by the DfES (Department for Education and Skills) in conjunction with the ISBA (Incorporated Society for British Advertisers) and the Consumers' Association.³⁹¹ The wording of the principles is vague, including stating that '[m]aterials should not encourage unhealthy, unsafe or unlawful activities...';³⁹¹ and there are no sanctions on companies which fail to adhere to the guidelines.

Recommendation

- The marketing of unhealthy food and drink products in schools (eg commercial sponsorship and branding of educational packs, goods and equipment) should be prohibited.

Action relevant to: Department for Education (England)/Department of Education (Northern Ireland)/Governors Wales/National Association of Head Teachers/National Governors' Association/Scottish Government/Welsh Government.

A further area of concern is marketing relevant to infants and mothers, in particular in relation to follow-up formula^{aj} products that are widely available and promoted in the UK. The WHO has highlighted a number of observational studies that strongly suggest a direct correlation between marketing strategies for these products, and perception

aj A food intended for use as a liquid part of the weaning diet for the infant from the sixth month onwards and for young children.

and subsequent use as breast-milk substitutes.³⁹² This has the potential to undermine optimal infant and young child feeding^{ak} by reducing breastfeeding rates, which are low in the UK, particularly among disadvantaged women.¹⁷¹ This is particularly important in light of the fact that children who are breast fed are more likely to have better childhood cognitive development, and a lower risk of several disease outcomes including obesity and diabetes, than those who were formula-fed.¹⁷¹ This emphasises the need to strengthen the regulations^{al} governing the marketing of follow-up formula products in the UK, which allow for their promotion via mass media channels, and permit brand names, logos and health claims on the packaging. This could be achieved by bringing them in line with the provisions of the WHO *International code of marketing of breast-milk substitutes*, which prohibits any '... advertising or other form of promotion to the general public of products within the scope of this Code.'^{am,393}

5.3.2 Regulating industry practices and changing the retail environment

There is concern that industry practices – including sales promotions, specific features of the in-store environment and the behaviour of retail staff – can influence and encourage consumers to purchase unhealthy food and drink products. The ultimate aim of these practices is to maximise profit for retailers.

As noted in **Section 4.4.4**, sales promotions strategies are used to encourage consumers to purchase products, and include quantity increases, discount pricing, money-off coupons, multipacks and multi-buys, free samples, and special features (eg limited editions). The ESRC (Economic and Social Research Council) and Which? have found that a wide range of sales promotions are used in supermarkets,^{394,395} where it is estimated that approximately 40 per cent of foods are on promotion. Promotions are used extensively on ready meals, confectionary, snacks, meat, sauces and yogurts.³⁹⁴ Healthier options are also on offer, but straight discounting and buy-one-get-one-free offers are mostly skewed towards unhealthy items,³⁹⁴ and therefore contribute to a retail environment that favours unhealthy dietary behaviour.

As the House of Commons Health Committee recently highlighted, there has been very little voluntary action by retailers on the responsible use of sales promotions.³⁶⁰ Few leading supermarkets have policies for the balance of healthy and unhealthy products included in sales promotions.³⁶⁰ This highlights the need to look at stronger policy options to ensure retailers use sales promotions to encourage healthier dietary patterns.

Recommendation

- The UK health departments should commission a review of how the regulation of sales promotions can be strengthened to ensure they favour healthy options and deliver public health benefits.

Action relevant to: Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Scottish Government/Welsh Government.

As noted in **Section 4.4.3**, consumers' decisions to purchase unhealthy products are more often impulse driven than for healthy products, and unhealthy items are typically located at shop entrances, near checkout counters and at the end of aisles. They are often situated at eye-level or within easy reach of young children who are likely to use pester power to

ak Guidelines from the World Health Organization recommend that infants be exclusively breastfed for the first six months, with breastfeeding continuing between six months and two years in combination with the introduction of foods other than milk (complementary feeding).

al The Infant Formula and Follow-on Formula (England) Regulations 2007 (as amended); The Infant Formula and Follow-on Formula (Northern Ireland) Regulations 2007 (as amended); The Infant Formula and Follow-on Formula (Scotland) Regulations 2007 (as amended); and The Infant Formula and Follow-on Formula (Wales) Regulations 2007 (as amended).

am The World Health Organization has clarified that '[i]f follow-up formula is marketed or otherwise represented to be suitable, with or without modification, for use as a partial or total replacement for breast milk, it is covered by the Code. In addition, where follow-up formula is otherwise represented in a manner which results in such product being perceived or used as a partial or total replacement for breast milk, such product also falls within the scope of the Code.'³⁹²

persuade their parents to purchase snacks. While some companies in the UK have voluntarily chosen not to sell unhealthy products in areas such as at checkout displays (including via a formalised voluntary framework in Scotland),³⁹⁶ this practice is still widespread.^{229,397,398} This reflects the absence of statutory regulations in this area.

The purchase decisions of consumers may also be influenced by retail staff behaviour – there is evidence that some retailers require their staff to offer discounted unhealthy products at checkout counters.³⁹⁹ These in-store marketing techniques are likely to encourage consumers to purchase unhealthy products.

This highlights a need to strengthen the regulatory framework for the way unhealthy products are promoted in the retail environment. This includes ensuring that unhealthy items are removed from all checkouts and queuing areas, and the prohibition of schemes that require staff to promote unhealthy items at checkouts. The removal of unhealthy items at checkouts and queuing areas could be replaced by healthy options, to help promote their consumption, and as one way to rebalance social norms.

Recommendation

- Regulations should be developed that prohibit retailers from:
 - displaying unhealthy food and drink products at checkouts and in queuing areas
 - the use of schemes that require retail staff to promote unhealthy food and drink products at checkouts.

Action relevant to: British Independent Retailers Association/British Retail Consortium / Department for Business, Innovation and Skills (England)/Department of Enterprise, Trade and Investment (Northern Ireland)/Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Northern Ireland Retail Consortium/Scottish Grocers Federation/Scottish Retail Consortium/Scottish Government/The Association of Convenience Stores/Welsh Government/Welsh Retail Consortium.

5.4 Creating an environment that promotes healthy dietary behaviour

The burden of diet related ill-health in the UK is associated, in part, with the increased availability, accessibility, affordability and acceptability of unhealthy food items. Children and young people are over-exposed to a range of cheap, unhealthy food and drink items in and around schools, and within retail environments. While **Section 5.3** discusses ways to eliminate the range of cues that encourage unhealthy dietary behaviour, there is also a need to ensure the wider environment promotes healthier alternatives. This includes measures to restrict the availability of unhealthy products, stronger regulation of the nutritional content of processed products, and consideration of the use of fiscal measures.

5.4.1 The physical availability of unhealthy and healthy products

In recent years the spread of global fast-food chains and independent fast-food stores has led to increased access and availability of unhealthy food items on the high street, with particularly high concentration in city centres and along arterial routes.^{332,400,401,402} There is also a strong relationship between the density of fast-food outlets and area deprivation in the UK.^{303,332,334,335,336,337,338} This has two key impacts in relation to children and young people. It creates a local environment where consumption of fast-food is a normal, everyday occurrence. It also increases the likelihood of children and young people consuming fast-food items because they are readily available. As noted previously, there is evidence that schools have more fast-food outlets in close vicinity than would be expected by chance, which school children access frequently.^{303,315,316,317} This is particularly relevant given that food from such outlets has been found to be high in fat, salt, and sugar, and that the ranges of products available provide limited opportunities to make healthy choices.⁴⁰³ As Figure 15 highlights, many fast-food outlets have menus specifically for children and students.

Figure 15



While there is limited and inconsistent evidence about the impact of a high density of unhealthy food outlets on purchases, consumption and body weight,^{306,307,313,318} board of science members believe there is a need to provide local authorities with the powers to limit the future number, clustering and over-concentration of fast-food outlets locally. This reflects the fact that these premises can often be opened without applying for planning permission. This approach is supported by PHE⁴⁰⁴ and NICE guidance on the prevention of cardiovascular disease, which recommends restricting planning permission for take-aways and other food retail outlets in specific areas (for example, within walking distance of schools).⁴⁰⁵ As the AoMRC have noted, this is being taken forward in some localities,²⁰⁵ and ways to develop this approach have been explored in the UK in the London borough of Tower Hamlets.⁴⁰⁶ There is, however, a need for its wider implementation throughout the UK.

