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Five years of national policies: progress towards tackling obesity in England

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Obesity is a major burden on the health system in England and the rest of the UK. Obesity prevalence is high in adults and children and most of the UK population are consuming more energy than required, and not meeting other dietary recommendations, including those for saturated fat, free sugars, fibre, oily fish and fruit and vegetables. Over the past 5 years, a number of cross-government policies, both promoting voluntary action and legislative, have been put in place to tackle diet-related health and obesity. The food environment is complex with many influencing factors, some of which act through individual automatic choices. Other factors such as accessibility, advertising, promotion and nudging drive increased food and drink purchases. With continual changes in the food environment favouring fast-food outlets and meal delivery companies alongside the adverse impact of the COVID-19 pandemic on diets and physical activity levels, further governmental action is likely needed to deliver sustained improvements to diet and health.

Key words: Obesity: Diet: Nutrition: Nutrition policy

Obesity is a global pandemic with prevalence rates almost tripling between 1975 and 2016. Among children and adolescents aged 5–19, global rates of obesity have risen dramatically from 4 % in 1975 to just over 18 % in 2016[1]. A raised BMI (>25 kg/m2) is a major risk factor for non-communicable diseases with risks increasing as BMI increases[1]. This review describes the activity led by the government to address obesity in England. The policy context in the UK is complicated in that responsibility for nutrition was devolved across England, Scotland, Wales and Northern Ireland gradually from 1998 to 2009. This review will focus on the activity led from the UK government either affecting the UK as a whole or specifically targeting England.

Successive UK governments have adopted a range of voluntary and legislative approaches to address the UK's dietary problems. Between 2005 and 2013, this has included *choosing a better diet: a food and health action plan*[2], *healthy weight, healthy lives*[3] and *healthy lives healthy people – a call to action on obesity in England*[4].

Voluntary measures have had varying degrees of success. Overall salt intake in the UK has fallen by 11 % (between 2006 and 2014)[5], *trans* fats have almost been eradicated from the nation's diet through industry

Abbreviations: HFSS, high in fat, sugar and salt; SDIL, soft drinks industry levy..

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action[6] and in 2013 the UK was one of the first in the world to adopt *traffic light labelling*[7].

Legislated strategies such as *5 a day*[8], the *school food plan*[9], *school food standards*[10], *school fruit and vegetable scheme*[11], *healthy start scheme*[2], *free school meals for infants*[12], *banning advertising of high fat, sugar and salt foods on children's TV*[13] and the *government buying standards for food and catering services*[10] are all still being implemented.

In 2015, the UK's independent Scientific Advisory Committee on Nutrition published its report on carbohydrates and health[14]. The report highlighted the link between excess sugar intake, particularly from sugar-sweetened beverages, and poor health outcomes, including increased risk of weight gain and type 2 diabetes in children and adolescents. As a result, a new definition of free sugars[14] replaced the previously used non-milk extrinsic sugars. New recommendations that intakes of free sugars for everyone over 2 years of age should not exceed 5 % of daily dietary energy intake were set. Advice to minimise sugar-sweetened beverage consumption was provided together with a message that sugary drinks have no place in a child's diet.

Implementing these recommendations has faced some challenges. For example, some parts of the food and drink industry felt that educating the public was the solution to the nation's nutrition problems[15]. Education and providing advice to children and adults continues to be a component of UK government strategies. Nutrition education campaigns have run for over 20 years, and continue; including salt reduction[16,17], understanding front of pack labelling[18] and sugar reduction[19]. In 2014, food education and cooking in schools became a compulsory part of the national curriculum for children aged 5–16 in England[20], though food technology was part of the national curriculum from 1990, with various revisions[21].

An individual's knowledge about healthy diet is only one of several factors influencing their food intake. Despite education, knowledge and good intentions, influences from the food environment, such as marketing and advertising campaigns as well as product promotions, can nudge individuals away from making healthier choices[22]. Both television and newer online and social media advertising influence food preferences, choice and consumption, particularly in children[23]. About 40 % of expenditure on food and drinks consumed at home is on products that are on promotion, with foods high in fat, sugar and salt (HFSS) more likely to be promoted[24]. Promotions encourage individuals to buy more of the promoted product than if the product was not on promotion, with impact across all demographic and socioeconomic groups[24].

