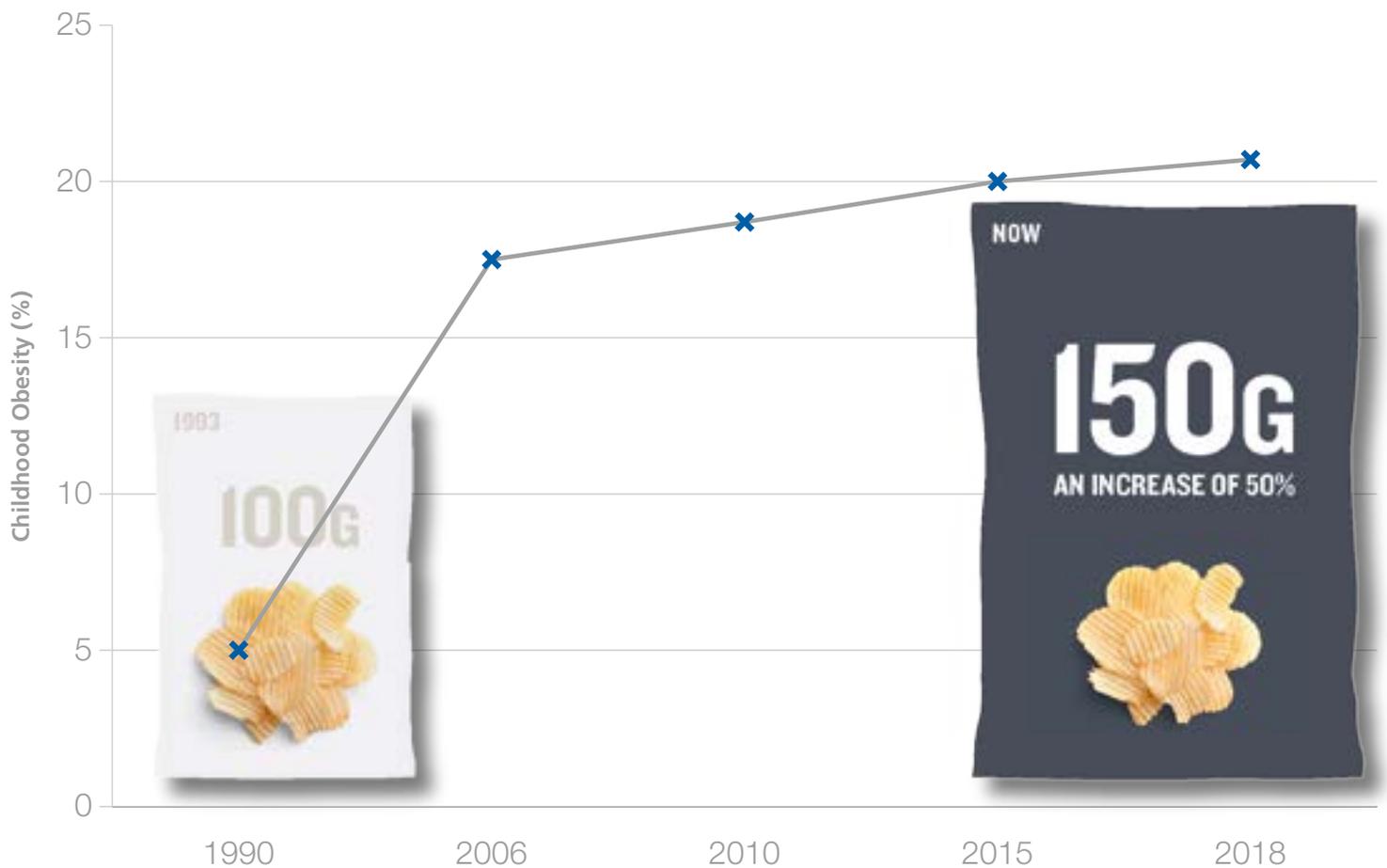


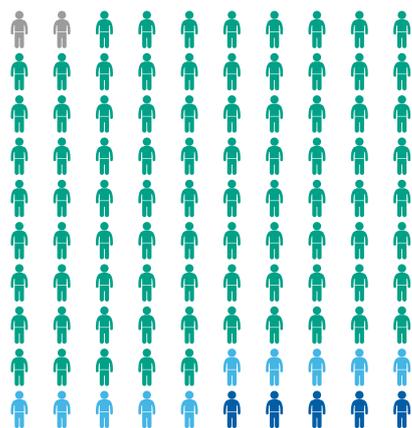
# Time to Solve Childhood Obesity

An Independent Report by the  
Chief Medical Officer, 2019  
Professor Dame Sally Davies



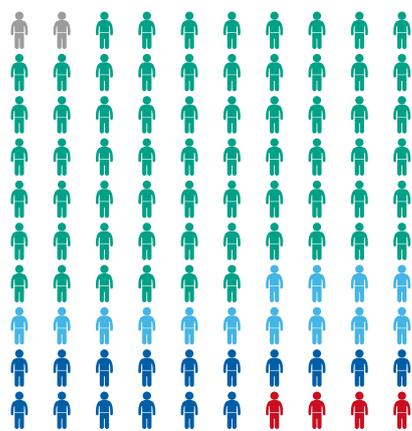
# Time to Solve Childhood Obesity

1990 (Year six children, 10-11 years)



underweight  
 healthy weight  
 overweight  
 obese  
 severely obese

2017/18 (Year six children, 10-11 years)



This report is aimed at politicians and policy makers, now and in the future. The Government ambition is to halve childhood obesity by 2030 – in England, we are nowhere near achieving this. Yet, if we are bold, we can achieve this goal.

As a society, we know that:

- Our children have a right to live in a healthy environment.
- Being overweight or obese in childhood has profound impacts on the health and life chances of children.
- Children living in the most deprived areas are disproportionately affected.
- Our environment has slowly changed, making it harder for our children to be healthy.
- We need action across industry and the public sector. There is no magic bullet so many actions, each with a small impact, will be necessary to reverse the rise in obesity.
- Our politicians have the opportunity to support our children to be healthy.
- The public want politicians to take decisive action to reverse the rise in obesity.

## Current situation

In the last year of primary school, on average, six children out of a class of thirty are obese and a further four are overweight, twice as many as thirty years ago. Obesity disproportionately affects children living in deprived areas and some ethnic minority groups.

Today's children are drowning in a flood of unhealthy food and drink options, compounded by insufficient opportunities for being active. But running, cycling, swimming and other physical activities, though important, will not solve obesity.

The impact of biological (e.g. genetics and health care) and social (e.g. deprivation and ethnicity) factors on determinants of health are widely accepted by health workers and health professionals. In my 2018 Annual Report,<sup>1</sup> I wrote additionally about the role that the commercial sector plays in health, which I called the 'commercial determinants of health'. Like other determinants, these are not experienced to the same extent by all groups in society and can be both helpful and harmful to health.

The Government has laid important foundations for change with two 'chapters' of a national childhood obesity plan,<sup>2</sup> a prevention green paper, *Advancing our health: prevention in the 2020s*, and the NHS Long Term Plan.<sup>3</sup> If implemented in full, these plans will significantly reduce levels of childhood obesity and improve our children's health. This would be a major achievement, but the plans, alone, will not meet the 2030 ambition. To meet the ambition and children's needs, we must go further and faster.

<sup>1</sup> Annual Report of the Chief Medical Officer, 2018 Health 2040 - Better Health Within Reach  
<sup>2</sup> Childhood obesity: a plan for action, DHSC, 2017; Childhood obesity: a plan for action, chapter 2, DHSC, 2018.  
<sup>3</sup> The NHS Long Term Plan, NHS England, 2019

Progress under the voluntary reformulation programme, overseen by Public Health England, has overall been disappointing.

Local authorities are testing innovative approaches to tackling childhood obesity, which need to be evaluated and scaled. These approaches include creating health ‘super-zones’ around schools that create safe spaces for children to walk and cycle to school, limit the sale of fast food and restrict unhealthy food advertising.

## Our children have a right to live in a healthy environment

I want to see our children’s health, not companies’ profits, put at the forefront of government policy. It is every child’s right to live in a world that promotes, not harms, their health.

In 1991, the UK ratified the UN Convention on the Rights of the Child. The Convention sets out children’s rights to protection, education, healthcare, shelter and good nutrition.<sup>4</sup> The convention has changed the way that children are viewed and treated, recognising that children are human beings with a distinct set of rights, instead of passive objects of care and charity. This provides moral justification for actions that protect children from overweight and obesity.

Of note:

- *Article 24* states that governments should take appropriate measures to “combat disease and malnutrition” in part “through the provision of adequate nutritious food”. Today, malnutrition refers not only to underweight children but also to children “who are carrying too much weight or whose blood contains too much sugar, salt, fat or cholesterol”.<sup>5</sup>
- *Article 3* states that children’s interests should be a primary consideration in any decision affecting them.

From Queen Victoria’s reign to the present day, UK governments of all colours have legislated to protect our children’s health. Politicians were bold, they took on the critics and these laws changed children’s lives for the better. For example, in:

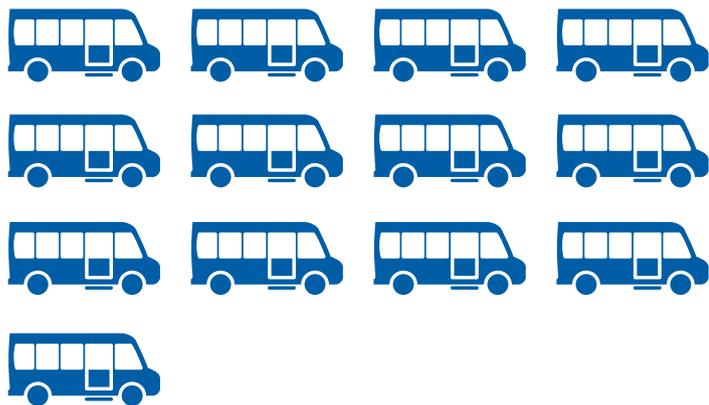
- 1842 protecting children from working in coal mines.
- 1875 protecting children from working as chimney sweeps.
- 1906 protecting children through provision of school meals and medical services.
- 1965 protecting children from cigarette advertising on TV.
- 1989 protecting children by requiring the wearing of seatbelts in the back of cars.
- 2015 protecting children from smoking in cars.
- 2018 protecting children from excessive sugar consumption, through the Soft Drinks Industry Levy regulations.



Image courtesy of Public Health England, Greater London Authority and London Association of Directors of Public Health

<sup>4</sup> See Annex F: Children’s Rights

<sup>5</sup> Global Nutrition Report, International Food Policy Research Institute, 2016.



Each week 738 children, enough to fill 13 school buses, are admitted to hospital to have teeth removed due to decay

These laws have changed how we behave in the interests of all our children's health. Legislation can help to change societal norms. In the 1960s when the harms of tobacco on health were first documented, many of the laws that now exist to protect our children would have been unthinkable. In 2019, laws that protect children from tobacco are widely accepted and replicated around the world.

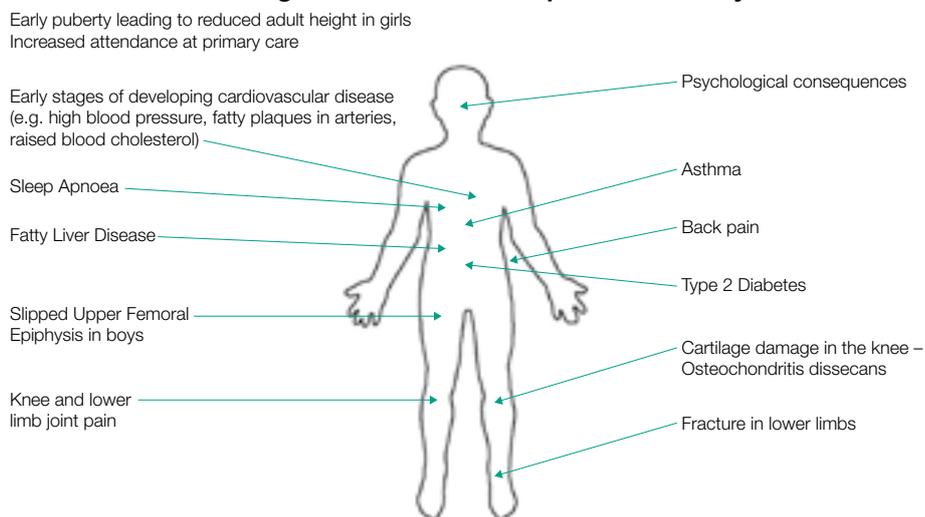
Changing societal norms and behaviours may seem difficult but it can be done. We have proof of success time and again. Now is the time to act to reverse the rise in obesity. As a society, we owe it to all our children.

## Being overweight or obese in childhood has profound impacts on the health and life chances of children

### Negative consequences of childhood obesity on health

Many children who are obese or overweight suffer physical health issues, including type 2 diabetes, asthma and musculoskeletal pain, and experience mental health problems, such as depression, as set out in Annex B. These affect the quality of our children's lives, their education and their life chances. In later life, these can reduce their productivity, earnings and shorten their lives.