Recommendation

- Local authorities should be provided with the power to restrict the future number, clustering and concentration of fast-food outlets locally.

Action relevant to: Convention of Scottish Local Authorities/Department for Communities and Local Government (England)/Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Department of the Environment (Northern Ireland)/Local Government Association/Public Health Agency (Northern Ireland)/Public Health England/Public Health Wales/NHS Health Scotland/Northern Ireland Local Government Association/Scottish Government/The Association of Directors of Public Health/Welsh Government/Welsh Local Government Association.

5.4.2 Food in schools

Section 5.2.1 highlighted the need for the wider implementation of a whole-school approach to promoting healthy diets, where curricula-based learning is supported by aspects of the wider school environment. An important aspect of this is regulating the food provided by schools.

The introduction of food and nutrition standards is meant to ensure that children and young people who take advantage of school meals are guaranteed to have one healthy meal a day. Those who eat school meals tend to consume a healthier diet than those who eat packed lunches or takeaway meals.⁴⁰⁴ This is important for all children and young people, but especially those from poorer households, for whom the school meal might be the most important of the day. The consumption of healthy meals has been shown to positively impact on learning and academic performance,¹⁴⁹ and may also play a role in exposing children and young people to new types of healthy foods, which they might not otherwise have tried.

All the devolved administrations have set legal standards for school lunches and for foods available during the day. In Northern Ireland, the Department for Education introduced nutritional standards for school lunches and for all other food provided in the school day in 2008.⁴⁰⁷ In Scotland, the nutritional standards introduced in 2009 apply to all primary and secondary state schools.⁴⁰⁸ The Welsh Government has extended standards to foods available across the whole of the school day, which came into effect for primary schools in September 2012, and in September 2013 for secondary schools, special schools and pupil referral units in Wales.⁴⁰⁹

In England, existing school food standards (implemented in 2007) were updated in light of the findings of the School Food Plan review,³⁶⁷ and came into force on 1 January 2015. It remains to be seen whether the new standards are an improvement. They are more flexible, being based on foods rather than nutrients, but have been criticised for moving too far away from nutrient standards and regulation.⁴¹⁰ The new standards apply to all local authority-maintained primary, secondary, special schools and pupil referral units in England. They also apply to academies established between September 2008 and September 2010, as well as academies and free schools^{an} established after June 2014. Academy schools and free schools set up between September 2010 and June 2014 are not required to comply with the standards, but encouraged to use them as a guide.⁴¹¹ This means that the standards are not mandatory for over 3,500 academies and 200 free schools,^{ao} which will instead rely on their governing board voluntarily agreeing to meet the standards. This raises the concern of a greater likelihood of poor quality food being provided in these schools – a 2012 small-scale survey by the School Food Trust found that, compared to other state schools, intakes of energy and nutrients of pupils in academy schools were significantly higher in energy, fat, saturated fatty acids, and percentage energy from fat and saturated fatty acids.⁴¹² This illustrates a need to ensure the mandatory food standards are extended to cover all academy schools and free schools in England. This approach is supported by parents – a 2012 survey of 12,000 parents conducted by the Local Authorities Caterers Association found that over 90 per cent wanted all schools to adhere to the standards.⁴¹³

Recommendation

- Legislation should be introduced in England to ensure that mandatory school food standards apply to all academy schools and free schools.

Action relevant to: Department for Education (England).

an Free schools were introduced following the 2010 general election to make it possible for parents, teachers, charities and businesses to set up their own schools. They are state-funded schools, but are not controlled by local authorities. Academies are publically-funded independent schools that receive their funding directly from the Education Funding Agency rather than from local authorities. Academies have greater freedom over the school curriculum and how they use their budgets.

ao These figures are sourced from Department for Education data on the number of open academies (available at: www.gov.uk/government/publications/open-academies-and-academy-projects-in-development) and open free schools (available at: www.gov.uk/government/publications/free-schools-open-schools-and-successful-applications) (last accessed 20 May 2015).

Different arrangements exist across the UK in the provision of free fruit and vegetable schemes.^{ap} The SFVS (School Fruit and Vegetable Scheme) in England provides all four to six year old children in fully state-funded infant, primary and special schools a free piece of fruit or vegetable each school day.⁴¹⁴ Primary schools that have academy status, or which operate as free schools, are not covered by this scheme. The Scottish Executive previously committed additional funding (for financial years 2003/4 to 2005/6) to provide one portion of fruit three times a week to all primary one and primary two pupils in local authority-managed schools;⁴¹⁵ although it is now up to each local authority to decide to fund provision of free fruit and vegetables. Wales and Northern Ireland do not have comparable schemes. The Children's Food Trust notes that many children are still failing to meet their daily requirements of fruit and vegetables, despite the introduction of the school food standards.⁴¹⁶ This highlights the need to extend free fruit and vegetable initiatives to ensure equal provision for all primary school children in the UK.

Recommendation

- A free fruit and vegetable scheme should be available to all primary school children throughout the UK five days per week.

Action relevant to: Convention of Scottish Local Authorities/Department for Education (England)/Department of Education (Northern Ireland)/Governors Wales/National Association of Head Teachers/National Governors' Association/Northern Ireland Local Government Association/Scottish Government/The Association of Directors of Public Health/Welsh Government/Welsh Local Government Association.

Section 2.1 highlighted the issue of food poverty, where individuals and households are unable to obtain a healthy diet because of factors such as affordability, accessibility and availability. This can significantly impact on the diets of children living in those households. The provision of free school meals is one way to increase access for these children to a healthy meal.

There have been calls in recent years to provide free school meals to all children and young people in the UK – including by the Children's Food Campaign,⁴¹⁷ and Child Poverty Action Group's Let's all have lunch campaign.⁴¹⁸ The Children's Society notes that 1.2 million school-age children living in poverty are not getting free school meals in England. Out of these children, 700,000 are not entitled to free school meals.⁴¹⁹ The remaining 500,000 children are entitled to free school meals but do not claim them because of the stigma associated with doing so, such as being identified as a low-income child and being treated differently.⁴¹⁹

Different arrangements exist across the UK^{aq} for entitlement to free school meals for children. In England, under the provisions of the Children and Families Act, all state-funded schools – including academies and free schools – have been required to offer a free school lunch to all pupils in reception, year one and year two (ie those aged 4 to 7 years) since September 2014.⁴²⁰ In Scotland, all children in primary one to three (ie those aged 4 to 7 years) have been entitled to a free school meal every day since January 2015, following the implementation of provisions in the Children and Young People (Scotland) Act 2014.⁴²¹ Various pilot and modelling studies suggest that the universal nature of free school provision in England and Scotland is beneficial because it may:

- increase uptake of school meals
- positively impact on family budgets and disposable income
- improve learning and attainment
- make a contribution to reducing health inequalities.^{422,423,424,425}

ap A voluntary 'School Fruit Scheme' operates across the European Union to fund the distribution of fruit and vegetables to school children in participating member states, as well as educational measures aimed at increasing fruit and vegetables consumption. Finland, Sweden and the UK do not participate in the scheme.

aq A system of 'Universal Credit' is being introduced in stages across parts of the UK, which may affect the number of children eligible for free school meals.

In Northern Ireland and Wales, children who attend nursery, primary or post-primary school on a full time basis are entitled to receive free school meals if their parents are in receipt of certain benefits or support payments.^{426,427} In light of the benefits set out in the previous paragraph, consideration should be given in Northern Ireland and Wales to extending this to universal provision of free school meals among these age groups.

Recommendation

- Consideration should be given to extending the provision of free school meals in Northern Ireland and Wales to be universal rather than based on entitlement.

Action relevant to: Department of Education (Northern Ireland)/Governors Wales/National Association of Head Teachers/Northern Ireland Local Government Association/The Association of Directors of Public Health/Welsh Government/Welsh Local Government Association.