In order to tackle obesity, it will be necessary to reduce population energy intakes. The initial focus of government intervention, following the Scientific Advisory Committee on Nutrition report on carbohydrates and health[14], was on the intake of free sugars. This was subsequently widened to address energy in general including saturated fat, and foods consumed frequently and/or in larger portion sizes.

In 2015, Public Health England published eight key levers to reduce free sugar consumption in England[22]. Recommendations included product reformulation (content and portion size), fiscal measures (changes to price promotions and taxing high sugar products), reducing advertising of products high in (total) sugars and raising consumer awareness. These levers were recommended alongside a move from passive to more tightly monitored approaches[22].

Strategies for tackling obesity in the UK/England over the past 5 years

In 2016, the government published the first of two child obesity strategies for England[25]. This amounted to a landmark in health policy as, for the first time, the effects of poor diet on the economy, welfare services and an individual's opportunities throughout life were the responsibility of cross-government departments. The first part of the *childhood obesity plan*[25] announced the government's commitment to reduce free sugars from children's diets through the implementation of a *soft drinks industry levy* (SDIL) and a tightly monitored, voluntary, sugar reduction programme. Other commitments included supporting businesses, schools and the public sector to provide healthier options, and supporting individuals and families to make healthier choices. *Part 2* of the *childhood obesity plan*, published in 2018[26], highlighted the government's programme on reducing energy from products that contribute significantly to children's energy intakes, energy labelling in the out-of-home sector (e.g. restaurants, cafes and takeaways) and exploration of further controls on advertising and price promotions. Further details of both plans are outlined in Table 1. What is clear is that these programmes alone will only represent a step in the ambition to reduce the free sugars and energy content of our diets. This is because the sugar reduction programme focuses on the largest contributors of free sugars to the diet of children. From an energy perspective, the sugar and energy reduction programmes together with the SDIL will reflect about 50 % of children's energy intakes[26] – though this is likely to be an underestimate owing to the limited data available for the eating out, and home delivery sectors[27].

Early in the COVID-19 pandemic in 2020, reports began to emerge that those living with obesity were over represented in hospital intensive care units[28]. Emerging evidence indicated that overweight or obesity was associated with an increased risk of hospitalisation, severe symptoms, the need for more advanced treatment and death from COVID-19. These risks increased with increasing BMI[29]. In light of this evidence, the government made further commitments to reduce obesity in the UK and published *Tackling obesity: empowering adults and children to live healthier lives*[30]. Key areas included the introduction of a new 'better health' campaign; energy labelling in large restaurants, cafes and takeaways; ending promotions of HFSS products in store and online; banning advertising of HFSS products on

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Table 1. Actions presented in the childhood obesity plan, chapters 1 and 2

Childhood obesity plan: chapter 1
1. Soft drinks industry levy: companies are levied 24 pence per litre for drinks containing 8 g of sugar (per 100 ml) or 18 pence per litre for drinks containing 5–8 g of sugar (per 100 ml)
2. Sugar reduction programme
3. Supporting innovation to help businesses to make their products healthier
4. Updating the nutrient profile model
5. Making healthy options available in the public sector
6. Continuing to provide support with the cost of healthy food for those who need it most
7. Helping all children to enjoy an hour of physical activity every day
8. Improving the co-ordination of quality sport and physical activity programmes for schools
9. Creating a new healthy rating scheme for primary schools
10. Making school food healthier
11. Clearer food labelling
12. Supporting early years settings
13. Harnessing the best new technology
14. Enabling health professionals to support families
Childhood obesity plan: chapter 2
1. Further action on the sugar reduction programme
2. New energy reduction programme to incorporate a greater proportion of food categories than the sugar reduction programme alone, with the addition of legislation on consistent energy labelling in the OOH sector
3. Consulting on advertising and promotions and reviewing current advertising rules
4. Work with local authorities to create healthier food environments
5. Update of the school food standards, consult on strengthening the nutrition standards in the GBSF, invest in and promote physical activity within and travelling to school

GBSF, government buying standards for food and catering services; OOH, out-of-home.
Sources: Childhood Obesity Plan – Chapter 1[25]; Childhood Obesity Plan – Chapter 2[26].

TV and online before 21·00 h; extending weight management services to reach more people; and consulting to gather views and evidence on the existing 'traffic light' food label, and the intention to enforce energy labelling on alcohol.