**Figure 1. The health impacts of obesity in childhood**

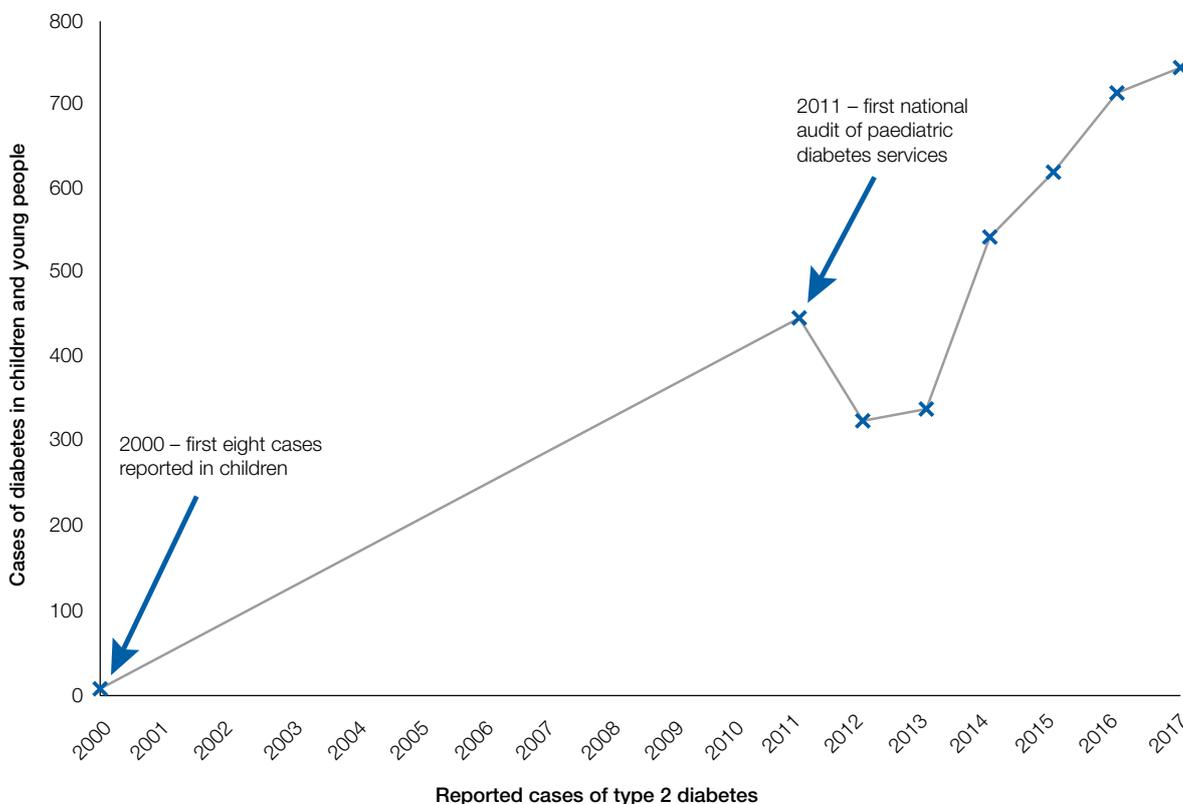


Considerable NHS resources are devoted to tackling diseases which are preventable, such as type 2 diabetes and tooth decay.

Until recently type 2 diabetes was considered an adult disease. The first cases of the condition were reported in children in England in 2000. Today there are over 100 new diagnoses each year and over 700 children living with the condition.<sup>6</sup> The disease in children is more severe, with rapid progression to complications, such as kidney failure, damage to sight and leg ulcers.

<sup>6</sup> National Paediatric Diabetes Audit, Royal College of Paediatrics and Child Health, 2018.

**Figure 2. Reported cases of type 2 diabetes in children in England & Wales, 2000 to 2017**



Source: National Paediatric Audit of Diabetes, 2012-2018; Ehtisham et al, *Diabetic Medicine*, 2000. Paediatric audit records children under the care of children and young people's services – this excludes some children who have transitioned to adult services and includes a small number of young adults.

Rotten teeth, mainly caused by excess sugar in food and drink, are now the most common reason for a child to be admitted to hospital. Most children's teeth extractions require a general anaesthetic, which continues to carry a low risk of complications. In 2017/18 in England, 38,385 children, equivalent to 13 school buses every week, underwent the trauma of being put to sleep (a general anaesthetic) and then waking up with pain, empty teeth sockets and often bleeding.

## Negative economic consequences of childhood obesity

In my 2018 annual report I also made the case for treating health as a national economic asset. Good health has intrinsic value for the individual but is also the foundation for education, economic growth and prosperity. Obesity, through direct medical costs and its impact on productivity, costs the UK 3% of its GDP,<sup>7</sup> equivalent to £60 billion in 2018.

Today's children are tomorrow's workforce and the parents of future generations. Their health will be a deciding factor in whether the UK is healthy and prosperous in the future.

<sup>7</sup> The Obesity Crisis, McKinsey Global Institute, 2014.



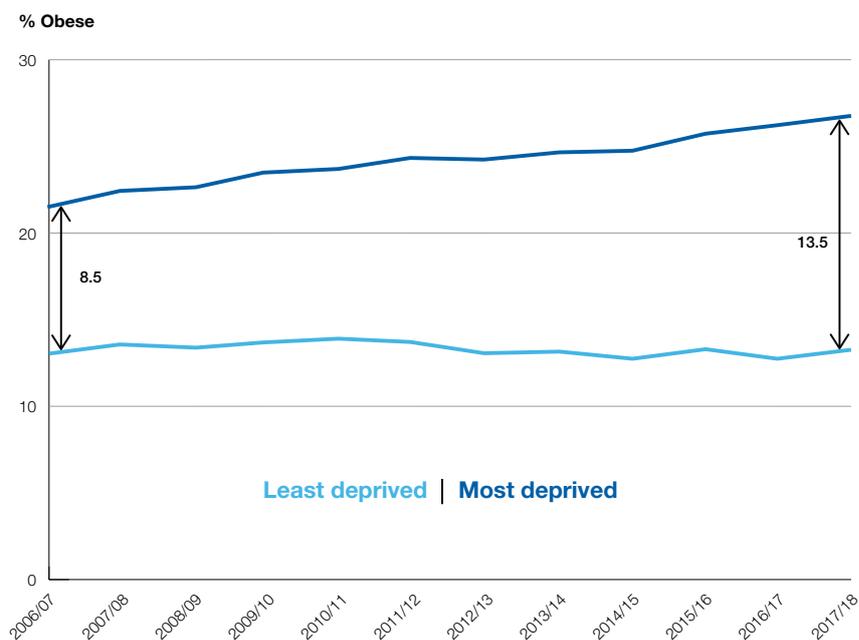
Source: *The Broken Plate*, Food Foundation (reproduced with permission)

We, in the UK, have a relatively high proportion of children in the population compared to other developed countries. If we act now to preserve their health, this 'country of children' could provide a future 'demographic dividend'.<sup>8</sup> So, there is a strong economic case for more action to tackle childhood obesity.

## Children living in the most deprived areas are disproportionately affected

If we reduce childhood obesity, we will help children living in the most deprived areas have better life chances. The gap between the most and the least deprived groups has widened over the past ten years. Projections suggest that if this trend continues as many as 1 in 3 children in the most deprived areas will be obese by 2030<sup>9</sup>.

**Figure 3: The widening gap in obesity between children aged 10-11 years living in the most and least deprived areas.**



The Soft Drinks Industry Levy (SDIL) has successfully driven reformulation and taken sugar out of children's drinks.<sup>10</sup> There is no evidence that it has had a negative impact on deprived groups. Increases in the price of soft drinks due to the levy have been minimal and have helped fund school sport and breakfast clubs. Children living in the most deprived areas are benefitting most, because of their higher rates of tooth decay.

<sup>8</sup> Viner R, British Medical Journal, 2018.

<sup>9</sup> See Figure C5, Annex C

<sup>10</sup> Sugar reduction: report on progress between 2015 and 2018, Public Health England, 2019

Our environment has slowly changed, and it makes it hard for our children to be healthy

## Influence of the physical and social environment on childhood obesity

Excess weight has slowly crept up on us all and is now often accepted as normal. This is a matter of health not about how children look. Too often discussion about weight is heard as stigmatizing and laying the blame on individuals. The science is increasingly clear (see Annex D): genes and inheritance do affect individual risk, but it is the profound changes in the living environment that are shaping everybody's behaviour and making it much harder for us all to be a healthy weight.

## Stemming the tide of unhealthy food and drink

Cheap unhealthy food options now take centre stage in our lives and in our shops.

Shops and takeaways overwhelm us with large portion sizes, far exceeding those recommended. Unhealthy options dominate the checkouts. Planning frameworks make it very hard for local authorities to limit the growth of takeaway outlets, even in areas near schools.

Children are constantly exposed to advertising for unhealthy food and drink. Companies often use children's cartoon characters and sponsorship of major sporting events to market these items, casting them as the shining star in children's minds.

Healthy food and drink are often not affordable, whilst the unhealthy options are cheap. This is compounded by our systems of applying Value Added Tax (VAT) to food which is not always aligned with healthy eating advice and can be hard for businesses to interpret.

**Table 1: Opportunities for the VAT system to better support health**

Item	VAT rate	Item	VAT rate
Gingerbread man decorated with chocolate. E.g. gingerbread man with chocolate trousers	20%	Gingerbread man not decorated in chocolate (or with no more than a couple of chocolate dots for eyes) E.g. gingerbread man with chocolate eyes	0%
Biscuits with chocolate	20%	Cakes and some biscuits	0%
Cereal bars	20%	Flapjacks	0%
Potato crisps	20%	Corn chips	0%
All breakfast cereals	20%	Chocolate chip cookies and caramel biscuits	0%

Source: Based on Value added tax: routes to simplification, Office for Tax Simplification, 2017

Infancy and early childhood are an important period for establishing healthy eating patterns. Many infant foods exceed the recommended standards for sugar and some contain added salt. They are also often sold in large portions with no indication of individual portion sizes.

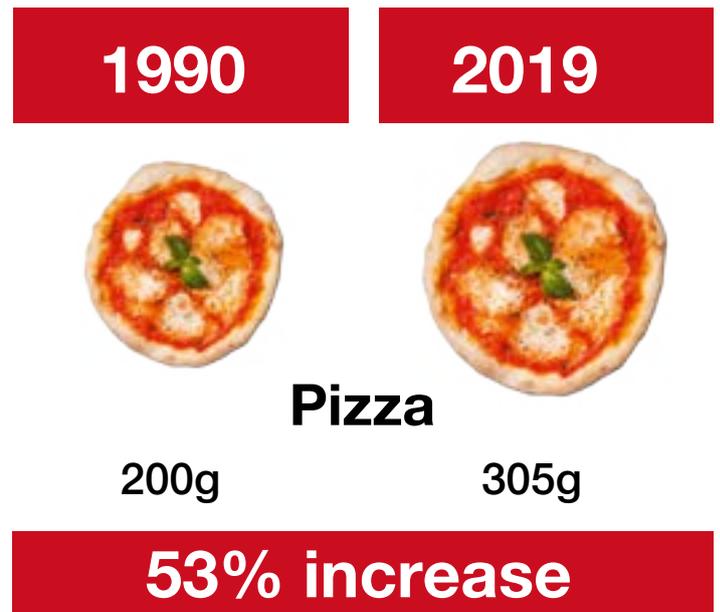




Photo courtesy of Living Streets



Photo courtesy of Hackney Public Health Team

Water is the best and healthiest drink, but ready access to tap water for drinking is often poor in places children visit, such as parks, public buildings, and sports facilities.

## Increasing the opportunities to run, explore and play

Outdoor play, walking, cycling and swimming are important parts of childhood. Our streets and towns have become increasingly dominated by motorised vehicles, limiting children's opportunities to safely explore, cycle, run and play. Our planning system and approach to road building makes it very difficult for local areas and communities to prioritise opportunities for activity, including walking and cycling for travel. Improving this will also have a positive impact on air quality and health.

## We need action across industry and the public sector

There is no magic bullet so many actions across industry and the public sector, each with a small impact, will be necessary to reverse the rise in obesity.

### The role of the public sector

The food and drink options in our hospitals, and many other public buildings and spaces such as libraries, are often unhealthy. Drinking water can be difficult to find. Opportunities to travel to some of these places by foot or bicycle are limited.

Children spend a lot of time in schools and nurseries. Levels of obesity double in the seven years between children entering primary school and leaving primary school. While some nurseries and schools create a healthy environment, others struggle to create the opportunities for children to eat a healthy meal.

## The role of our NHS and the wider health sector

Our NHS has one million contacts with children every week. Too few of our health professionals are adequately trained and equipped to:

- identify children and pregnant women who are overweight or obese;
- understand stigma and feel empowered to initiate conversations with children and families;
- support and manage overweight or obese infants and children, including those with associated ill health.

Many children are not getting the support they need to be a healthy weight. Whether they get help often depends on where they live, not on their need. There are 1.2 million children in England with clinical obesity, who require weight management services, and some require additional specialist services, such as medication or surgical treatment.<sup>11</sup> Currently there is under-provision at every level. For example, as many as 90,000 adolescents may be eligible for bariatric surgery,

<sup>11</sup> Public Health Guidance 47 (Weight management), NICE, 2013. Viner et al, Archives of Disease in Childhood, 2018.

but fewer than ten operations are undertaken each year. Early and effective intervention can reduce the need for more expensive and specialist care later.

The UK is a global leader in the measurement and surveillance of child weight with the National Child Measurement Programme and other programmes in infancy. Yet, we miss opportunities to feedback to families and to provide health professionals with timely joined-up data so that they can signpost families to help or make referrals for treatment. Digital technology should allow better sharing and understanding of data, so that we can act appropriately and at the right time.

Advances in technology will help us better identify children at higher genetic risk of obesity, however the main stay of treatment must be to improve eating habits and increase activity – both of which require a change in the environment. Focusing only on weight loss programmes and treatment without changing the environments that promote excessive energy consumption undermines the effectiveness of those programmes and treatments. It is like treating people for cholera and then sending them back into their homes where the water is still contaminated with cholera.

Today nearly half of all pregnant women are overweight or obese, which has both short and longer-term risks for mother and child. As many as one in four babies are gaining too much weight in their first 18 months of their life, due to overfeeding.<sup>12</sup>

Breastfeeding protects children and mothers from obesity, but our breastfeeding rates remain low, particularly amongst women living in deprived areas. Many women complain of the difficulties they encounter when trying to breastfeed out of the home. Families are still being exposed to waves of messaging and marketing for formula milks, drowning out advice from healthcare professionals.