In the spotlight: 'holiday hunger'

The focus on providing free school meals also highlights the issue of children's access to healthy meals outside of school term time, reflecting the fact that there is an estimated 170 non-school days a year in the UK. A 2014 project looking at ways to address non-term time hunger (commonly referred to as 'holiday hunger') noted a lack of a co-ordinated and strategic response in the UK to address this problem.⁴²⁸ As highlighted in a 2015 report by the Northern Housing Consortium, action in this area is reliant on the efforts of charitable and voluntary sector organisations.⁴²⁹

5.4.3 The healthcare environment

As with schools, the healthcare environment provides a closed setting suitable for promoting and supporting healthy behaviours. This setting should therefore be an exemplar of best practice in supporting healthy dietary choices, and in addressing broader social norms. Hospital patients, including children and young people, must be provided with healthy, nutritious and appetising meals. There is also a key role for hospitals to support the health and wellbeing of staff and visitors. Away from hospitals, those individuals in social care settings should also be provided with healthy, nutritious and appetising meals.

5.4.3.1 Hospital food standards

Different standards apply across the UK for hospital food, and evidence from various surveys show that the food can vary significantly in quality, including meals that are unhealthy and unappetising.^{430,431,432,433,434,435,436,437} A 2011 Which? review – comparing the nutritional standard and quality of public sector food served across the UK – found England to have the worst hospital food, and Scotland to have the best.⁴³⁶ This most likely reflects that comprehensive nutritional standards⁴³⁸ for food served to patients were introduced in Scotland in 2008 (which are currently being updated). The Welsh Government also introduced comprehensive nutrition and catering standards⁴³⁹ in 2011.

In Northern Ireland, while the 2007 Nursing Care Standards⁴⁴⁰ for hospital food set out a range of broad requirements for hospital food, they do not explicitly focus on specific standards for nutritional content. In England, the Sustain Campaign for Better Hospital Food has previously highlighted repeated failings of voluntary initiatives to improve hospital food.⁴⁴¹ In August 2014, an advisory group set up by the DH recommended that NHS hospitals in England should develop and maintain a food and drink strategy, and identified five food care and catering standards (governing different aspects of patient, and staff and visitor catering) that should become routine practice.⁴⁴² These recommended standards are required through the NHS contract, which means that NHS hospitals in England have a legal duty to comply with them.

Board of science members have highlighted that the existence of these different standards increases the likelihood of variation in the quality of food served to patients across the UK. A useful way to reduce this variability would be the development of a UK-wide approach to hospital food standards. An additional issue that should be considered is the need to embed these food standards in statute, and the proposals to do so in Scotland⁴⁴³ are a

welcome development. While the existing standards are mandatory, there is an insufficient focus on monitoring and enforcement. In England, for example, the focus on implementing recommended standards through commissioning contracts, rather than through a statutory approach, increases the risk of the standards being unevenly applied and makes them difficult to enforce.

Recommendation

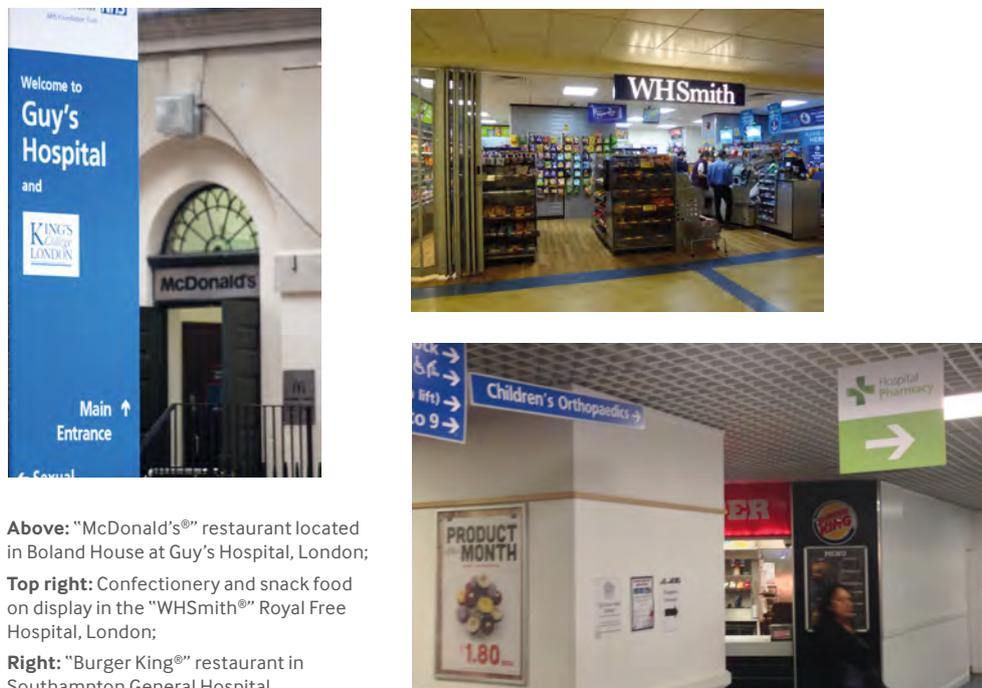
- The UK health departments should work together to develop and implement consistent and comprehensive hospital food standards, which should be introduced as a statutory requirement.

Action relevant to: Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Scottish Government/Welsh Government.

5.4.3.2 Other food available in the hospital environment

The sale of unhealthy food items in hospitals – through on-site fast-food franchises, retail outlets and vending machines – is commonplace,⁴⁴⁴ to the extent that some BMA members have described their workplaces as a toxic hospital food environment.⁴⁴⁵ Of significant concern is the normality with which retailers whose range of products include unhealthy items operate in NHS hospitals (see **Figure 16**). This is the ultimate reflection of the pervasive nature of industry marketing, where unhealthy products are actively promoted in a setting designed to foster health and wellbeing. This, in turn, reinforces a social norm of unhealthy dietary behaviour, and sets a poor example to patients and visitors, including children and young people. It also challenges an employer's responsibility to promote workplace health and wellbeing for NHS staff, who may be forced to rely on food and drinks purchased from vending machines and retail outlets when hospital canteens are closed. This highlights a clear need to introduce stronger restrictions on the sale of unhealthy food and drink products in NHS hospitals.

Figure 16



Above: "McDonald's®" restaurant located in Boland House at Guy's Hospital, London;

Top right: Confectionery and snack food on display in the "WHSmith®" Royal Free Hospital, London;

Right: "Burger King®" restaurant in Southampton General Hospital.

Varying regulations are in place in the UK governing the food available in the hospital environment. In Wales, foods and drinks supplied/sold in vending machines in NHS hospitals are not allowed to be damaging to dental health, or permitted to exceed specific criteria for the maximum levels of fat, saturated fat, sugar and salt.⁴⁴⁶ Restrictions on vending machines in NHS hospitals in Scotland include that all soft drinks must be sugar-free (less than 0.5g of sugar per 100ml), and that 30 per cent of snack/confectionary vending, and 70 per cent of refrigerated food vending, must be healthier choices.^{447,448} There are no similar provisions in

England, with specific standards for vending machines omitted from the recommendations made by the independent advisory group in August 2014.⁴⁴² The adverse impact of this lack of guidance is highlighted by a 2013 World Cancer Research Fund survey, which found that three-quarters of the 146 NHS Trusts in England did not have a policy on the food sold in their vending machines.⁴⁴⁹

Limited provisions are also in place in relation to on-site shops and food outlets in hospitals (see **Figure 17**). While these promote the basic principles of providing healthy food and drink options, they do not adequately limit the sale of unhealthy products.

Figure 17 – Guidance promoting healthier dietary behaviour across hospitals

In Scotland, there is a requirement for all caterers to follow 'healthyliving award' criteria at the point of contract (re)negotiation.⁴⁴⁸ This includes a range of areas, including keeping the use of fats/oils, salts and sugar to a minimum; making fruit and vegetables clearly available; using starchy foods as a core part of most meals; and having at least 50 per cent of the food on the menu adhering to the criteria.⁴⁵⁰ Retailers are required to join the SGF (Scottish Grocers' Federation) *Healthy Living Programme* aimed at increasing access and take-up of affordable healthier food options,⁴⁵¹ and need to meet their gold standard criteria at the point of contract (re)negotiation.⁴⁴⁸ The Welsh Government provides basic advice to staff and volunteers working in cafes, restaurants and retail outlets on buying, cooking, serving and promoting healthier food and drink.⁴⁵² In England, catering staff are required to apply PHE nutrition principles and comply with government buying standards for promoting a healthy diet in staff canteens, as well as practical strategies to reduce salt, saturated fat and sugar intake.⁴⁴²

The BMA would ultimately like to see an end to the sale of all unhealthy food and drink products in all NHS hospital across the UK. In recognising that food services (including vending machines, on-site shops and food outlets) may not be under the direct control of the hospital, this will require a phased approach through renegotiation with leaseholders and contractors. Building on existing guidance, this should be supported by the development of UK-wide mandatory regulations governing the sale of food and drink products from vending machines, and on-site shops and food outlets.