Dietary health in England

While policy action has had some impact, average UK diets still do not meet current recommendations (Table 2). From 2008 to 2019, average intakes across most age groups have improved in only a few categories (e.g. salt, red and processed meat and sugar-sweetened beverages). In most other categories, intakes have either not changed (i.e. fruits and vegetables, fibre and saturated fats) or have worsened (i.e. folate and iron from food sources)[6,31].

Recommendations for energy intake are particularly relevant given that energy intakes in excess of requirements increase the risk of weight gain and obesity. In England, energy intakes exceed current recommendations by 585·76 kJ (140 kcal) to 2092 kJ (500 kcal) daily, depending on age and sex[32] (Table 3). At a population level, on average, adults also consume 836·8 kJ (200 kcal)–1255·2 kJ (300 kcal) excess energy a day. These figures are conservative estimates as the analysis assumes no further weight gain occurs. This means that for many the number of excess energy consumed will be higher[32].

Given excess energy intakes, it is no surprise that 68 % of men and 60 % of women are overweight or obese, while in children, approximately 30 % of those aged 2–15 are overweight or obese[33]. As with adults[34], overweight and obesity prevalence in children has increased over time (from 2006 to 2020), particularly in girls[35]. Just under 10 % of children entering primary school in England (age 4–5) are obese, while 21 % of children are obese by the time they leave primary school (age 10–11)[34,36].

While obesity is a concern across all age and sex groups, children living in the most deprived areas are more than twice as likely to be obese than those living in the least deprived areas (13·3 *v.* 6·0 % for children aged 4–5 years and 27·5 *v.* 11·5 % for children aged 10–11 years)[36]. Between 2006/7 and 2019/20, the gap in obesity prevalence increased by 1·8 and 4·8 percentage points for children aged 4–5 and 10–11 years, respectively[36]. While there is a focus on increasing physical activity levels to achieve weight loss or to prevent excess weight gain, evidence from randomised controlled trials have shown that interventions that include a dietary component are most effective at reducing BMI, particularly in young children aged up to 5 years[37].

Sugar reduction programme: where are we now?

The sugar reduction programme challenged the food industry to reduce the total sugar content in the categories of food that contribute most to total sugar intakes of children aged up to 18 years by 20 % by 2020 (sales weighted average total sugar content in grams per 100 g compared with baseline year 2015)[38]. Progress reporting to 2019 showed a mixed picture for the ten food product categories covered by the programme (Table 4)[38]. While there were reductions in sugar content of all categories, except puddings where there was a slight increase, the overall reduction was less than hoped. Reductions were large in some categories (i.e. breakfast cereals and yogurts and fromage frais) but almost negligible in others (i.e. chocolate confectionary and sweet confectionary). Less progress was made for food products sold for eating out of the home with a reduction of 0·3 % where large reductions made in some categories (e.g. breakfast cereals) were met with large increases in others (e.g. chocolate confectionary).

Despite the progress made on reducing sugar in foods, its impact on overall sales of sugar has been less dramatic owing to changes in food consumption patterns. For example, sales of retailers and manufacturer-branded products across the ten food categories increased by 3·4 and 0·8 % per person[38]. This was driven by large

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Table 2. UK dietary recommendations and intakes, by age group

Nutrient	Recommendation (daily)	Children 4–10 years	Teenagers 11–18 years	Adults 19–64 years
Total fat	≤35 % food energy	34·2	34·2	35·5
Saturated fat	≤11 % food energy	13·1	12·6	12·8
Trans fat	≤2 % food energy	0·5	0·5	0·5
Total carbohydrate	≥50 % food energy	51·0	50·0	46·8
Free sugars	≤5 % total energy	12·1	12·3	9·9
Fibre (AOAC)	2–4 years ≥15 g	–		
	5–10 years ≥20 g	14·3		
	11–15 years ≥25 g		16·0	
	16+ years ≥30 g			19·7
Salt	4–6 years ≤3 g	3·9		
	7–10 years ≤ g	5·3		
	11+ years ≤6 g		7·0	8·4
Fruit and vegetables	≥5 portions daily	–	2·9	4·3

AOAC, American Association of Analytical Chemists.
Sources: National Diet and Nutrition Survey (NDNS) years 9–11 (2016/17–2018/19)[6]; NDNS: assessment of salt intake from urinary sodium in adults (aged 19–64 years in England, 2018–2019)[31]; COMA report on Nutritional Aspects of Cardiovascular Disease (1994)[54]; SACN Salt and Health report (2003)[55]; SACN Carbohydrates and Health report (2015)[14]; SACN Saturated Fats and Health report (2019)[56].