The healthcare system needs to be much more proactive. Health visitors, midwives, doctors, school nurses and community nurses should be adequately skilled and have the resources to initiate conversations, and to advise and support children and their families.

## The role of industry

I recognise that industry plays a key role in creating healthy food options for our children. We can all see how food companies can do more to support health, and they can do it faster. We must look together for the opportunities where we can improve children's health and support a vibrant food industry, but government must not shy away from regulation.

When government sets targets or legislates, business innovates and can still make a profit, for example when it develops better and healthier foods. But currently the playing field is not level – it is too easy to make money from selling unhealthy food and too hard to make money from selling healthy food.

<sup>12</sup> In the Diet and Nutrition Survey of Infants and Young Children, 2011 26% of boys and 22% of girls aged 4-18 months, exceeded the 91st percentile on UK-WHO growth charts.



**Average Chinese takeaway meal (1161 kcal)**



**Average Indian takeaway meal (1391 kcal)**



**Average portion of fish and chips (1657 kcal)**



**Average pizza (1820 kcal)**

**Recommended portion size (PHE) = 600kcal**

Source: Jaworowska A et al, 2014

The Soft Drinks Industry Levy is a good example - it has taken significant quantities of sugar out of our children's drinks and overall sales (in litres) of soft drinks have increased by 10.2% in 2018, after the levy's introduction, compared to before the levy in 2015. At the same time the total sugar content within the soft drinks sold decreased by 21.6% removing 30,100 tonnes of sugar or 37.5 billion kilocalories from soft drinks a year in Great Britain. And sales went up and sugar consumption went down in every socio-economic group.

**Figure 4. Changes in volume of soft drinks sold and in the total sugar in soft drinks sold by socio-economic group**



Source: *Sugar reduction: report on progress between 2015 and 2018, Public Health England, 2019*

Industry regularly collects data regarding consumer behaviours, but this is generally not shared with policy makers and researchers. This flow of information would be helpful. In addition, vendors of food and drink could use prompts, nudges and digital tools to help families have a healthy and affordable food basket.

## Our politicians have the opportunity to support our children to be healthy

The government has a duty as well as a moral responsibility to uphold children's rights and therefore the quality of the environment in which they live. Ministers are in a unique position of influence to shape the environment. They can set the scene for nudging positive outcomes or they can continue to allow the flow of unhealthy options to dominate a child's upbringing. Political apathy will mean that negative health consequences for children continue – limiting their life chances whilst restricting economic productivity and the viability of the NHS.

In other countries we are seeing political leaders being bold. For example, in Amsterdam strong political commitment is driving multi-sectoral action with ambitious targets.

## The public want politicians to take decisive action to reverse the rise in obesity

Politicians must now show leadership - the public support them in making the changes needed. Over 70% of the public think it is the responsibility of government to tackle childhood obesity,<sup>13</sup> and there are high levels of support for the key actions that need to be taken (Table 2).

**Table 2. Public support for measures to promote opportunities for healthier eating**

	Support	Oppose
Making healthy food and drinks cheaper than unhealthier ones	81%	4%
Reducing children's exposure to unhealthy food and drink advertisements	78%	4%
Reducing sugar content in foods	77%	8%
Reducing the concentration of fast food outlets, particularly outside schools	72%	7%

Source: ComRes surveyed 2,016 British adults aged 18+ between 24th and 27th May 2019 on behalf of the Foundation for Liver Research and the Lancet Commission on Liver Disease. Data were weighted to be nationally representative of British adults aged 18+ by key demographics including age, gender, region and social grade. Full tables can be found at [www.comresglobal.com](http://www.comresglobal.com)

## Next steps

Politicians, I call on all of you across the political spectrum to come together and take action. The health of our children is in your hands. You can take action because you, on behalf of our society shape our environment.

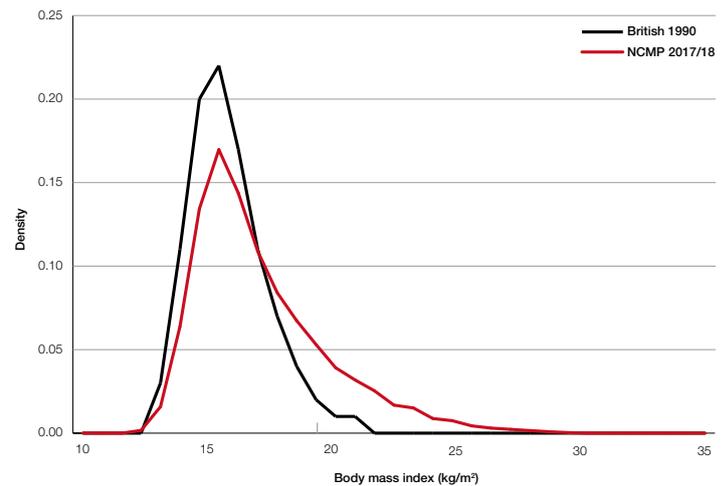
You can and must take action now to ensure that our children:

- have access to healthy and affordable food,
- are protected from marketing of unhealthy foods, and
- have the opportunity to run, bike and play safely.

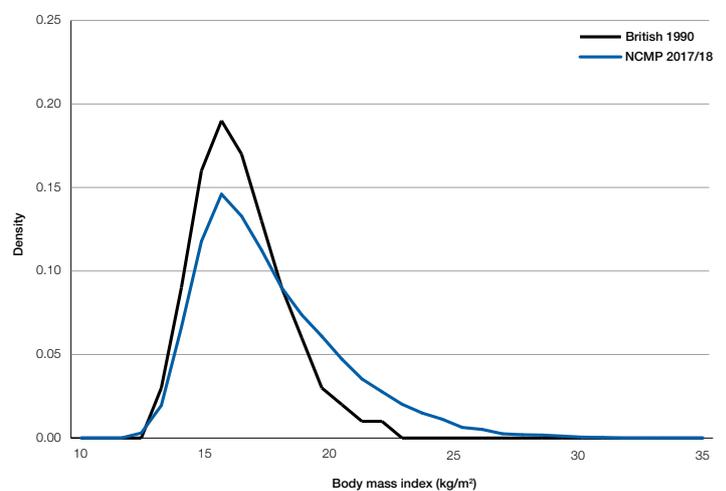
The principles to underpin actions are:

- **Rebalance the food and drinks sold to favour healthy options, through regulation.**
- **Allow children to grow up free from marketing, signals and incentives to consume unhealthy food and drinks.**

### Boys aged 10.5 years



### Girls aged 10.5 years



Distribution of body mass index comparing 1990 and 2017/18 for boys and girls; see Annex C.

<sup>13</sup> Public perceptions and awareness of Public Health England's reduction programmes, IPSOS MORI, 2018



A handwritten signature in black ink that reads "Sally C. Davies".

Professor Dame Sally C. Davies, FRS FMedSci

Chief Medical Officer and Chief Medical Advisor to the UK Government

- **Introduce innovative policies that find the win-wins for children's health and the private sector:** E.g. continue private sector sponsorship of major sporting events, facilities and stars, but only allow advertising and sales of their most healthy products on site.
- **Invest in and design the built environment to create the opportunities for children to be active and healthy**
- **Take action to improve: exercise and healthy weight in pregnancy, breastfeeding rates, and infant feeding.**
- **Ensure schools and nurseries play a central role, supported by Ofsted monitoring.** Teachers know that being overweight impacts on children's lives and they need support to do the right things. Food, drink and physical activity standards should be set and adhered to in all schools and nurseries.
- **Ensure our NHS and health sector workforce can deliver what our children and families need to prevent, manage and treat obesity, including having conversations about weight and tackling weight-related stigma.**
- **Make better use of data to guide practice:** E.g. systematically link and share data on children's weight to intervene early; share private sector data, such as supermarket sales data, with policy makers and researchers
- **Protect and prioritise our children's health and rights while making trade deals. Their health and a healthy environment must come above company profits.**
- **Develop the evidence base to inform practice and policy**

Detailed recommendations can be found in Annex A.

# Annexes

**Annex A – Recommendations for action**

**Annex B – The health and societal costs of childhood overweight and obesity**

**Annex C – Epidemiology of and inequalities in childhood obesity in England**

**Annex D – Why are more children obese today?**

**Annex E – The role of the NHS and health sector**

**Annex F – Children's Rights**

**Annex G – Progress against UK government and NHS commitments to tackling child obesity**

Annex A

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# Recommendations for action

The UK Government has laid important foundations for change with two “chapters” of a national childhood obesity plan<sup>a</sup>; a prevention green paper, *Advancing our health: prevention in the 2020s*<sup>b</sup>; and the NHS Long Term Plan<sup>c</sup>.

The list of recommendations are not set out in order of priority. They build on existing commitments, and are not exhaustive.

We need to change behaviours and norms. And there is no single magic bullet.

## Principle 1: Rebalance food sold to favour healthy options through regulation.

	Recommendation	Who
<b>1.1</b>	Extend the Soft Drinks Industry Levy to sweetened milk-based drinks with added sugar.	HMT
<b>1.2</b>	Accelerate the reformulation programme (PHE), If sufficient progress is not made, the government should apply either: a. A fiscal lever or b. Standardised packaging, (as for tobacco).  Planned timings; a. Sugar – to be reviewed in 2021. b. Calories – to be reviewed in 2024.	DHSC with support from PHE
<b>1.3</b>	Develop a viable system to apply an upper level cap on calories per serving for all food and drink sold by the out-of-home food and drink sector <sup>d</sup> (including online businesses).	DHSC with support from PHE
<b>1.4</b>	Following the UK’s exit from the European Union, an urgent review of VAT rates on food and drink should take place with input from DHSC. The review should aim to rebalance the cost of food and drink in favour of health. It should ensure: a. All healthy foods continue to have no VAT applied. b. VAT should be applied to unhealthy food consistently c. Temperature at sale and locations should not be a factor in determining whether VAT is applied.  The review should consider consider a tiered VAT approach so the unhealthiest products have a higher rate of VAT which could be used to subsidise healthy food, starting with fruit and vegetables.	HMT, HMRC DHSC with advice from PHE
<b>1.5</b>	Enhance the business registration scheme <sup>e</sup> for all companies and places selling food and drink including those whose sales of food are less than 25% of total trade. This should include a mechanism to develop a national picture of this information to support policy evaluation and impact. Minimum registration requirements should be enhanced to include (but not limited to): a. Calorie/ nutritional labelling. b. Cap on maximum calories per serving. c. Price and multi buy restrictions. d. Healthy catering good practice. e. Free drinking water to be available for all customers in on-site premises. f. Data sharing standards for sales and nutritional content of food and drink.	HMRC, BEIS and HMT with support from PHE, DHSC and FSA
<b>1.6</b>	Mandate across the whole out-of-home food and drink sector, hospitals, leisure centres: a. Consistent nutrition labelling on all menus and product shelf labels. b. Front of pack nutrition labelling.	DHSC with support from PHE, NHSE, FSA and MHCLG

a <https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2>

b <https://www.gov.uk/government/consultations/advancing-our-health-prevention-in-the-2020s>

c <https://www.longtermplan.nhs.uk/implementation-framework/>

d out-of-home sector is defined as: cafés, restaurants, pubs/ bars, takeaways, bakeries, coffee shops, sandwich shops, retail food on the go and delivery services.

e <https://www.gov.uk/food-business-registration>

	Recommendation	Who
1.7	<p>Update the National Planning Policy Framework<sup>f</sup> and relevant planning practice guidance<sup>g</sup> to ensure;</p> <p>a. That a food business selling healthier food is recognised as different from a business selling unhealthy options. This should include a refined approach to A5 takeaway classifications.</p> <p>b. That a takeaway (A5 outlets) which adds tables and chairs for eating in are not automatically classified as a restaurant.<sup>h</sup></p> <p>c. That a change of use planning approval becomes time limited for no longer than five years.</p> <p>d. Improve the planning application and appeals processes for when a business either requests a change-of-use of a property to become an A5 takeaway shop or wants to open a new A5 takeaway shop by:</p> <ul style="list-style-type: none"> <li>Reducing the costs and burden placed on local authorities when a business challenges a planning decision (following a declined change-of-use application).</li> </ul>	MHCLG with support from DHSC and PHE

## Principle 2: Allow children to grow up free from marketing, signals and incentives to consume unhealthy food and drinks.

	Recommendation	Who
2.1	Review all tax-deductible expenses, including advertising expenses, available for the food and drink industry to ensure that these are aligned with health policies. For example, only allow businesses to claim tax relief for advertising healthy and not unhealthy products.	HMT
2.2	Phase out all marketing, advertising and sponsorship of less healthy food and drink products (as defined by the revised Nutrient Profile Model <sup>h</sup> ) across all mediums including online, at any major public venue or public-funded event and on any public-sector-owned advertising site. For example, by using data analytics to turn off adverts of unhealthy food and drink for children and families replacing these with positive health messages.	DCMS and MHCLG
2.3	Prohibit eating and drinking on urban public transport, except fresh water, breastfeeding and for medical conditions.	DFT

## Principle 3: Introduce innovative policies that find the win-wins for children's health and the private sector.

	Recommendation	Who
3.1	Information and nudges to be provided to the public about healthier swaps, particularly when the public is shopping online or using digital apps.	DHSC with support from DCMS and PHE
3.2	Ensure that all publicly-funded sporting facilities and major sporting events only advertise and sell low calorie, low fat, salt and or sugar products, and supply free and accessible drinking water.	DCMS
3.3	Free "Water Refill" <sup>i</sup> scheme to be available in all food and drink retail sites, hotels and public-sector buildings, including public transport stations and sports facilities.	BEIS, DFT and MHCLG
3.4	Work with suppliers, cash and carry businesses and packaging companies to introduce smaller portion sized packaging for fast food (whilst also reducing use of plastic packaging).	DHSC, FSA and DEFRA

<sup>f</sup> <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

<sup>g</sup> Some are using a loophole that can make them exempt from planning restrictions designed to limit their spread over concentration restrictions or restriction zones around schools.