Recommendation

- The sale of all unhealthy food and drink products should be phased out in all NHS hospitals, supported by the development and implementation of UK-wide mandatory regulations.

Action relevant to: Care Quality Commission (England)/Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Healthcare Improvement Scotland/Healthcare Inspectorate Wales/Hospital Caterers Association/NHSScotland/NHS England/NHS Wales/Regulation and Quality Improvement Authority (Northern Ireland)/Scottish Government/Welsh Government.

5.4.3.3 Food standards in social care settings

A wide range of social care homes exist throughout the UK, notably nursing homes and residential care homes (including permanent care homes for older people, homes for younger adults with disabilities, and children's homes). These typically have responsibility for providing food and drink to their residents. While standards for the care provided in these homes have been developed,^{453,454,455,456,457,458,459,460,461,462,463,464,465,466} they only include overarching requirements for the food to be nutritionally balanced, varied and appetising. There are no specific standards related to nutritional content of the food and drink provided. In the view of the board of science, this increases the likelihood of residents receiving unhealthy content in meals, and does not give sufficient priority to this aspect in inspection and monitoring. Action is therefore needed to develop specific nutritional standards for care homes in the UK, which should be implemented on a statutory basis.

Recommendation

- Nutritional standards should be developed and implemented for the provision of food in all care homes in the UK, and should be a statutory requirement.

Action relevant to: Care and Social Services Inspectorate Wales/Care Inspectorate (Scotland)/Care Quality Commission (England)/Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/National Association of Care Catering/Office for Standards in Education, Children's Services and Skills (England)/Regulation and Quality Improvement Authority (Northern Ireland)/Scottish Government/Welsh Government.

5.4.4 Regulating the nutritional content of processed food and drink products

While some processing can be beneficial for health – such as pasteurising milk – many products that undergo processing lose essential minerals and vitamins, which are important for healthy diets. Processing can also increase levels of trans fats, saturated fats, added sugars (sugars added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and unsweetened fruit juices) and salt, which, as noted previously, increase the risk of a range of long-term health conditions, and are over consumed by the UK population. This is particularly relevant for low income groups, who commonly rely on cheap, processed food and drink products as a part of their diet. Action is therefore needed to regulate their nutritional content, as a way of limiting the harm associated with their consumption.

5.4.4.1 Trans fats

Trans fats derive from two sources in the diet – naturally occurring in meat and dairy products of ruminant animals (where they are present at low levels), and those that are artificially produced through industrial processing practices, IPTFAs (industrially produced trans fatty acids). The use of IPTFAs has increased since the 1950's due to public health recommendations to replace saturated fat with alternatives, and because their use has commercial advantages (eg increased shelf life).⁴⁶⁷ The main sources of IPTFAs include deep fried foods, packaged snacks, and margarines.

In light of the known adverse health impacts of trans fats highlighted in Section 2.2, many countries have introduced varying strategies to reduce trans fats intake. In Canada, this has been achieved through a combination of mandatory labelling of trans fats levels on pre-packaged food products, and targets for industry to reduce trans fats to recommended levels.⁴⁶⁸ Significant progress has also been achieved in The Netherlands through coordinated societal pressure and voluntary action by the industry, with limited government intervention.⁴⁶⁹ In New York City, following the ineffectiveness of a voluntary campaign to reduce trans fats levels in restaurant food, mandatory restrictions were introduced that resulted in the majority of national food chains removing artificial trans fats.⁴⁷⁰ Comparable changes were then rolled out across the USA, and substantial reductions in trans fats levels have been seen.⁴⁷¹ The approach taken in Denmark has been highlighted as the most effective model for reducing IPTFAs in the food chain.^{45,472} This involved multisectoral collaboration, supported by widespread media and political involvement, with coordination by the Danish Nutrition Council.⁴⁷³ This ultimately led to the introduction of mandatory limits on IPTFAs in oils and fats for human consumption in 2004. This was found to be extremely effective,^{474,475} virtually eliminating IPTFAs in the food supply by 2005 (including in products that have typically high trans fats levels), without a noticeable effect on availability, price, and quality of foods.⁴⁷⁶

While all the examples noted in the preceding paragraph have been effective in reducing trans fats intakes,⁴⁷⁷ a 2013 systematic review of the evidence of their effectiveness concluded that national and local bans were the most effective, whereas mandatory labelling and voluntary limits had a varying degree of success.⁴⁷⁸

In the UK, the main approach to reducing IPTFA levels has focused on encouraging voluntary action by manufacturers and retailers to not use ingredients that contain artificial trans fats/ remove artificial trans fats from their products. As has been seen in other countries, this has led to some reductions in the IPTFA content of processed products.⁴⁷⁹ Data also show that average intake of trans fats is below recommended maximum levels in the UK.² There is, however, limited information on the distribution of intakes among the population, and concerns have been expressed that certain subgroups may have substantially higher intakes than the reported population average.^{45,405,480} This includes individuals who regularly use partially hydrogenated vegetable oils for cooking, or eat a high proportion of industrially processed or fast-food (commonly referred to as a 'high trans menu').

This highlights a need for further action in this area. As not all products are covered by the voluntary approach, there is a risk that individuals in the UK who consume a high trans menu will have intakes far above recommended levels. This is compounded by the lack of specific requirement for manufacturers to provide information on trans fats levels on product labels^{ar}.

To ensure equal protection across the population, and learning from international experiences such as the approach taken in Denmark and the USA, efforts should be strengthened to further reduce trans fats intake in the UK. This should be achieved by the implementation of a one-year target for industry to eliminate IPTFAs from all products sold in the UK. If this target is not met, legislation should be introduced to enforce these restrictions.

Recommendation

- A one-year target should be set for manufacturers, retailers and caterers to not produce or sell any food and drink products containing artificial trans fats in the UK. Regulatory measures should be implemented if this target is not met.

Action relevant to: British Independent Retailers Association/British Retail Consortium/ Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Food and Drink Federation/Food Standards Agency Northern Ireland/ Food Standards Agency Scotland/Food Standards Agency Wales/Nationwide Caterers Association/Northern Ireland Retail Consortium/Scottish Government/Scottish Grocers Federation/Scottish Retail Consortium/The Association of Convenience Stores/Welsh Government/Welsh Retail Consortium/UK Food Standards Agency.

5.4.4.2 Salt

Salt is not generally found in high concentrations in unprocessed food, but tends to be added to many foods during processing, cooking or at the table. Previous estimates have suggested that 75 per cent of daily salt intake comes from processed food (mainly cereals and baked goods) or caterer and restaurant meals.⁴⁸¹

With increasing concern about the adverse health impacts of high dietary salt intake (see **Section 2.2**), the UK was one of the first European countries to develop a national salt reduction strategy. As Elinder and Bollars highlight, the way this strategy came about provides an interesting case study for policy development.⁴⁷² A target to reduce salt consumption to no more than 6g per person per day was first considered by COMA (the Committee on Medical Aspects of Food and Nutrition Policy)^{as} in 1994.⁴⁸² Amid opposition to the targets from industry,⁸⁸ and reluctance at government level to endorse them, the advocacy group, CASH (Consensus Action on Salt and Health), was set up in 1996. This had the aim of working to reach a consensus with the industry and government over the harmful effects of a high salt diet, and to bring about a reduction in the amount of salt in processed foods.

^{ar} In accordance with European Union regulations, manufacturers are required to list all ingredients on the labels of pre-packaged products, but do not have to provide specific information on the levels of trans fats in products (unless a specific trans fats claim has been made eg 'low in trans fats').³⁷⁷

^{as} This was disbanded in March 2000, and the Scientific Advisory Committee on Nutrition was subsequently set up to advise on matters relating to food, diet and health.