Table 3. Estimated energy requirements (EAR), estimated energy intakes and excess energy intakes by age band, sex and weight status

		All			Overweight or obese		
Sex	Age band (years)	EAR (kJ (kcal))	Energy intake* (kJ (kcal))	Excess energy intake (kJ (kcal))	EAR (kJ (kcal))	Energy intake* (kJ (kcal))	Excess energy intake (kJ (kcal))
Boys	4–10	7070·96 (1690)	7154·64 (1710)	87·9 (21)	7213·2 (1724)	7828·3 (1871)	610·9 (146)
	11–15	10870 (2598)	11158·7 (2667)	288·7 (69)	11029 (2636)	13108·5 (3133)	2083·6 (498)
	16–18	13087·5 (3128)	13522·7 (3232)	435·1 (104)	13033·2 (3115)	15150·3 (3621)	2113 (505)
Girls	4–10	6589·8 (1575)	6732 (1609)	142·2 (34)	6707 (1603)	7363·8 (1760)	656·9 (157)
	11–15	9631·6 (2302)	9895·2 (2365)	263·6 (63)	9648·3 (2306)	10610·6 (2536)	1251 (229)
	16–18	10271·7 (2455)	10455·8 (2499)	184 (44)	10284·3 (2458)	11497·6 (2748)	1217·5 (291)
Men	19–30	11539·5 (2758)	12213 (2919)	673·6 (161)	11522·7 (2754)	13301 (3179)	1778 (425)
	31–60	10987·2 (2626)	12179·6 (2911)	1192·4 (285)	10966·3 (2621)	12552 (3000)	1585·7 (379)
	>60	9815·7 (2346)	11037·4 (2638)	1221·7 (292)	9803·1 (2343)	11322 (2706)	1514·6 (362)
Women	19–30	9275·9 (2217)	9606·5 (2296)	330·5 (79)	9217·3 (2203)	10460 (2500)	1242·6 (297)
	31–60	8815·7 (2107)	9368 (2239)	556·4 (133)	8778 (2098)	9832 (2350)	1054·4 (252)
	>60	7916·1 (1892)	8602·3 (2056)	686·2 (164)	7886·8 (1885)	8937 (2136)	1050·2 (251)

EAR, estimated energy requirements.
*Estimated from the Henry equations using average height and weight data (Health Survey for England 2012–2014) and average physical activity levels. Excess energy intake is the difference between energy intakes and the EAR.
Source: Calorie reduction: the scope and ambition for action[32].

increases in sales of chocolate confectionary (up 16·3 %) and sweet spreads and sauces (up 12·0 %)[38].

The most significant sugar reduction has been in drinks subject to the SDIL which came into effect in April 2018. The aim of the levy is to encourage producers and importers of soft drinks containing free sugars to reformulate their soft drinks and reduce portion sizes[39]. Analysis in 2020 shows a 43·7 % reduction in the total sugar content (per 100 ml) since 2015 for drinks subject to the levy[38]. Although overall sales (in litres) of drinks subject to the levy have increased by 14·9 %, the implementation of the SDIL has meant that total sugar sales from the soft drinks have decreased by 35·4 %. Encouragingly, total sugar purchased from drinks subject to the SDIL has decreased across all socioeconomic groups[38]. Additionally, for drink products sold for out-of-home consumption, there was a reduction of 38·5 % in the average total sugar content for drinks subject to the SDIL[38].

In May 2018, the voluntary sugar reduction programme was extended to cover unsweetened juice and sweetened milk-based drinks (and milk-substitute drinks). The drinks industry was set with the ambition to reduce the sugar content of unsweetened juice by 5 % by mid-2021, and to reduce the sugar content of sweetened milk-based drinks by 10 % in mid-2019 and 20 % by mid-2021[40]. Progress on the interim ambition is encouraging (Table 5), with pre-packed milk-based products, coffee and tea and milkshake powders, syrups and pods meeting the interim target[38]. Less progress has been made for drinks sold for consumption outside of the home[38].