<sup>h</sup> <https://www.gov.uk/government/publications/the-nutrient-profiling-model>

<sup>i</sup> <https://refill.org.uk/>

**Principle 4: Invest in and design the built environment to create the opportunities for children to be active and healthy.**

	<b>Recommendation</b>	<b>Who</b>
<b>4.1</b>	Work with water companies and local authorities to make free drinking water fountains easily available in all public places. Including parks, leisure centres, shopping centres and at major sporting events and facilities.	MHCLG working with water companies, DEFRA and DCMS
<b>4.2</b>	Increase dedicated funding for active travel infrastructure by rebalancing investment in vehicle travel infrastructure towards walking and cycling.	DFT, HMT, local authorities
<b>4.3</b>	Around schools and housing improve safety by reducing the national speed limit from 30 mph to 20 mph and improve the potential of smart technology to limit the speed of cars in urban areas.	DFT, MHCLG and BEIS
<b>4.4</b>	Review the effectiveness of WebTAG (the Department for Transport's framework for appraising and valuing transport projects) in valuing the health benefits of active travel and update as appropriate.	DFT
<b>4.5</b>	Take measures to improve the air quality and environment around schools such as: a) Introducing car free zones around schools. b) Regular car free weekends. c) Create health zones around schools. d) Greater use of play streets to create safe spaces for children to play, walk, run and cycle.	DEFRA, and DFT with support from MHCLG and local authorities
<b>4.6</b>	Provide further support to schools and parents to increase active travel to and from schools. Such as: a. Extending the existing cycle to work schemes for parents to buy bikes for children. b. Additional credits through welfare benefits. c. Grants for schools to build cycle and non-motorised scooter storage.	HMT, DFT and DWP
<b>4.7</b>	Ensure spaces for children to run, play and cycle are built, maintained and protected.	MHCLG, DCMS and DEFRA

**Principle 5: Take action to improve: exercise and healthy weight in pregnancy, breastfeeding rates and infant feeding.**

	<b>Recommendation</b>	<b>Who</b>
<b>5.1</b>	Review and update national guidelines in England for healthy weight in pregnancy.	NICE and NHSE with support from PHE and Royal Colleges
<b>5.2</b>	Enhance support to all NHS and health sector professionals to ensure that they can: <ol style="list-style-type: none"> <li>Identify pregnant women who are overweight or obese.</li> <li>Understand stigma and are empowered to initiate conversations with pregnant women.</li> <li>Appropriately support and manage overweight or obesity in pregnancy and the post-natal period.</li> </ol>	HEE and NHSE with support from PHE and Royal Colleges
<b>5.3</b>	Develop a national breastfeeding strategy, building on the work undertaken by PHE and local authorities to increase breastfeeding rates past 6–8 weeks. This should include: <ol style="list-style-type: none"> <li>Ambitious targets.</li> <li>Stronger regulation of marketing of follow-on formula milk.</li> <li>Additional tools and training to support NHS and health sector professionals to increase help provided to families with: 1) infant feeding and weaning, 2) to recognise overfeeding and overweight in infancy and 3) referral to services where necessary.</li> <li>Action to support areas that are not reaching the data validation threshold, to ensure an accurate picture about breastfeeding initiation and discontinuation.</li> </ol>	DHSC and NHSE with support from HEE, Royal Colleges, PHE and NHSI
<b>5.4</b>	Develop and mandate standards for the nutritional content of foods for children under two years old.	DHSC with support from PHE
<b>5.5</b>	Strengthen and mandate marketing and labelling guidelines for all companies who manufacture and sell infant food and follow-on formula to ensure this is consistent with scientific advice and that all products and adverts: <ol style="list-style-type: none"> <li>Give correct information including on portion size.</li> <li>Promote safe and healthy feeding practices that prevent overfeeding.</li> <li>Do not promote feeding high sugar or high salt products between meals.</li> </ol>	DHSC with support from PHE
<b>5.6</b>	Review the Healthy Start Vouchers scheme: considering uptake, effectiveness, and accelerating progress of the digitisation of these.	DHSC

**Principle 6: Ensure schools and nurseries play a central role, supported by Ofsted monitoring.**

	<b>Recommendation</b>	<b>Who</b>
<b>6.1</b>	Ensure provision of healthy food at an affordable price – including to children receiving free school meals – alongside ready supplies of free drinking water.	HMT and DFE with support from DHSC, DWP and Ofsted
<b>6.2</b>	a. Review free schools meals to identify ways to improve uptake and delivery of healthy affordable meals. b. Increase the value of the free school meal allowance so that it covers the cost of a healthy meal.	HMT with support from DFE and DWP
<b>6.3</b>	Develop early years national food standards.	DFE with support from DHSC and PHE
<b>6.4</b>	All schools and nurseries to comply with the recommended government buying standards <sup>j</sup> for food and catering and the school food standards <sup>k</sup> .	DFE, MHCLG with support from DHSC and PHE
<b>6.5</b>	Ensure that there are robust independent monitoring systems in place so that current food standards are implemented in all nurseries and schools.	DFE and Ofsted
<b>6.6</b>	All nurseries, registered childminders and schools to adopt water and milk only policies.	DFE and Ofsted
<b>6.7</b>	Develop a national approach to supporting schools and local authorities to commission healthier catering supplies. This should include developing business regulation or codes of practice.	DHSC, PHE and DFE
<b>6.8</b>	Nurseries and schools to prioritise ensuring that all children complete adequate physical activity during the school day in line with CMO physical activity guidelines <sup>l</sup> e.g. by: a. Doing the active mile. b. Nursery based active play. c. Directly linking the Junior Park Run to schools, in areas with highest levels of deprivation and childhood obesity.	DFE, MHCLG, DCMS and Ofsted

<sup>j</sup> <https://www.gov.uk/government/collections/sustainable-procurement-the-government-buying-standards-gbs>

<sup>k</sup> <https://www.gov.uk/school-meals-healthy-eating-standards>

<sup>l</sup> CMO Physical Activity Guidelines 2019 <https://www.gov.uk/government/publications/uk-physical-activity-guidelines>

**Principle 7: Ensure our NHS and health sector workforce can deliver what our children and families need to prevent and manage obesity, including having conversations about weight and tackling weight-related stigma.**

	Recommendation	Who
<b>7.1</b>	Enhance support to all NHS and health sector professionals to ensure that they can: <ol style="list-style-type: none"> <li>Identify children who are overweight or obese.</li> <li>Understand stigma and are empowered to initiate conversations with children and families.</li> <li>Appropriately support and manage overweight or obese children, and those with associated ill health.</li> </ol>	HEE, NHSE, NICE and Royal Colleges
<b>7.2</b>	Building on the NHS Long Term Plan; develop a comprehensive approach to the commissioning of Tier 2, 3 and 4 weight management services for children, young people and pregnant women. This should include: <ol style="list-style-type: none"> <li>Building on commitments in the NHS Long Term plan, ensure that weight management services meet population need.</li> <li>Develop an accountability system for weight management services to monitor service coverage, uptake and outcomes. To identify gaps and support requirements.</li> <li>Developing new approaches (including digital) for the delivery of healthy weight support for families, particularly those who are living in areas which are most deprived.</li> <li>Weight management services that address mental health needs.</li> </ol>	NHSE, NHSX, NHSI, MHCLG, PHE and Royal Colleges
<b>7.3</b>	Ensure that children’s weight is monitored and appropriate action taken at every contact with the NHS and health sector.	NHSE, HEE, MHCLG. and Royal Colleges
<b>7.4</b>	Update the NHS oversight metric framework to include maternal weight and breast feeding rates.	NHSE
<b>7.5</b>	Conduct regular audits of compliance with food standards (including retail outlets and vending machines) in hospitals.	NHSI

**Principle 8: Make better use of data and technology to guide practice.**

	<b>Recommendation</b>	<b>Who</b>
<b>8.1</b>	<p>a. The National Child Measurement Programme (NCMP) should evolve from a measurement and surveillance tool to include a formal feedback and support pathway for all families to maintain a healthy weight.</p> <p>b. NCMP data to be routinely linked and safely shared with all relevant health sector professionals.</p>	NHSE and NHSX with support from PHE
<b>8.2</b>	<p>a. Using technology to develop a world leading approach to child measurement – to track children’s weight, intervene early, and engage with families.</p> <p>b. Ensure that all NHS and health sector staff have electronic access to child growth charts.</p>	NHSX, NHSE and DHSC
<b>8.3</b>	<p>a. Require the food industry to share data on sales and nutritional content of their food with policy makers and researchers.</p> <p>b. Expand the Office for National Statistics (ONS) agreement with the food business to include food and drink sales data.</p>	DEFRA and DHSC with support from PHE ONS
<b>8.4</b>	Support industry to invest in a rebalanced food product portfolio which is healthier and more affordable.	DHSC, BEIS and UKRI, PHE

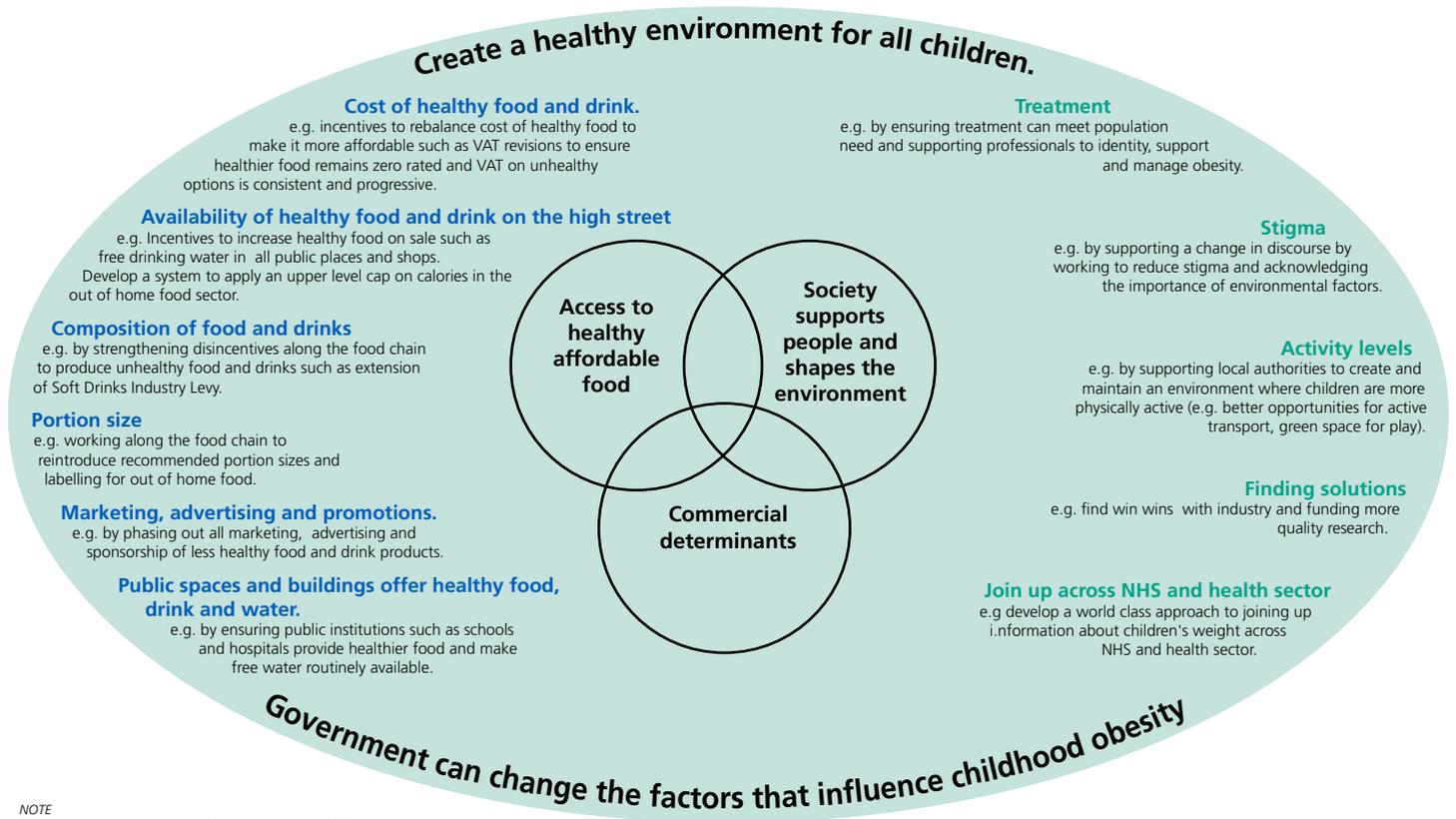
**Principle 9: Protect and prioritise our children’s health and rights while making trade deals. Their health and a healthy environment must come above company profits.**

	<b>Recommendation</b>	<b>Who</b>
<b>9.1</b>	Ensure that all future trade deals support our ambition to make healthier food and drink more affordable while safeguarding and prioritising children’s future health. Specifically, those related to trade, farming, import and export deals.	DEFRA, DHSC, Department of Trade and Industry, BEIS and HMT

**Principle 10: Develop the evidence base to inform practice and policy.**

	<b>Recommendation</b>	<b>Who</b>
<b>10.1</b>	Presentations of childhood obesity data (e.g. PHE Fingertips) should demonstrate progress towards the 2030 ambition in addition to existing reports.	PHE and DHSC
<b>10.2</b>	Undertake research on the role of polygenic risk scores for obesity and its prevention.	NIHR, UKRI and researchers
<b>10.3</b>	<p>Fund further research to better understand:</p> <p>a. The needs of families who are at greatest risk of obesity, such as those living in deprived areas and some ethnic minority groups; and the optimal ways to support them to be a healthy weight.</p> <p>b. The bi-directional relationships between obesity and mental health (the syndemic), and optimal ways to support needs.</p> <p>c. The links between nutrition, physical activity and hydration with children’s attention, educational outcomes and mental health.</p>	NIHR, UKRI and researchers
<b>10.4</b>	Ensure that local areas are supported to conduct rapid and robust evaluations of innovation and policies in a timely fashion and learning is appropriately disseminated.	DHSC and PHE

**Figure A1: A pictorial representation of some of the necessary Government actions**



NOTE  
This diagram is not a comprehensive representation of all influencing factors.  
Where "food" is referred to "food and drink" should be read.