The work of CASH initially led to some manufacturers, retailers and caterers reducing salt in their products, and in 2003, the COMA target was endorsed by the government.⁸³ A UK-wide national salt reduction strategy was subsequently implemented by the FSA in 2004, based on raising public awareness through an advertising and social marketing campaign; the introduction of traffic-light labelling for salt content; and engagement with industry on a voluntary basis to set reduction targets. For the latter, the FSA introduced voluntary salt reduction targets for 85 categories of food in 2006, to be achieved by 2010. This resulted in some welcome progress, with average estimated salt intake for adults in the UK declining by 10 per cent between 2000/01 and 2008 (from 9.5g to 8.6g);⁴⁸³ however, this was not found to have occurred equally in relation to factors such as age, gender and socioeconomic status.⁴⁸⁴

In 2009, the FSA revised the salt reduction targets (for 80 categories of foods) with a view to all adults in the UK achieving the recommended maximum intake of 6g per day by 2012. While the downward trend in average estimated salt intake has continued beyond 2008, the 2012 target was not met, with mean salt intake for adults and children remaining above recommended levels.^{2,18,19,20} A further revision to the voluntary salt reduction targets was agreed in 2014, with a view to achieving the recommended maximum intake of 6g per day by 2017.⁴⁸⁵

While it is recognised that there has been significant progress in reducing high dietary salt intake in the UK, stronger action will be needed if the 2017 target is not met. This position is supported by the 2010 NICE guidance on the prevention of cardiovascular disease, which set a target of 6g per day per adult by 2015, supported by legislation if necessary.⁴⁰⁵ The NICE guidance also set a longer term target of 3g per day per adult by 2025. While achieving the targets for adult average intake should also lead to a reduction in children's intake, it will be important to monitor this against the recommended age-appropriate guidelines^{at} set by the SACN.

Recommendation

- All manufacturers, retailers and caterers should prioritise action to systematically reduce salt levels in all food and drink products sold and produced in the UK in line with the revised UK-wide 2017 targets, with a view to meeting the 6g per day population intake goal for adults. Regulatory measures should be implemented if this target is not met.

Action relevant to: British Independent Retailers Association/British Retail Consortium/Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Food and Drink Federation/Food Standards Agency Northern Ireland/Food Standards Agency Scotland/Food Standards Agency Wales/Nationwide Caterers Association/Northern Ireland Retail Consortium/Scottish Government/Scottish Grocers Federation/Scottish Retail Consortium/The Association of Convenience Stores/Welsh Government/Welsh Retail Consortium/UK Food Standards Agency.

5.4.4.3 Fat, saturated fat, added sugars and calories

A wide range of processed energy-dense food and drink products are available and readily accessible in the UK, and as noted in **Section 2.2**, their intake is one of the factors that can lead to an energy imbalance and promote overweight and obesity.

While the preceding paragraphs have highlighted the considerable progress made in reducing salt and trans fats intake across the UK, less attention has been given to reducing intakes of fat, saturated fat, added sugars and calories. In England, there is a broad objective to reduce the national energy intake by five billion calories.⁴⁸⁶ This has been supported by voluntary calorie reduction commitments by various manufacturers, retailers and caterers (involving product/menu reformulation, altering portion sizes, education and information, and marketing towards lower calorie options).⁴⁸⁷ Voluntary commitments are also being taking forward to reduce saturated fat levels.⁴⁸⁸ The main concerns related to these

^{at} It is recommended that children aged from one to three years should consume no more than 2g of salt a day (0.8g sodium); from four to six years they should consume no more than 3g of salt a day (1.2g sodium); and from seven to 10 years a maximum of 5g of salt a day (2g sodium).

commitments are the lack of targets covering specific food and drink product categories, or a defined timescale for action. Apart from updates provided by individual companies, there is also no clear evaluation of the progress being made nationally. Research conducted by Which? in 2012 found there to be patchy progress being made against the voluntary commitments,³⁹⁷ and there has been criticism that some companies have focused their action on lesser-known products rather than their flagship brands.⁴⁸⁹

A voluntary approach has also been adopted in Scotland. This includes reformulation targets for specific product categories to reduce calories and/or energy density, fats and added sugars.⁴⁹⁰ The relevant product categories are: soft drinks with added sugar; chocolate and chocolate confectionery; biscuits; cakes; pies and pastries; dairy products; sausages; savoury snacks; and chips, fried and roast potatoes and products. While the focus on specific product categories is welcome, there is no defined evaluation strategy, and the targets are relatively short-term (set for achievement by 2015). There are no comparable voluntary targets in Northern Ireland and Wales.

In light of this varying progress, there is a need to build on the approach in Scotland through the development of UK-wide targets for manufacturers, retailers and caterers to reduce calorie, fat, saturated fat and added sugars levels across key product categories. This should include a goal to achieve the targets by 2020.

Recommendation

- UK-wide targets, to be achieved by 2020, should be set for manufacturers, retailers and caterers to reduce calorie, fat, saturated fat and added sugar levels for the following product categories: soft drinks with added sugar; chocolate and chocolate confectionery; biscuits; cakes; pies and pastries; dairy products; sausages; savoury snacks; and chips, fried and roast potatoes and products. Regulatory measures should be used if these targets are not met.

Action relevant to: British Independent Retailers Association/British Retail Consortium/Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Food and Drink Federation/Food Standards Agency Northern Ireland/Food Standards Agency Scotland/Food Standards Agency Wales/Nationwide Caterers Association/Northern Ireland Retail Consortium/Scottish Government/Scottish Grocers Federation/Scottish Retail Consortium/The Association of Convenience Stores/Welsh Government/Welsh Retail Consortium/UK Food Standards Agency.

5.4.5 Fiscal measures that favour healthy diets

The use of fiscal policies has been shown to be an important lever for changing behaviour for tobacco and alcohol use,^{491,492} and the WHO has long recognised their potential to encourage healthy dietary behaviour.⁴⁹³

A range of countries – including Mexico, Norway, Samoa, Australia, Finland, Hungary, Denmark, France and certain states in the USA – have introduced taxation measures on unhealthy food and drinks. These have taken varying approaches, from increased excise duty on products containing specific levels of ingredients (eg saturated fat), to focusing on particular product categories (such as ice cream, soft drinks and juices, energy drinks, confectionery, and salty snacks). In addition to the empirical evidence provided by these country-specific interventions, a range of modelling studies have also assessed the impact of taxation measures. Reviews of this empirical and modelling evidence have consistently concluded that taxation has the potential to improve health.^{494,495,496} It has been suggested that relatively high taxation levels (in the region of 20%) would be needed in achieving detectable changes in consumption, body weight and disease occurrence.^{495,496,497} All the reviews noted the importance of taking account of possible substitution effects (ie consumers switching to cheaper products with similar nutrient profiles), for example, by taxing a wide range of products or ingredients.^{494,495,496}

This latter point highlights the need for a broader tax base. As a first step, the board of science agrees with the AoMRC's view²⁰⁵ that a useful initial policy would be to implement a duty on sugar-sweetened beverages by increasing the price by at least 20 per cent (ie all non-alcoholic water based beverages with added sugar, including sugar-sweetened soft drinks, energy drinks, fruit drink, sports drinks and fruit-juice concentrates). This recognises that the strongest evidence of effectiveness of taxation approaches is for sugar-sweetened beverages.^{495,498,499,500,501,502,503,504,505,506} A systematic review of 160 studies on price elasticity measures suggested that a 10 per cent tax on soft drinks would result in an eight to 10 per cent reduction in purchases of these beverages.⁵⁰⁷ Modelling studies from the US have predicted weight losses of 0.32kg and 0.59kg resulting from a 20 per cent and 40 per cent tax on all sugar-sweetened beverages per person respectively.⁵⁰⁸ A 2013 modelling study found that a 20 per cent tax on sugar-sweetened drinks is predicted to reduce the prevalence of obesity in the UK by 1.3 per cent (around 180,000 people).⁵⁰⁹

The focus on sugar-sweetened beverages also reflects that they are a significant source of added sugars – for example, many leading brands of sugar-sweetened beverages have been found to contain nine or more teaspoons of sugar in a 330ml serving.⁵¹⁰ They are therefore typically high in calories, but low in essential vitamins and minerals (often referred to as 'empty calories'). As highlighted earlier in this report, the intake of added sugars by many children and adults in the UK far exceeds recommended levels,² and there is increasing concern about their role in the development of a range of health conditions. The latter aspect has been most recently highlighted by the WHO and the SACN respectively.⁶⁷ In 2008/09 in the UK, beverages accounted for 21 per cent, 14 per cent and 18 per cent of energy per day for children aged 1.5 to 18 years, four to 18 years, and adults (19 to 64 years) respectively.⁵¹¹ Since the 1990s, the most important shifts are a reduction of consumption of high-fat milk – particularly among pre-schoolers (children not yet old enough for school or attending a preschool), children and adolescents – with a shift towards sodas, fruit drinks, juices, and sweetened dairy.⁵¹¹

Recommendation

- A tax should be introduced on all sugar-sweetened beverages, which increases the price by at least 20 per cent.