Impact of COVID-19 pandemic on diets in England

Before the COVID-19 pandemic (pre-2020), there was evidence that people were eating out more at restaurants

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Table 4. Summary of change in sugar content by food category (2015–2019)

Product category	Retailers and manufacturers (% change in SWA*)	Eating out of home (% change in SA†)
Overall	−3	−0·3
Biscuits	−1·6	−3·9
Breakfast cereals	−13·3	−17·1
Chocolate confectionary	−0·4	10·7
Ice cream, lollies and sorbets	−6·4	−2·3
Puddings	2·0	2·4
Sweet spreads and sauces	−5·6	N/A
Sweet confectionary	−0·1	N/A‡
Yogurts and fromage frais	−12·9	2·4
Cakes	−4·8§	−6·8
Morning goods	−5·6§	−0·4

SWA, sales weighted average; SA, simple average.
* The mean weighted by total sales, which gives more influence to products with higher sales.
† The simple arithmetic mean, giving products equal influence. The baseline year is 2017. The analysis is based on more limited data and less comprehensive nutrition information than that used for retailers- and manufacturer-branded products.
‡ N/A, not applicable. Data for sweet confectionary in the eating out of home sector has been excluded due to incomparability of results.
§ The baseline year is 2017 rather than 2015.
Source: Sugar reduction: report on progress between 2015 and 2019[38].

Table 5. Changes in sugar content by drinks category (2017–2019)

Juice and milk-based drinks: retailers and manufacturer branded products

Product category	% change in sugar (per 100 ml)
Pre-packed milk-based drinks	−22·1*
Pre-packed flavoured milk substitute drinks	−5·3*
Pre-packed fermented (yogurt) drinks	−13·4*
Coffee and tea powders, syrups and pods as consumed	−17·8†
Hot chocolate and malt powders, syrups and pods as consumed	0·2†
Milkshake powders, syrups and pods as consumed	−12·1†
Pre-packed mono juices	−1·2†
Pre-packed blended juices	−3·6*

Juice and milk-based drinks: eating out of home sector

Product category	% change in SA sugar (per 100 ml)
Open cup milkshakes	7·8
Open cup hot/cold drinks	−6·8
Blended juices	1·5

SA, simple average.
* Sales weighted average, the mean weighted by total sales, which gives more influence to products with higher sales.
† The simple arithmetic mean, giving products equal influence. The baseline year is 2017. The analysis is based on more limited data and less comprehensive nutrition information than that used for retailers- and manufacturer-branded products.
Source: Sugar reduction: report on progress between 2015 and 2019[38].

or consuming takeaways and delivered meals[41]. Eighteen per cent of meals were eaten out of the home in 2015, up 5 % on 2014[41] while expenditure on takeaway foods was 14 % higher in 2017–2018 compared with 2014[42]. Meals eaten outside of the home tend to be larger than food bought from retail outlets, such as supermarkets[32], and are associated with higher intakes of fat, sugar and salt[41]. Before the pandemic, the eating out-of-home sector provided 20–25 % of an adult's energy intake[32].

Emerging evidence suggests that the COVID-19 pandemic has further nudged individuals and households away from making healthy dietary choices and consuming less energy. The Institute of Fiscal Studies estimated that by May 2020, the total energy content of food and non-alcoholic drinks purchases had increased, on average, by 15 % and were higher than 2019 levels for the remainder of 2020. The total energy content of food and non-alcoholic drinks purchases were above 2019 levels for 90 % of households[43].

The impact of the pandemic on the food landscape, particularly the out-of-home sector, has been no less dramatic. When England went into lockdown in March 2020, the closure of outlets for food consumption outside the home meant that individual and household spending shifted away from sit-down restaurants to at-home meal deliveries. Between March and September 2020, the share of total spending in the eating out-of-home sector increased by 41 %[44]. Meal deliveries, which are traditionally popular as an option for evening meals, expanded into other meal occasions, with an increase in at-home lunch deliveries peaking at nearly 15 % by the end of 2020[45]. At the same time, the market share of fast-food restaurants and chains increased by 13·5 %, while full service or sit-down restaurants and pubs market share declined by 3 and 4 %, respectively[46].