Annex B

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# The health and societal costs of childhood overweight and obesity

# Introduction

As set out in the Chief Medical Officer's 2012 Annual Report,<sup>1</sup> childhood obesity has a profound effect on children's physical and mental health. It can frame children's life chances – not just their health, but also their employment, opportunities and lifetime earnings.

This annex discusses the immediate impacts of childhood obesity on children's physical and mental health during childhood and adolescence, as well as impacts in adult life. The annex also presents information on the wider societal costs of childhood overweight and obesity. The environmental impact, costs to the NHS and the wider economic costs on society, for example, through reduced employment and productivity.

## Impact of obesity on children's health

Children with overweight or obesity are more likely to experience a range of health problems in childhood (as shown in Figure B1).

Obesity and overweight contribute to a variety of

### **musculoskeletal problems:**<sup>2</sup>

- pain, such as knee pain and lower back pain<sup>3</sup>
- increased risk of some types of fractures and damage to the cartilage in weight-bearing joints<sup>4</sup>
- certain orthopaedic conditions, such as slipped upper femoral epiphysis (SUFE), osteochondritis dissecans and Blount's disease or bowing of the legs, which may require surgery and cause osteoarthritis later in life.<sup>5-7</sup>

Whilst there is probably a bi-directional relationship between **asthma** and obesity, it is increasingly accepted that obesity has a causal role in asthma and can exacerbate the condition.<sup>8-10</sup> There are 1.1 million children living with asthma, assuming a causal relationship, several thousand and as many as 120,000 of these cases may be attributable to overweight or obesity.<sup>a</sup>

**Figure B1: The effects of obesity on children's physical and mental health**

Early puberty leading to reduced adult height in girls  
Increased attendance at primary care

Early stages of developing cardiovascular disease  
(e.g. high blood pressure, fatty plaques in arteries,  
raised blood cholesterol)

Sleep Apnoea

Fatty Liver Disease

Slipped Upper Femoral  
Epiphysis in boys

Knee and lower  
limb joint pain

Psychological consequences

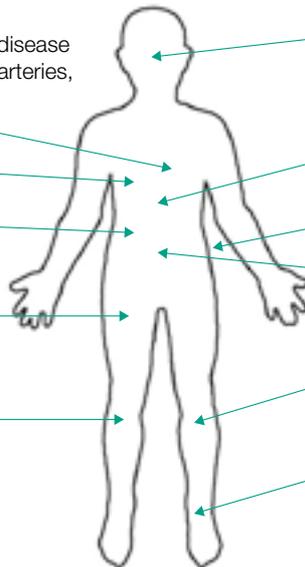
Asthma

Back pain

Type 2 Diabetes

Cartilage damage in the knee –  
Osteochondritis dissecans

Fracture in lower limbs



<sup>a</sup> Calculated estimate of population attributable fraction using estimates of relative risk from Mebranthu et al. 2015.

Until recently **type 2 diabetes** was considered an adult disease. In 2000 the first cases of the condition were reported in Asian children, and in 2002 in white children, with overweight in England.<sup>11,12</sup> Today there are over 100 new diagnoses each year and over 700 children (250 white children) living with the condition in England.<sup>13</sup> Type 2 diabetes can lead to a range of problems in later life, such as heart disease, stroke, visual loss, damage to the kidneys and foot problems, including ulcers and infections. Obesity accelerates the development of it in susceptible individuals.<sup>14</sup> When type 2 diabetes presents earlier in life it tends to be a more severe condition than that presenting in adult life, with more rapid progression to complications and failure of oral treatment.

**Fatty liver disease** is increasingly reported in children and is nearly exclusively seen in children with overweight or obesity. In England, as many as 650,000 children are estimated to have fatty liver disease.<sup>15</sup> Whilst the disease may be asymptomatic in children and can be cured without residual damage with weight loss, many children will require monitoring by a doctor to ensure the disease does not progress. The disease has the potential, particularly in the absence of weight loss, to progress to fibrosis and ultimately cirrhosis in later life.<sup>16</sup>

Whilst **ischaemic heart disease** does not usually present until later in life, its development can start in adolescence. Children with obesity (or overweight) tend to have more developed risk factors for ischaemic heart disease, such as having **higher blood pressure, altered blood cholesterol levels** (raised LDL, lowered HDL) and raised fasting blood glucose.<sup>17</sup> The development of fatty plaques (atherosclerosis) that cause clots and blocks arteries, is more advanced in children with obesity compared to children of a healthy weight.<sup>18</sup>

### Hospital admissions with a primary of secondary diagnosis of obesity (2017–18)<sup>1</sup>

- Children (0–17 years) 6,984 (of which 759 were primary diagnoses)

<sup>1</sup> Source: Hospital Episodes Statistics for England.

### Obesity and cardiovascular disease in children:

- Raised blood pressure (>90th centile): x5.8 increase for obesity compared to healthy weight (x2.4 for overweight)
- High LDL cholesterol: x3.1 for obesity (x2.4 for overweight)
- Low HDL cholesterol: x2.5 (1.9)
- Insulin resistance (raised fasting plasma glucose): x29.1 (9.6)
- Carotid intima thickening: x1.7 (1.5)

Source: Sharma et al. 2019.<sup>17</sup>

## Psychosocial impact of obesity in childhood

Increasingly, links between overweight or obesity and mental health are being recognised.<sup>19</sup> Stigma and discrimination toward obese children is pervasive and pose numerous consequences for their psychological and physical health. Children with overweight or obesity experience lower self-esteem, may withdraw socially and may be bullied as a result of their weight. Weight stigma not only has a direct negative impact on health, but it can also act as a barrier to seeking help and treatment.<sup>20</sup> Mental health problems and disorders may contribute to the development of obesity and overweight. For example, people with obesity are more likely to develop a binge eating disorder, a psychiatric diagnosis characterised by episodes of binge eating associated with psychological distress. Some of the medications used to treat mental health disorders, notably some anti-psychotics, can cause weight gain.

Thus, it seems likely that there is a bi-directional relationship between obesity and mental health. The clustering and

inter-relationship of these twin epidemics, obesity and **poor mental health** in children, can be termed a syndemic.

A causal link between childhood overweight or obesity and reduced educational outcomes has been suggested. This might be expected because overweight or obesity can contribute to poor health, which can negatively impact on educational outcomes. It might also be expected because some of the behaviours that contribute to the development of obesity in childhood, such as insufficient sleep and TV watching, are associated with poorer education outcomes. However, the evidence to date is inconclusive.<sup>21,22</sup>

Obesity in girls can bring forward the age at which puberty occurs and as a result will be **shorter** than their expected height.<sup>23</sup> **Early puberty** in girls is associated with reduced educational attainment, poorer mental health and greater risk-taking behaviour.<sup>24</sup>

## Sugar consumption and children's dental health

As well as contributing to obesity, regularly consuming food and drinks high in sugar is the main cause of **tooth decay**.<sup>25</sup> In England, children are consuming more than the recommended daily limit of free sugar.<sup>26</sup> Interventions that reduce sugar intake have the potential to reduce both obesity and tooth decay in children at the population level.

Whilst tooth decay is very largely preventable, it remains the most common oral disease affecting children. Children who have toothache or who need treatment may have pain, infections and difficulties with eating, sleeping, speaking and socialising. Extraction of teeth due to tooth decay is the most common reason for hospital admission for children aged six to ten years old, as it usually requires a general anaesthetic.

### Tooth decay in children

Tooth decay starts early in life, almost a quarter of five-year-olds start school with tooth decay.

- According to PHE data at least 60,000 days of school are missed during the year for hospital tooth extractions; parents and carers may also have to take time off work.
- Almost nine out of ten hospital tooth extractions among children aged zero to five years are due to preventable tooth decay.
- In 2017/18, there were 38,385 tooth extractions for children due to tooth decay. That is equivalent to 13 school buses\* full of children each week.
- Amongst five- to nine-year-olds, tooth decay was the second most prevalent non-communicable disease and the third most prevalent in under-fives.
- In 2017, over a third of children from deprived backgrounds in England had tooth decay (36.3%), compared to just 12.5% in the least deprived backgrounds.<sup>27</sup>
- 47% of five-year-olds in Rochdale having tooth decay in comparison with 13% in Cambridgeshire
- The NHS cost of tooth extractions, due to tooth decay in hospital for children, is approximately £33 million a year.

Source:

Public Health England. *Child Oral Health: Applying All Our Health*. London; 2019.

<https://www.gov.uk/government/publications/child-oral-health-applying-all-our-health/child-oral-health-applying-all-our-health>

Public Health England. *Oral Health Survey of 5 Year Old Children 2017*. London; 2018.

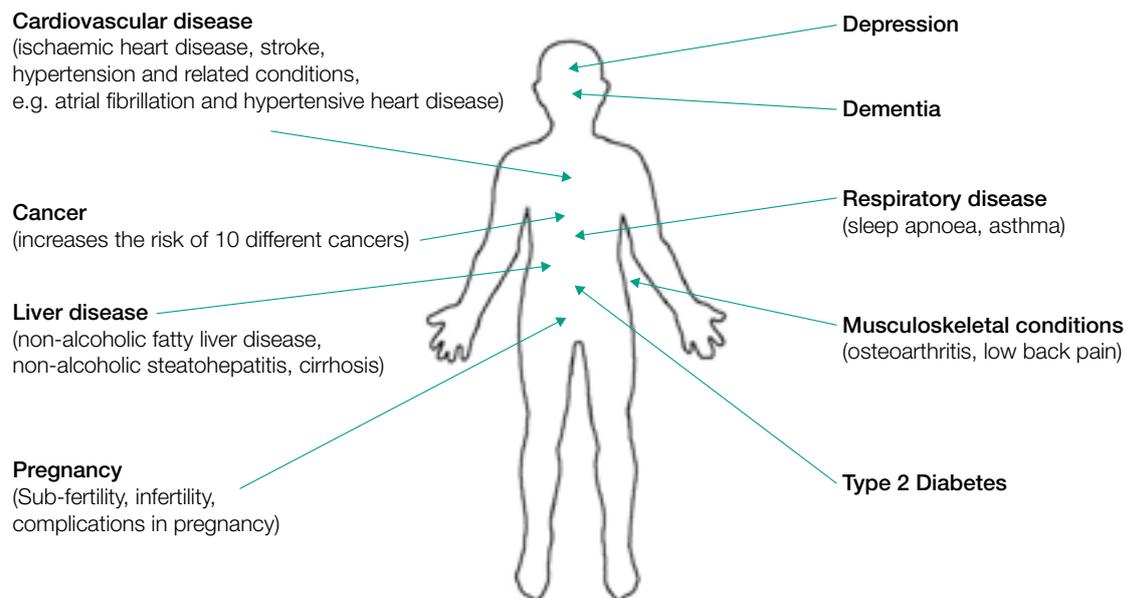
<https://www.gov.uk/government/statistics/oral-health-survey-of-5-year-old-children-2017>

\*Based on a school bus carrying 57 pupils.

## Impact of childhood obesity in adult life

Children with obesity or overweight are more likely to develop cardio-metabolic disease, **some cancers** and musculoskeletal conditions in adult life.<sup>28</sup> Children with obesity are five times more likely have obesity as an adult.<sup>29</sup> Adult obesity is associated with a wide range of problems:

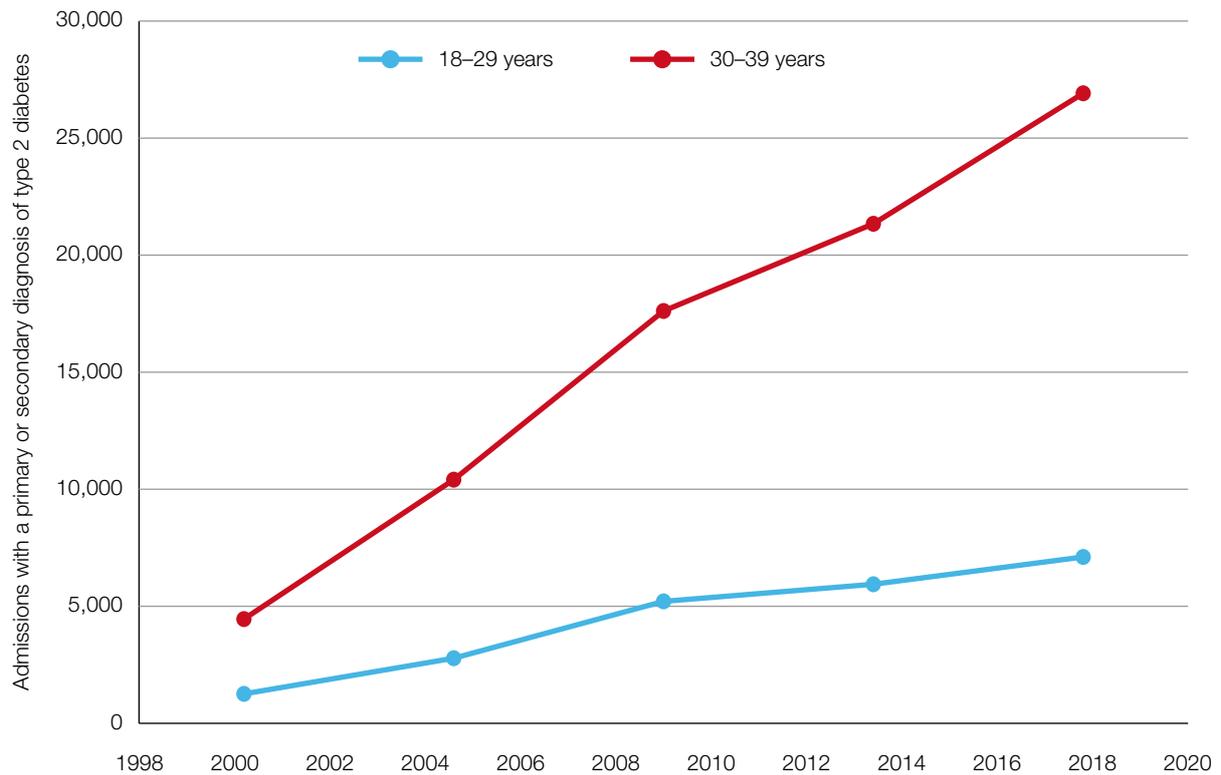
**Figure B2: The effects of obesity on adults' physical and mental health**



Clinicians are increasingly concerned about the impact of high levels of adiposity and excess weight will have on children as they mature. The effect of this cumulative exposure across many years is unknown. Existing studies tell us about the impact of obesity on adults, but the adults in these studies were much less likely to have had overweight or obesity as children compared to children today. We do not yet understand the full impact on health in later life of childhood obesity that persists throughout life.