Action relevant to: Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/European Commission/HM Treasury/Scottish Government/Welsh Government.

Fiscal measures can also be used to regulate the price of healthier products through subsidisation. This is likely to be an important way to help redress the imbalance highlighted previously between the cost of healthy and unhealthy products, which particularly impacts on individuals and families affected by food poverty (see **Section 4.7.1**). There is evidence from natural experiments, controlled trials and modelling studies that subsidies on healthy foods, such as fruit and vegetables, may alleviate the regressive nature of food taxes and reduce diet-related disease such as heart disease and stroke.^{495,496,512} A 2012 systematic review of 24 international field experiments also found that subsidies on healthy foods can increase the purchase and consumption of these products.⁵¹³

The most obvious food groups to focus on are fruit and vegetables. As noted previously, the majority of the UK population do not consume these at recommended levels, which is most apparent in low income households.^{2,21} They are also one of the food groups most affected by price rises since the start of the recession – prices for fish, fruit and vegetables, bread and meat have all increased by more than 30 per cent since June 2007, and in the year to June 2013, fruit and vegetable prices showed the greatest increases at 7.5 per cent and 5.2 per cent respectively.¹⁶⁶ Consideration should therefore be given to the introduction of fiscal measures to subsidise the sale of fruit and vegetables in the UK. This could be funded by the introduction of a tax on sugar-sweetened beverages recommended previously.

Recommendation

- Consideration should be given to the introduction of fiscal measures to subsidise the sale of fruit and vegetables.

Action relevant to: Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/HM Treasury/Scottish Government/Welsh Government.

5.5. International cooperation on nutrition

International cooperation and coordination is essential in reducing the global burden of disease associated with poor dietary behaviour.⁵¹⁴ This reflects the range of cross-border issues such as international marketing, advertising and trading of food and drink products. This is particularly important in the European region, where agreements made at an EU level can significantly impact on food and nutrition policy in the UK. The development of the TTIP (Transatlantic Trade and Investment Partnership)^{au} further highlights the need for international cooperation. As the Faculty of Public Health has highlighted, the TTIP has the potential to limit the government's ability to implement public health measures, such as regulation requiring consistent food labelling.⁵¹⁵

Coordinating action at an international level has been facilitated by various non-binding agreements drawn up with the aim of strengthening national policy action. These include the 2004 WHO's *Global Strategy on Diet, Physical Activity and Health*,⁴⁹³ the *2008-2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases*,⁵¹⁶ the *Moscow Declaration*,⁵¹⁷ and *A framework of implementing the set of recommendations on the marketing of foods and non-alcoholic beverages to children*.⁵¹⁸

Closer to home, the European Commission's white paper on *A strategy on nutrition, overweight, and obesity-related health issues* for the EU sets out a number of principles for action, including addressing the root causes of the health related risks; working across government policy areas and different levels of government; action from a wide range of stakeholders; and monitoring.⁵¹⁹ These actions are coordinated and supported by an *EU Platform for Action on Diet, Physical Activity and Health*⁵²⁰ – which is a forum for representatives ranging from industry to consumer protection NGOs – as well as a high level group⁵²¹ of European government representatives.

Various European level agreements for the WHO European Region have also been developed, including the *European Charter on Counteracting Obesity*,⁵²² the *European Action Plan for Food and Nutrition Policy 2007-2012*,⁵²³ the *Action Plan for implementation of the European Strategy for the Prevention and Control of Noncommunicable Diseases 2012-2016*,⁵²⁴ and the *European Food and Nutrition Action Plan 2015-2020*.⁵²⁵

While these agreements and initiatives support coordinated action between countries, there has been limited progress by governments across the world in implementing policy and regulatory changes.⁵²⁶ As Swinburn et al note, this reflects the '... powerful lobby force of the food (and allied) industries against government regulation of the food market and public reluctance to change environments to which they have become accustomed...'.⁵²⁶ This highlights the need for governments and international organisations to provide global leadership and develop a comprehensive framework to support countries in strengthening their policy and regulatory approaches to tackling diet-related ill health. This could be achieved through a global Framework Convention on Healthy Nutrition similar to the WHO FCTC (Framework Convention on Tobacco Control)^{av} that came into force in 2005. In order to be effective, this should include legally binding provisions for action to tackle the availability, accessibility and promotion of unhealthy food and drink products, supported by measures to limit industry influence on policy development. Monitoring of progress in improving

au A trade agreement that is being negotiated between the European Union and the US, with the aim of removing trade barriers (such as differences in technical regulations, standards and approval procedures) to make it easier to buy and sell goods and services between the two regions.

av Further details can be found at: www.who.int/fctc/en/ (last accessed 20 May 2015).

food environments and policies globally is also essential, as now facilitated by INFORMAS (the International Network for Food and Obesity/non-communicable diseases Research, Monitoring and Action Support).⁵²⁷

Recommendation

- The UK Government should lobby for, and support the World Health Organization in developing and implementing an international treaty on food and nutrition in the form of a Framework Convention on Healthy Nutrition. This should include legally-binding provisions to tackle the availability, accessibility and promotion of unhealthy food and drink products, as well as a directive to ensure that food and nutrition policies are developed independently of commercial interests.

Action relevant to: Department of Health (England)/Department of Health, Social Services and Public Safety (Northern Ireland)/Scottish Government/World Health Organization/Welsh Government/UK government.

6. Conclusion

This report highlights the need for comprehensive action to promote healthier diets among children and young people, and thus, reduce the burden of diet-related ill health in the UK. The overarching focus is to change the environment to one where an individual's choices about what to eat and drink default to healthy options. Progress will only be achieved if there is strong action to limit the pervasive commercial influences that encourage unhealthy dietary behaviour. Nowhere is this more evident than with the marketing of unhealthy food and drink products, which can impact on children and young people's dietary choices and behaviours. The frequency, intensity, diversity and nature of this marketing provides justification for stronger controls. Commercial influences on the way products are manufactured and sold also needs to be considered. This is to ensure healthy options are readily available and affordable, and limit the accessibility of products with unhealthy content. While this involves action across a wide range of settings, schools and hospitals need to be an exemplar of best practice.

Underlying these measures, there is a place for education and health promotion, to ensure people have the right knowledge to make informed choices. This must not, however, be the central feature of the strategy to reduce diet-related ill health. Evidence shows that education and health promotion are only effective when supported by a strong regulatory framework. The role of manufacturers, retailers and caterers also needs to be clearly defined. As this report notes, pressure on industry has led to some progress, particularly in reducing salt and trans fats levels in processed food products, and in providing nutritional information. This action should continue and must be made mandatory if targets and objectives are to be met. There is, however, a need to recognise that commercial vested interests do not match public health objectives. Involving manufacturers, retailers and caterers in the development of food and nutrition policies will not only lead to a weaker regulatory framework, it will also enhance commercial interests.

In looking forward, this report outlines a number of policy recommendations for action. They are not meant to be considered in isolation, but to form the basis of a wide-ranging, integrated food and nutrition policy framework. This recognises how the policies need to complement each other. For example, efforts to teach children about healthy dietary behaviour in schools will be undermined by easy access to fast-food outlets outside the school gates, as well as by exposure to the range of sophisticated commercial marketing tactics.