The reshaping of the food environment to favour fast food outlets and meal delivery companies since the pandemic is likely to exacerbate challenges in improving the nation's diet and health. Although all national health surveys were suspended during the pandemic, increased purchases of dietary energy, along with reported reductions in physical activity levels during the national lockdowns[47], will likely have increased the prevalence of obesity. A nationally representative survey on 5000 English adults conducted in July 2021 analysed diet and nutritional changes during the pandemic. Forty-one per cent of adults reported to have put on weight since the first lockdown in March 2020 and had gained on average 4·1 kg. Almost half (46 %) of adults that reported gaining weight said unhealthy eating habits were the main contributors to their weight gain, and 49 % said they would like to have a healthier diet[48]. While the cited data reflect the situation in England, it is expected that similar impacts of COVID-19 on diet will have been evident across the whole of the UK.

Looking forward

With the potential risks associated with increased prevalence of obesity, in part due to COVID-19, on the

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horizon it is important that the UK government continue a range of policies to help reduce the burden on individuals, communities, the health and social care system and the economy. At the time of publication of this review (2021), parliament was considering legislation that, if approved, would mandate energy labelling for larger out-of-home businesses. Legislation to restrict promotions of HFSS products is expected to be laid in 2021 and a ban on television advertising of HFSS foods before 21·00 h will come into force in 2022[49].

The *National Food Strategy* (2021)[50], an independent review of England's food system, commissioned by UK government, sets out 14 recommendations to improve the nation's health, build resilience in the food system to withstand global shocks; restore nature and halt climate change while meeting the standards the public expect, on health, environment and animal welfare[51]. The government's response to the strategy will be published in the near future.

Later in 2021, the fourth annual assessment of progress towards achieving the 20 % reduction ambition for the foods included in the sugar reduction programme is due for publication. This report will also include a second assessment of progress made by industry towards the separate ambitions set for juice and milk-based drinks[38].

A follow-up study of the National Diet and Nutrition Survey Rolling Programme, published in late 2021, assessed diet and physical activity in summer and early autumn 2020 during the COVID-19 pandemic[52]. The study found that, in children aged 2–10 years, mean intakes of free sugars and saturated fat were lower and dietary fibre higher than before the pandemic (but still not meeting recommendations). However, in general, diets were broadly similar at a population average level during this time compared with previous National Diet and Nutrition Survey Rolling Programme assessments – that is, in all age groups (in both sexes), intakes of saturated fat and free sugars exceeded maximum recommendations while consumption of fruit and vegetables, dietary fibre and oily fish was below recommendations. Reported physical activity levels were slightly higher during the study period but there was wide individual variation. These results should be interpreted with caution as the sample who took part in the study cannot be described as a random and representative sample of the UK population.

These assessments will need careful consideration to fully understand the impact of these programmes given the wider changes in the food environment as a result of COVID-19. Advice will continue to be forthcoming from the experts, currently within the Department of Health and Social Care, leading programmes of work.

Conclusion

Significant changes are still needed to enable the UK population to achieve healthier choices and better diets. Currently 69 % of food and drink products on offer globally from leading food and drink manufacturers are considered unhealthy using the health star rating[53]. From a UK perspective, this does not take into account the increased use of home delivery and takeaway services. With shareholders at the core, the main priority for these companies is to increase sales, which will likely be those products more readily available and more highly advertised. As such, there is a disparity between the notion that consumers should choose the 'healthy option' when most of that available leans heavily towards the less healthy. This puts all consumers, whether in high-, middle- and low-income countries, at a disadvantage and continues to exacerbate the global obesity crisis.

The ongoing sugar and energy reduction programmes together with further voluntary efforts on salt reduction will play a role in refocussing product lines. Pending UK legislation on advertising and promotion is also likely to help incentivise 'healthier' products. But these are only part of the wider action needed by individuals, communities, central and local government and the food industry to significantly shift UK dietary patterns, impact on obesity and reduce diet-related ill health.

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Alison Tedstone, Celia Sabry-Grant, Estella Hung and Louis Levy were all employees of Public Health England at the time this article was submitted. Diet, obesity and physical activity teams within Public Health England moved into the Department of Health and Social Care on 1 October 2021. Louis Levy is a visiting professor in public health at the University of Chester.

Authorship

The authors had sole responsibility for all aspects of preparation of this paper.

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