Earlier onset of obesity is likely to lead not only to more disease but also earlier onset of disease, and in some cases more severe disease. For example, orthopaedic surgeons are now reporting seeing osteoarthritis presenting early in adults with obesity, at ages 40 to 50 years, compared to 60 or 70 years in adults without obesity. There has been a rise in the number of young people (aged under 40 years) diagnosed with type 2 diabetes, and the number of hospital admissions attributable to type 2 diabetes in young people (see Figure B3). Onset of type 2 diabetes in early adult life will occur after development of overweight or obesity in childhood. Earlier onset of disease will result in more years lived in poor health and will undermine the marked improvements that have occurred in the past century.

**Figure B3: The number of hospital admissions in England with a primary or secondary diagnosis of type 2 diabetes amongst young adults since 2000**



Source: Hospital episode statistics, based on finished admission episodes per financial year.

### Burden of obesity in early adult life – some key statistics

Type 2 diabetes in 2017–18:

- 24,000 cases in adults aged 18–29 years
- 114,000 cases in adults aged 30–39 years

Admissions for obesity (either a primary or secondary diagnosis) in 2017–18:

- 99,724 admissions in adults aged 18–29 years
- 109,992 admissions in adults aged 30–39 years

Admissions for bariatric surgery in 2017–18:

- 558 operations in adults aged 18–29 years
- 1397 operations in adults aged 30–39 years

## Environmental impact

Overweight and obesity also have an environmental impact. Food production is an important contributor to climate change and has a significant negative environmental impact (e.g. loss of bio-diversity, freshwater use).<sup>30</sup> It is estimated that the production of the extra calories required to maintain higher body weights seen in the UK today, compared to the 1970s (on average 16% more calories per person compared to the 1970s), contributes an additional 20–60 mega tonnes of carbon dioxide equivalents per year in greenhouse gas emissions in the UK.<sup>31</sup>

There is a mismatch between food production and what is needed for optimal health. Over half of the world's calories come from just three crops; wheat, rice and maize. Adding in soybean oil, palm oil, sugar, barley and potato takes this to over three-quarters.<sup>32</sup> Some of these crops and their products (e.g. sugar, white rice, high fructose corn syrup) are directly implicated in obesity or have other detrimental effects on health. Agricultural policies that arose in the second half of the last century, when there was a focus on raising production to ensure a plentiful supply of food to combat hunger and malnutrition, tended to support the production of these crops.

Food production and sales currently relies heavily on disposable plastics. It is estimated the major UK supermarkets use 810,000 tonnes of single use plastic each year.<sup>33</sup> Single-use plastic consumption is also high amongst the out-of-home food sector.

Emissions from transport are also a major contributor to greenhouse gases, as well as poor air quality in our towns and cities. Sustainable forms of travel, walking, cycling and public transport are associated with higher calorie expenditure, can be an acceptable and regular form of activity for children and adults, and can have a role in tackling excess weight gain.

## Societal costs of obesity

Obesity puts significant additional demands and costs on the NHS. However, the most significant costs of obesity are borne by other parts of society and the economy: through the impact on individuals and families, costs to social care, and costs to businesses and employers.

Discussion of health often focuses on the financial cost of healthcare. Far from a cost, the Chief Medical Officer's 2018 Annual Report, *Health 2040 – Better Health Within Reach*,<sup>b</sup> described health as an asset; for individuals, for communities and for the nation. Maintaining “good health” and preventing “ill-health” is an investment for the future. Overweight and obesity contribute to sickness absence and presenteeism, having a negative impact on productivity and businesses. Adults with obesity are less likely to be employed and tend to earn less, even after accounting for other factors like education. The lifetime earnings loss for an adolescent with obesity has been estimated as £90,000 for males and £115,000 for females.<sup>34</sup>

McKinsey estimated that obesity costs the UK 3% of GDP, this was around £60 billion in 2018, with large costs (around £5 billion) being borne by business in terms of sickness absence and reduced productivity.<sup>35</sup>

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b [Annual report of the Chief Medical Officer 2018: health 2040 – better health within reach](#)

## Healthcare cost of obesity

McKinsey estimates the average NHS spend is £1,447 per person with obesity (BMI 30.0–34.99 kg/m<sup>2</sup>) compared to £805 for somebody of a healthy weight (BMI 20.0–24.99 kg/m<sup>2</sup>) in 2012.<sup>35</sup> Seven years later, these bills will now be higher.

This additional resource usage may start as early as age five years. Recent research found children in Bradford with overweight or obesity at aged five years, were more likely to see their general practitioner over the following three years.<sup>36</sup>

The total NHS spend on obesity, through its impact on disease and direct costs of treating obesity, has been estimated to be £6 billion per annum (5% of its budget). Many of the conditions that obesity can cause, such as dementia, diabetes, heart disease and some cancers, will also contribute to significant social care costs.

The total costs of insufficient physical activity and poor diet will be much greater than the total costs of obesity, so the total costs of obesity understate the potential benefits from fixing obesity through increasing physical activity and improving diet. For example, much of the burden of insufficient physical activity is not due to obesity. Insufficient physical activity increases the risk of some cancers, depression, heart disease, stroke and probably dementia, even amongst people with a healthy weight. So increases in physical activity in the general population will yield much greater health benefits than just those attributable to obesity.

### Summary

All of this data demonstrates the high costs of obesity, lack of physical activity and poor diets that individuals, families and society pay through suffering ill-health, reduced employment and increased calls on public services.

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Annex C

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# Epidemiology of and inequalities in childhood obesity in England

# Epidemiology of childhood obesity

There are an estimated 1.2 million children in England with clinical obesity, requiring weight management services.<sup>1</sup> At the start of primary school, in a typical class of 30 pupils, three pupils have obesity. At the end of primary school, this has doubled to six children.<sup>2</sup>

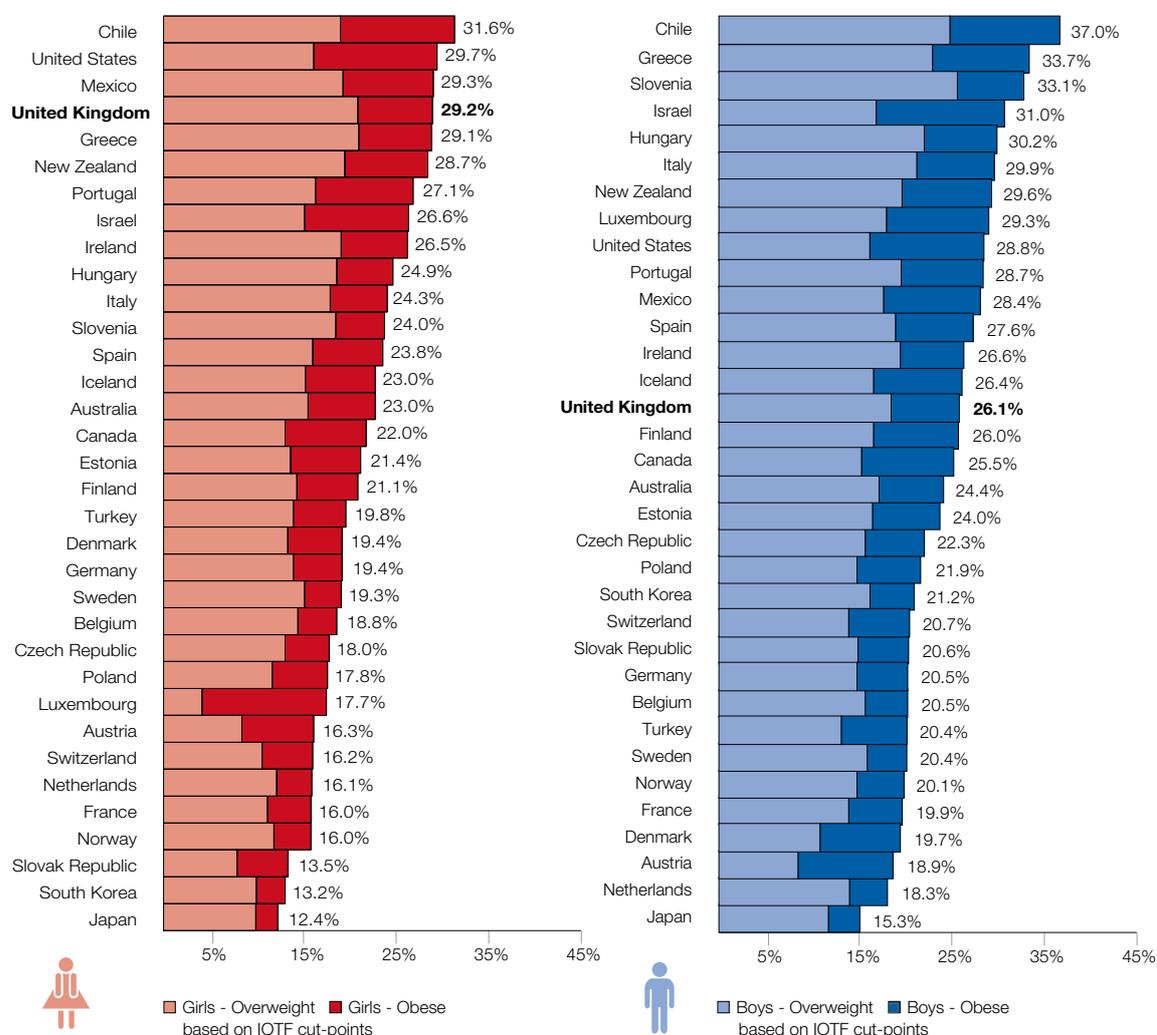
Whilst an increasing number of countries have high levels of childhood obesity, the levels in England are higher than those seen in many comparable countries. In analysis undertaken in 2013, the UK ranked 9th of 27 OECD countries for childhood obesity, with levels of childhood overweight and obesity for girls are close to countries like the USA, Mexico and Chile (Figure C1). Conversely the levels are much greater than some

of our European neighbours, like France, the Netherlands and Norway.

The prevalence of childhood obesity in England is also high compared to historical norms. It started to increase in the 1980s or 1990s. The rate of increase then slowed in the 2000s (Figure C2).

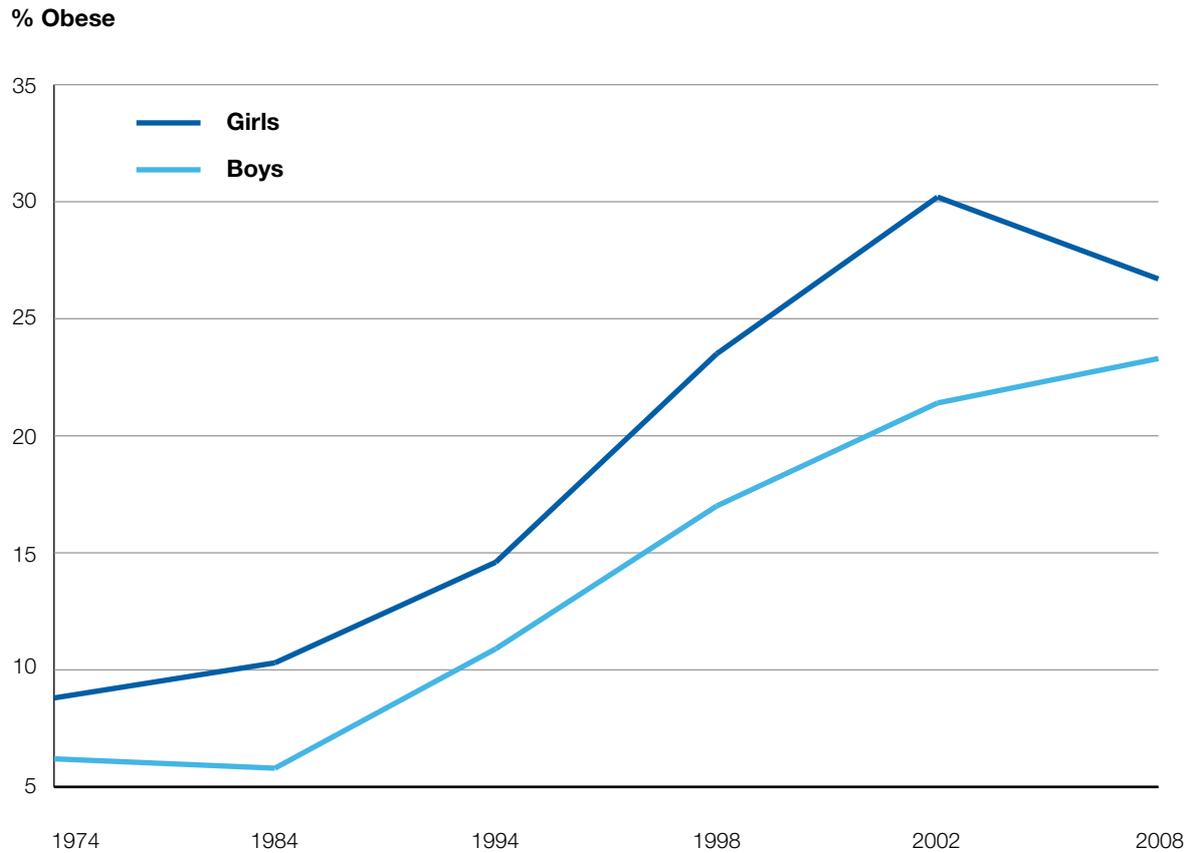
Survey data also shows that body weight has increased for nearly all children (Figure C3), i.e. this is not a problem isolated to a few children with obesity or overweight, changes are observable in nearly all children. Genetic risk has not changed during this time. This suggests that the underlying causes giving rise to obesity are widespread and environmental in origin.