While the focus of this report is on promoting healthier diets among children and young people, the range of measures necessarily involve, and would also benefit, large proportions of the population. This reflects the fact that children and young people grow up and live in the same environment as the rest of the population, and that those around them (particularly parents/carers, family and friends) can have a direct or indirect influence on their dietary behaviour.

Implementing these recommendations will require action at every level; from families, communities, schools, local authorities, industry and national government, to international collaboration on cross-border issues. The experiences in countries such as Finland^{472,528,529} highlight the importance of advocacy, coordination and leadership from the health community and other sectors. As Elinder and Bollars highlight, too little focus has been given to evaluating the effectiveness of food and nutrition policies across Europe.⁴⁷² Implementing the recommendations in this report therefore provides the opportunity to establish systems to monitor and evaluate their impact on dietary behaviours and diet-related ill health, and to revise them as needed.

Recommendations

Overall approach to diet-related ill health

- A strong regulatory framework should be central to the approach to reducing the burden of diet-related ill health in the UK, focused on interventions that limit commercial influences on people's dietary behaviour and encourage healthy dietary patterns.

Improving attitudes and knowledge about healthy dietary behaviour

Education, social marketing and health promotion

- High impact and sustained social marketing campaigns should be used to improve attitudes and knowledge about healthy dietary behaviour and the health risks of a poor diet. These should learn from the key success factors of commercial marketing practices, and must be supported by a strong regulatory framework that reduces the accessibility, availability and promotion of unhealthy food and drink products.
- Local authorities should work collaboratively with schools to achieve the wider implementation of the whole-school approach for promoting healthier diets throughout the UK. This should include a focus on developing cooking skills and improving knowledge about where food comes from.
- There should be adequate resources to support all healthcare professionals in addressing dietary behaviour where possible and clinically appropriate. This should be complemented by comprehensive education and training opportunities – integrated throughout the undergraduate and postgraduate curricula, and continuing professional development – to ensure all healthcare professionals have the necessary knowledge and skills to assess nutritional status, provide advice on dietary behaviour, and utilise practical behaviour change techniques in the clinical setting.

Consumer information

- A mandatory, standardised approach for displaying nutritional information – based on traffic lights/colour coding, reference intakes, and high/medium/low text – should be introduced for all pre-packaged food and drink products. This will require regulatory changes at a European level.

Limiting unhealthy cues and the promotion of unhealthy food and drink products

Restrictions on mass media advertising and other marketing communications

- Regulations should be developed to prohibit the marketing of unhealthy food and drink products to children and young people. In the short-term, this should focus on:
 - revising the UK Code of Broadcast Advertising to prohibit advertisements in or around any programmes that appeal in any way to children and young people
 - revising the UK Code of Non-broadcast Advertising, Sales Promotion and Direct Marketing to include specific provisions preventing the marketing via non-broadcast media (including the use of promotional offers, licensed characters and celebrity endorsements) that appeal in any way to children and young people
 - developing regulations that prohibit any marketing activities involving sponsorship of events, activities, individuals or groups that appeal in any way to children and young people.
- The marketing of unhealthy food and drink products in schools (eg commercial sponsorship and branding of educational packs, goods and equipment) should be prohibited.

Regulating industry practices and changing the retail environment

- The UK health departments should commission a review of how the regulation of sales promotions can be strengthened to ensure they favour healthy options and deliver public health benefits.
- Regulations should be developed that prohibit retailers from:
 - displaying unhealthy food and drink products at checkouts and in queuing areas
 - the use of schemes that require retail staff to promote unhealthy food and drink products at checkouts.

Creating an environment that promotes healthy dietary behaviour

The physical availability of unhealthy and healthy products

- Local authorities should be provided with the power to restrict the future number, clustering and concentration of fast-food outlets locally.

Food in schools

- Legislation should be introduced in England to ensure that mandatory school food standards apply to all academy schools and free schools.
- A free fruit and vegetable scheme should be available to all primary school children throughout the UK five days per week.
- Consideration should be given to extending the provision of free school meals in Northern Ireland and Wales to be universal rather than based on entitlement.

Hospital food standards

- The UK health departments should work together to develop and implement consistent and comprehensive hospital food standards, which should be introduced as a statutory requirement.

Other food available in the hospital environment

- The sale of all unhealthy food and drink products should be phased out in all NHS hospitals, supported by the development and implementation of UK-wide mandatory regulations.

Food standards in social care settings

- Nutritional standards should be developed and implemented for the provision of food in all care homes in the UK, and should be a statutory requirement.

Regulating the nutritional content of processed food and drink products

- A one-year target should be set for manufacturers, retailers and caterers to not produce or sell any food and drink products containing artificial trans fats in the UK. Regulatory measures should be implemented if this target is not met.
- All manufacturers, retailers and caterers should prioritise action to systematically reduce salt levels in all food and drink products sold and produced in the UK in line with the revised UK-wide 2017 targets, with a view to meeting the 6g per day population intake goal for adults. Regulatory measures should be implemented if this target is not met.
- UK-wide targets, to be achieved by 2020, should be set for manufacturers, retailers and caterers to reduce calorie, fat, saturated fat and added sugar levels for the following product categories: soft drinks with added sugar; chocolate and chocolate confectionery; biscuits; cakes; pies and pastries; dairy products; sausages; savoury snacks; and chips, fried and roast potatoes and products. Regulatory measures should be used if these targets are not met.

Fiscal measures that favour healthy diets

- A tax should be introduced on all sugar-sweetened beverages, which increases the price by at least 20 per cent.
- Consideration should be given to the introduction of fiscal measures to subsidise the sale of fruit and vegetables.

International cooperation on nutrition

- The UK Government should lobby for, and support the World Health Organization in developing and implementing an international treaty on food and nutrition in the form of a Framework Convention on Healthy Nutrition. This should include legally-binding provisions to tackle the availability, accessibility and promotion of unhealthy food and drink products, as well as a directive to ensure that food and nutrition policies are developed independently of commercial interests.

Appendix 1 – Previous board of science publications

The BMA board of science has published a number of reports which consider some of the issues related to promoting healthy diets.

Adolescent health (2003) reviews nutrition, exercise and obesity in teenagers (13-19 year olds). It highlights the main aspects of childhood nutrition and exercise, draws attention to the role of the clinician, and provides links to sources of further information. It also makes recommendations for tackling the obesity epidemic in the UK. Relevant recommendations include:

- ensuring early intervention in children's lives to promote good nutrition and exercise
- teaching parents, including adolescents, the importance of good early nutrition
- using school-based education to promote better nutrition and exercise, but as part of an approach which addresses the structural and environmental causes of poor nutrition, inactivity and obesity
- enhancing the opportunities for physical activity, increasing access to healthy foods and limiting exposure to unhealthy food.

Preventing childhood obesity (2005) provides an overview of childhood obesity and the impact this can have on children's current and future health. It highlights the role of healthcare professionals and the environmental barriers to change that need to be overcome or removed. Relevant recommendations include:

- implementing sustained and consistent public education campaigns to improve parents' and children's understanding of the benefits of healthy living
- providing food in schools that conforms to nutritional guidelines and using the curriculum to reinforce messages around healthy eating
- making food education and the acquisition of related practical skills compulsory, supported by appropriate training for teachers on what constitutes a good, balanced diet and how to prepare food
- mandating nutrient and compositional standards for school meals
- banning the sale of unhealthy food and drink products from school vending machines in secondary and upper schools to continue the healthy eating message given in primary schools
- expanding the free fruit and vegetable scheme to all primary and nursery school children
- providing free water in all schools, available from clean and hygienic sources
- subsidising the cost of fruit and vegetables to encourage healthy eating
- introducing legal requirements on all manufacturers to reduce salt, sugar and fat in pre-prepared meals to an agreed level within a defined time-frame
- banning the advertising of unhealthy foodstuffs, including inappropriate sponsorship programmes, targeted at school children
- ensuring that celebrities and children's television characters are only used to endorse healthy products that meet nutritional criteria laid down by the FSA
- stronger regulation of nutritional labelling and health claims
- implementing a system for UK-wide surveillance of factors that lead to childhood obesity, developed by the public health observatories.