**Figure C1: International childhood obesity comparisons**



Data source: The Lancet, Systematic analysis for the Global Burden of Disease Study 2013. The data in the chart is ordered based on the prevalence of overweight (including obesity) for boys and girls combined. Percentages given on the chart show the proportion of boys and girls that are overweight (including obese).

**Figure C2: The prevalence of childhood obesity for boy and girls aged 7–11 years in England, based on national surveys, 1974–2008**



Source: *National Study of Growth and Health (1974, 1984, 1994)*, taken from Chinn and Rhona, *BMJ*, 2002; *Health Survey of England (1998, 2002 and 2008)*. All estimates are based on International Obesity Taskforce cut-points.

Figure C3a: The distribution of body mass index comparing 1990 with 2017/18 for boys aged 10.5 years

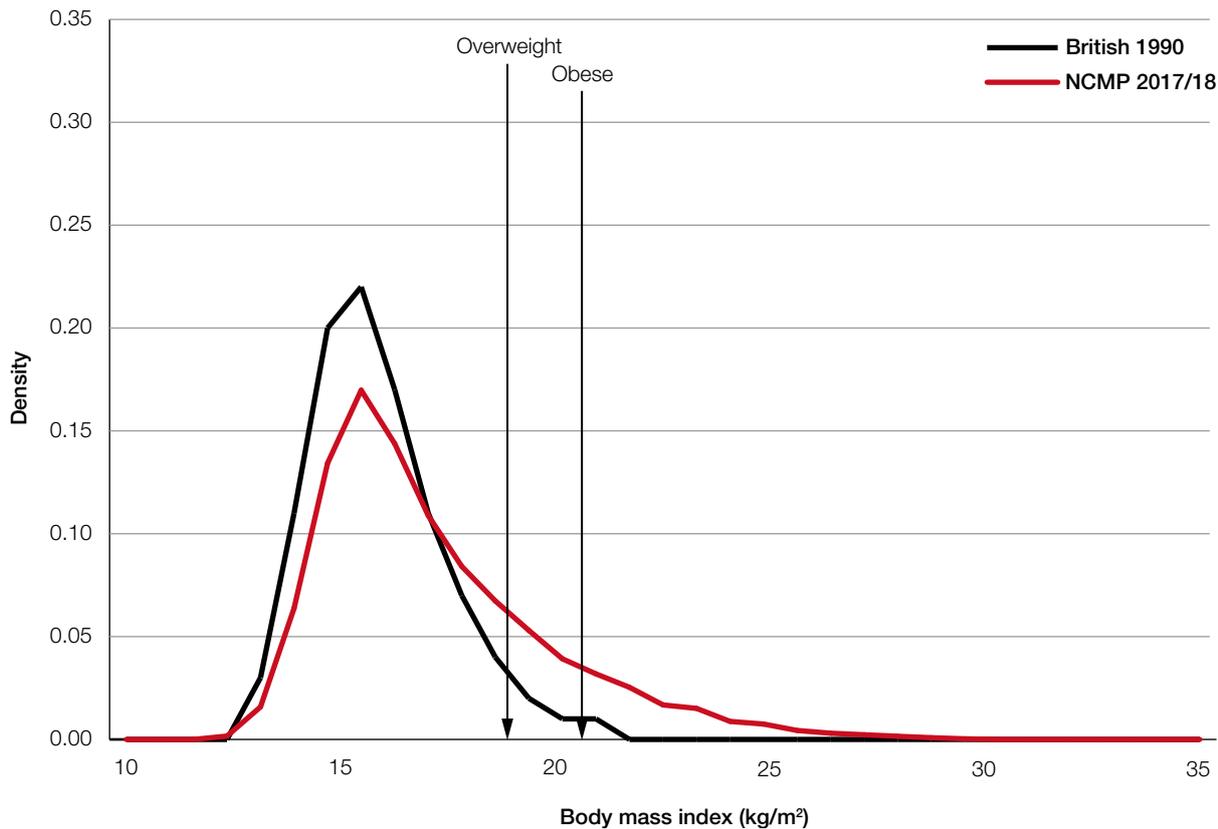
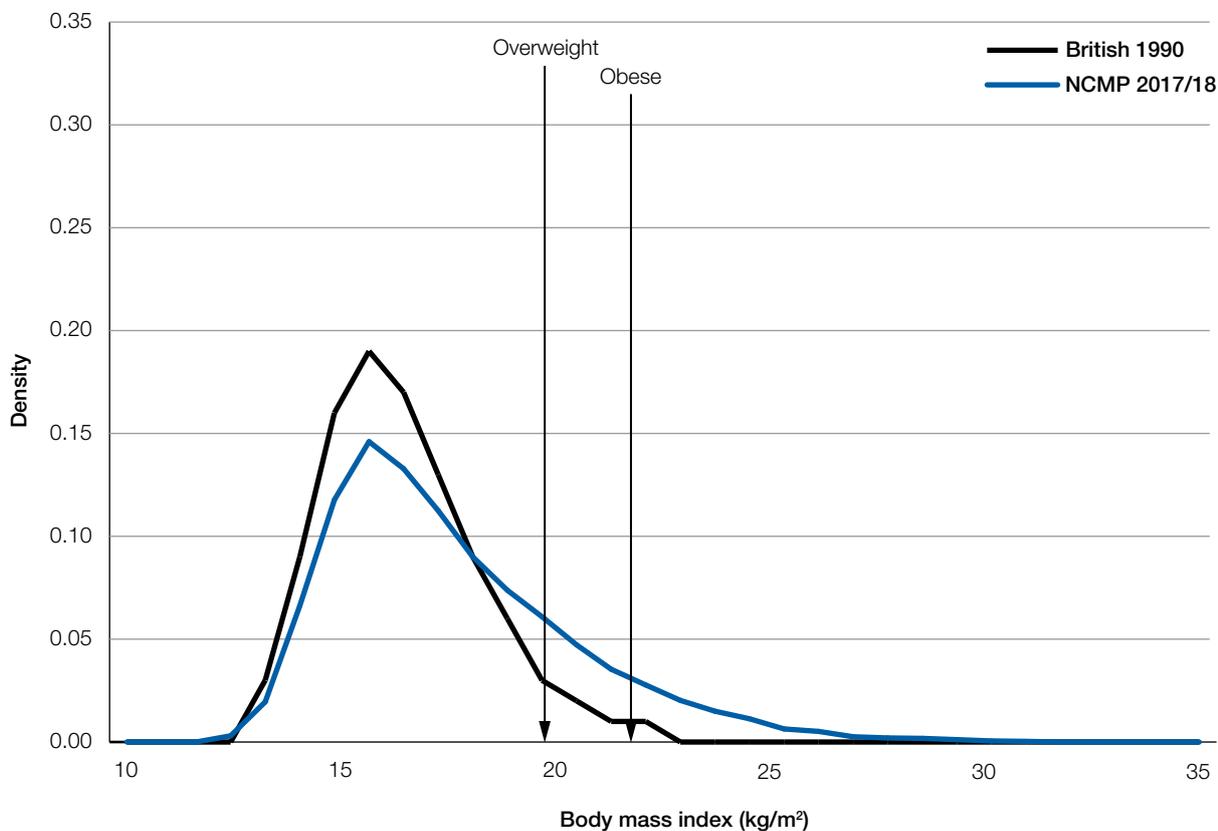


Figure C3b: The distribution of body mass index comparing 1990 with 2017/18 for girls aged 10.5 years



Source: 1990 curve based on UK90 growth charts, from data provided by Tim Cole; 2017/18 taken from the National Child Measurement Programme. Overweight defined as  $\geq 85$ th centile, and obesity  $\geq 95$ th centile on UK90 growth chart.

## Inequalities

While the overall prevalence of child overweight and obesity may no longer be increasing, this overall picture masks markedly different trends by socio-economic group (Figure C4). The prevalence of obesity amongst older children aged 10-11 years) living in the most deprived areas has continued to increase steadily, whereas the prevalence for older children living in the least deprived areas is flat or even in decline.

If this gap continues to grow at the same rate, one in three older children living in the most deprived areas will have obesity in 2030 (Figure C5). These projections are based only on current trends in observed obesity prevalence by deprivation, and do not take into account any planned interventions to address levels of, and inequalities in, childhood obesity. However, they indicate that considerable effort will be needed to halt the growing inequalities, let alone achieve the government's aim to significantly reduce the gap in obesity between children from the most and least deprived areas by 2030.

Figure C4a: Changes in the “obesity gap” between most and least deprived areas over time for children aged 10–11 years

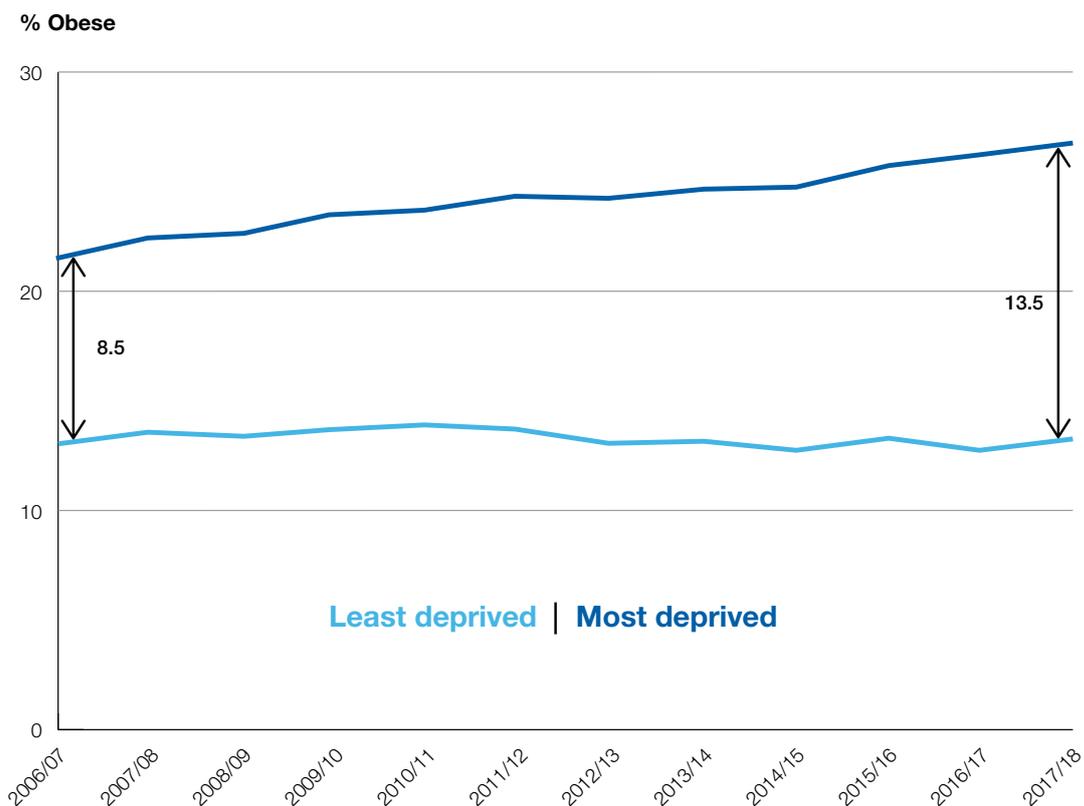
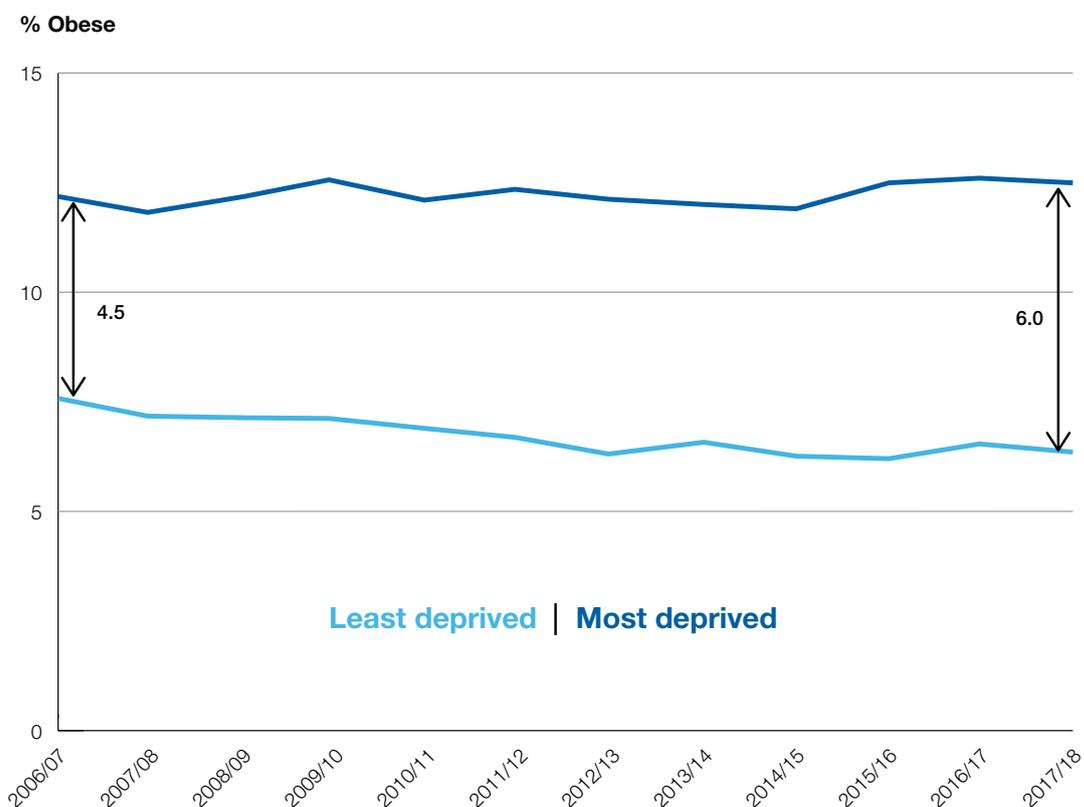
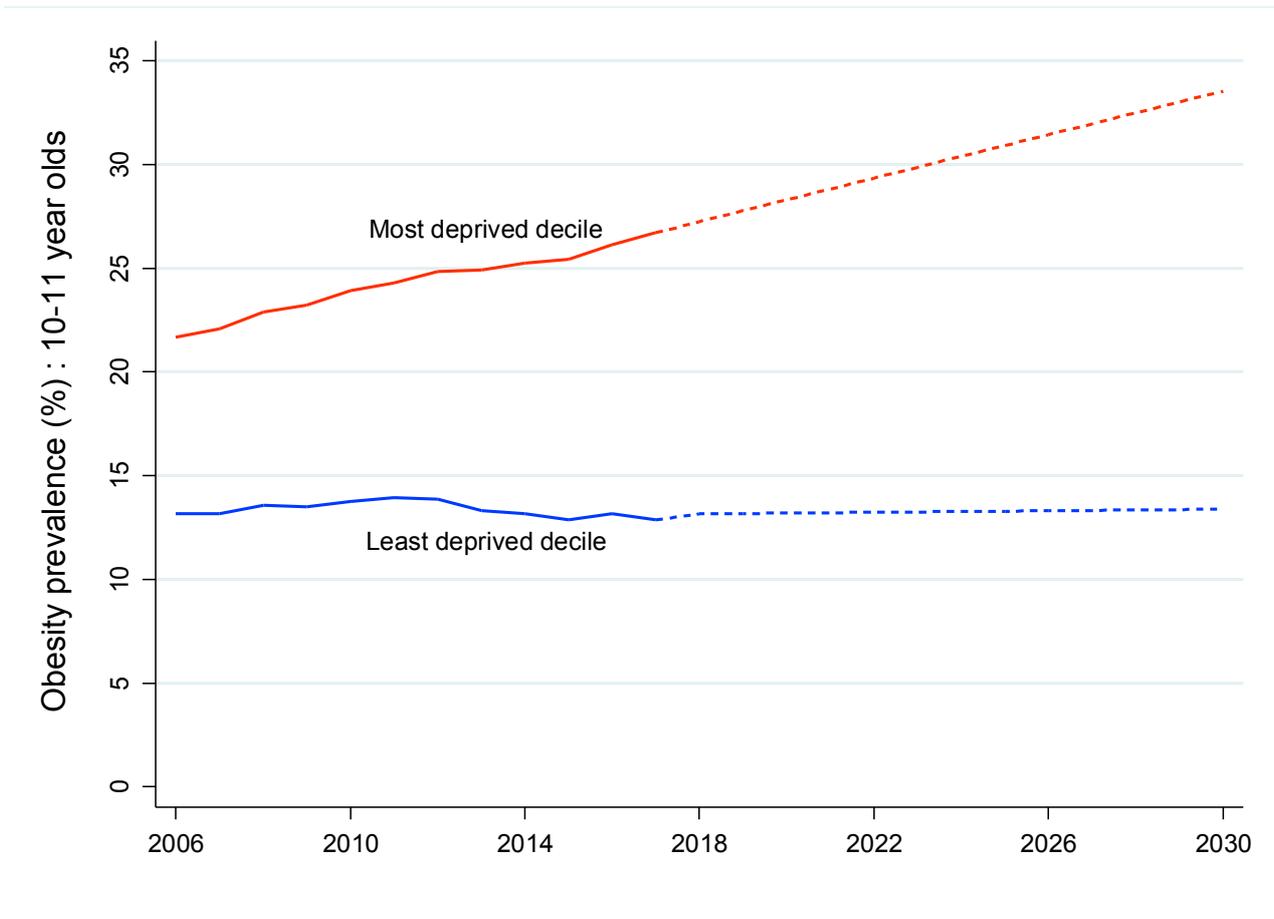