Early life nutrition and lifelong health (2009), concerns early life nutrition, predominantly fetal and infant nutrition, providing useful reference information and key messages for healthcare professionals. It discusses the evidence-base and draws conclusions about the ways in which the patterns of early life nutrition can be improved, and the likely consequences of such improvements. There is increasing evidence that early life nutrition affects the development later in life of cardiovascular disease and type II diabetes, which are linked to overweight and obesity, as well as the risk of other conditions, including osteoporosis, asthma, lung disease and some forms of cancer.

Risk: what's your perspective? A guide for healthcare professionals (2012) aims to help doctors communicate risk to their patients and the public, reviewing effective risk communication strategies, and outlining common attitudes and perceptions of risk. It includes a section on overweight and obesity, which addresses the increased risks of disease associated with overweight and obesity and how and why these are under-recognised by the public.

Growing up in the UK: ensuring a healthy future for our children (2013) focuses on the child, from conception to age five, and on the impact of social and economic inequality on child health. Chapter 4 of the report focuses on nutrition and makes a series of recommendations related to early infant and young child feeding and training of health professionals.

Appendix 2 – The Food Standards Agency nutrient profile model

The FSA Nutrient Profile Model uses a scoring system which balances the contribution made by beneficial nutrients that are particularly important to children's diets with components in the food that children should eat less of.

There are three steps to working out the overall score of a food or drink.

1. Work out total 'A' points

Total 'A' points = (points for energy) + (points for saturated fat) + (points for sugars) + (points for sodium)

A maximum of 10 points can be awarded for each nutrient. The following table indicates the points scored, depending on the amount of each nutrient in 100g of the food or drink:

Points	Energy (KJ)	Sat Fat (g)	Total sugar (g)	Sodium (mg)
0	≤ 335	≤ 1	≤ 4.5	≤ 90
1	>335	>1	>4.5	>90
2	>670	>2	>9	>180
3	>1005	>3	>13.5	>270
4	>1340	>4	>18	>360
5	>1675	>5	>22.5	>450
6	>2010	>6	>27	>540
7	>2345	>7	>31	>630
8	>2680	>8	>36	>720
9	>3015	>9	>40	>810
10	>3350	>10	>45	>900

Source: Department of Health (2011) Nutrient profiling technical guidance. London: Department of Health. Reproduced under the terms of the Open Government Licence.

If a food or drink scores 11 or more 'A' points then it cannot score points for protein unless it also scores five points for fruit, vegetables and nuts.

2. Work out total 'C' points

Total 'C' points = (points for % fruit, vegetable & nut content) + (points for fibre [either NSP or AOAC]) + (points for protein).

A maximum of five points can be awarded for each nutrient/food component. The following table indicates the points scored, depending on the amount of each nutrient/food component in 100g of the food or drink:

Points	Fruit, Veg & Nuts (%)	NSP Fibre (g)	Or AOAC Fibre (g)	Protein (g)
0	≤ 40	≤ 0.7	≤ 0.9	≤ 1.6
1	>40	>0.7	>0.9	>1.6
2	>60	>1.4	>1.9	>3.2
3	-	>2.1	>2.8	>4.8
4	-	>2.8	>3.7	>6.4
5*	>80	>3.5	>4.7	>8.0

Source: Department of Health (2011) *Nutrient profiling technical guidance*. London: Department of Health. Reproduced under the terms of the Open Government Licence.

3. Work out overall score

If a food scores less than 11 'A' points then the overall score is calculated as follows:

Total 'A' points (energy + saturated fat + sugars + sodium)

Minus

Total 'C' points (fruit, veg and nuts + fibre + protein)

If a food scores 11 or more 'A' points but scores 5 points for fruit, vegetables and nuts then the overall score is calculated as follows:

Total 'A' points (energy + saturated fat + sugars + sodium)

Minus

Total 'C' points (fruit, veg and nuts + fibre + protein)

If a food scores 11 or more 'A' points, and less than 5 points for fruit, vegetables and nuts, then the overall score is calculated as follows:

Total 'A' points (energy + saturated fat + sugars + sodium)

Minus

Points for fibre + points for fruit, vegetables and nuts (not allowed to score for protein)

A **food** is classified as 'less healthy' where it scores **4 points or more**.

A **drink** is classified as 'less healthy' where it scores **1 point or more**.

A worked example: calculating a score for a fruit juice drink

Product: Raspberry and cranberry juice drink.

Contains cranberry juice from concentrate (10%) and raspberry juice from concentrate (5%)

	Per 100ml	Per 100g	Score
Energy (KJ)	177	184	0
Saturated fat (g/100g)	0	0	0
Total sugar (g/100g)	9.9	10.3	2
Sodium (mg/100g)	0	0	0
Total A points			2
Fruit, veg, nuts (5)	15%	15%	0
AOAC fibre (g/100g)	0	0	0
Protein (g/100g)	0.1	0.1	0
Total C points			0
SCORE: A-C			2

Source: Food Standards Agency (2009) *Nutrient profiling technical guidance*. London: Food Standards Agency. Reproduced under the terms of the Open Government Licence.

This fruit juice drink scores two points and would be subject to advertising restrictions.

Appendix 3 – Overview of aspects of UK school curricula related to diet, food and cooking

England

The new national curriculum for England requires all pupils in maintained schools (implemented in September 2014) to be taught about cooking and nutrition throughout primary and secondary school years.⁵³⁰ Key Stage 1 (5-7 year olds) includes teaching in the basic principles of a healthy and varied diet to prepare dishes; and where food comes from. Key Stage 2 (7-11 year olds) includes teaching to understand and apply the principles of a healthy and varied diet; prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques; and understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. Key Stage 3 (11-14 year olds) includes teaching to understand and apply the principles of nutrition and health; cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet; become competent in a range of cooking techniques; and understand the source, seasonality and characteristics of a broad range of ingredients. It is worth noting that academy and free schools are not required to follow the national curriculum but are required to offer a broad and balanced curriculum in accordance with the 2010 Academies Act.

Wales

In Wales, the national curriculum subjects were revised and restructured in 2008, and have since included food education and cooking skills at Key Stages 2 and 3.⁵³¹ At Key Stage 2 (7-11 year olds), pupils should be given opportunities to plan and carry out a broad range of practical food preparation tasks safely and hygienically; apply current healthy eating messages and consider nutritional needs when undertaking food preparation tasks; and classify food by commodity/group and understand the characteristics of a broad range of ingredients, including their nutritional, functional and sensory properties, eg meat, fish, fruit, vegetables. At Key Stage 3 (11-14 year olds), pupils should be given opportunities to use a broad range of skills, techniques and equipment, as well as standard recipes, to cook meals and products; plan and carry out a broad range of practical cooking tasks safely and hygienically; apply current healthy eating messages in relation to the nutritional needs of different groups in society and consider issues of sustainability in order to make informed choices when planning, preparing and cooking meals or products; and classify food by commodity/group and understand the characteristics of a broad range of ingredients, including their nutritional, functional and sensory properties.

Scotland

Scottish schools follow the *Curriculum for Excellence*, which is a flexible system for learning and teaching rather than a prescriptive list of topics. Responsibility for what is taught in state schools rests with local councils, although they are required to take national guidelines and advice into account. Children and young people in Scotland are taught about food through the *Health and Wellbeing Curriculum*,⁵³² where they are expected to develop their understanding of a healthy diet, acquire knowledge and skills for practical food preparation, and understand food within social and cultural contexts. They are also expected to develop awareness that food practices and choices depend on many factors including availability, sustainability, season, cost, religious beliefs, culture, peer pressure, advertising and the media. While the Scottish curriculum broadly adopts a holistic approach to food and health, there is no statutory guidance and teachers are given the freedom to build and tailor the curriculum.

Northern Ireland

The national curriculum in Northern Ireland for Key Stages 1 and 2 (5-11 year olds) has two areas of learning which relate to food education: *Personal Development and Mutual Understanding and The World Around Us*. It is not a statutory requirement to teach children about healthy food options at Key Stage 1 and 2. At Key stage 3 level (11-14 year olds), home economics is taught through the *Learning for Life and Work* area of learning, where young people are expected to explore ways to achieve a healthy diet, develop practical cooking skills, and investigate the impact of storage, preparation and cooking on food.⁵³³

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