Figure C4b: Changes in the “obesity gap” between most and least deprived areas over time for children aged 4–5 years



Source: Data from the National Child Measurement Programme comparing the top and bottom deprivation deciles (based on the deprivation for the area in which the school is situated), obesity defined as  $\geq 95$ th centile on UK90 growth chart.

Figure C5: Recent and projected trends in prevalence of obesity among 10 to 11-year-old children



Source: Based on historical data for 2007/08 – 2017/18 collected by the National Child Measurement Programme from children in Year 6, future trends extrapolated based on past trend using Holt-Winters non-seasonal smoothing to project obesity prevalence to 2030; obesity is defined as  $\geq 95$ th centile on UK90 growth chart. Data courtesy of David Taylor-Robinson.

## Factors explaining inequalities in childhood obesity

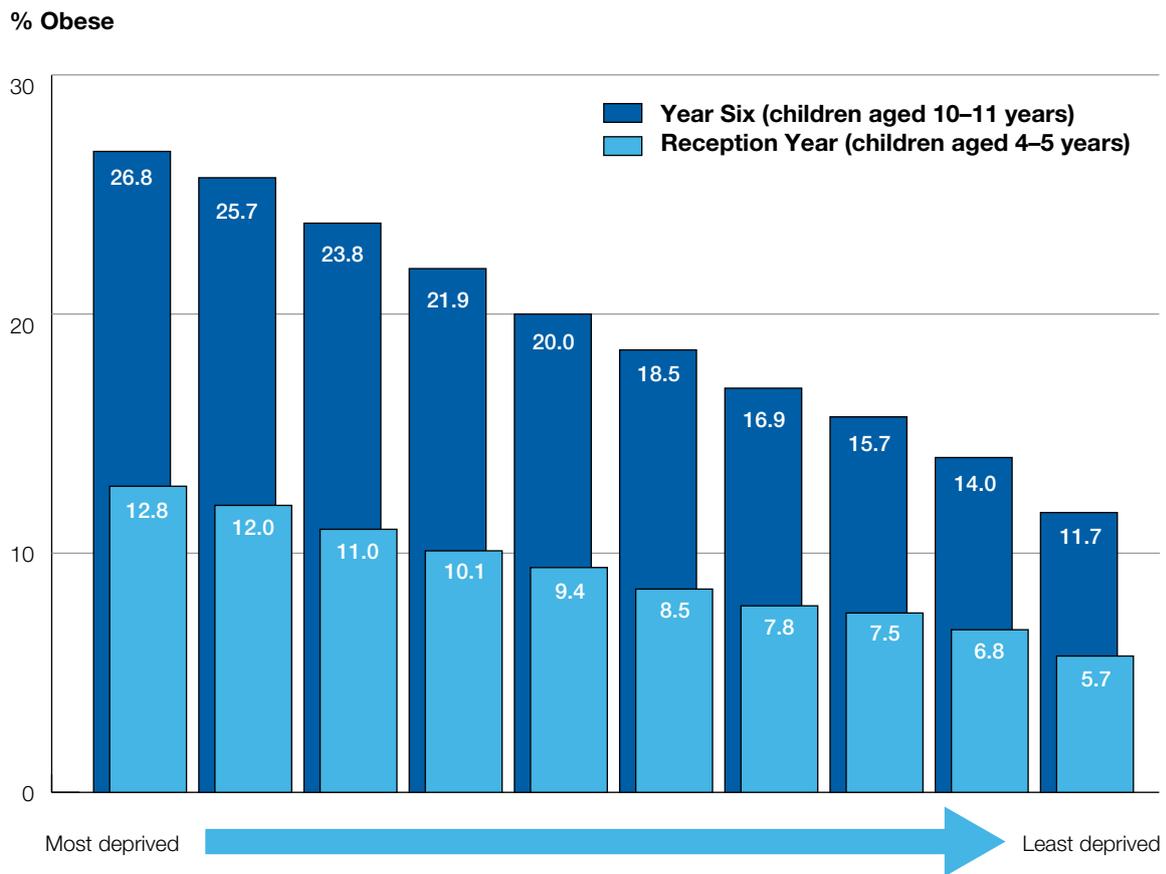
There is a strong association of deprivation with childhood obesity and overweight (Figure C6). Families living in deprived communities experience multiple interacting exposures to material, psychosocial and behavioural risks for childhood obesity across the life-course.<sup>3</sup> On average, children living in deprived communities are more likely to be exposed to perinatal risk factors for obesity such as smoking in pregnancy, pre-pregnancy overweight, being born small, or breastfed for shorter periods.<sup>4,5</sup>

Families on a low income have fewer opportunities to access healthy affordable foods. Financial stress makes it harder for their parents to plan family mealtimes. The areas that children from deprived communities live in tend to have a higher density of fast food outlets,<sup>6</sup> and have more outdoor advertising for foods.<sup>7</sup> Deprived areas tend to be more physically hazardous, in terms of crime and traffic, which may limit opportunities for physical activity, such as walking, cycling and play.<sup>8</sup>

In the next three to four years child poverty (living in a household with an income below 60% of median income), may increase.<sup>9,10</sup> This could reinforce or further contribute to the growing gap in obesity between children living in the most and least deprived areas.

Whilst the factors described earlier can account for some of the differences observed between children living in the most and least deprived areas, it is less clear why there are divergent trends, i.e. why obesity levels continue to rise for children living in the most deprived areas, whilst they are steady or (or even declining) for children living in the least deprived areas (Figure C4).

**Figure C6: The relationship between childhood obesity and deprivation for children aged 4–5 years and 10–11 years in 2017/18**



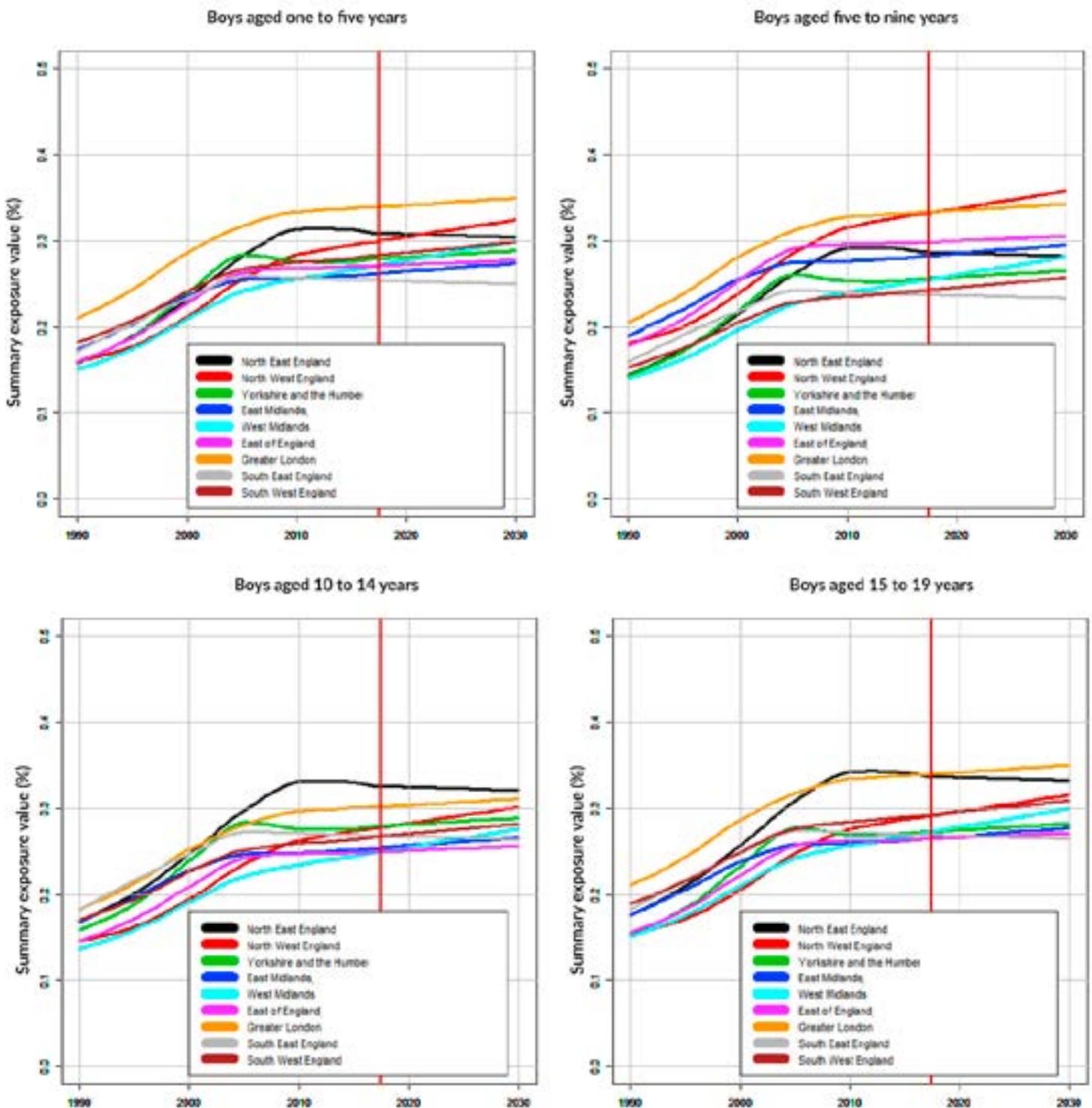
Source: Data from the National Child Measurement Programme comparing the top and bottom deprivation deciles (based on school attended), obesity defined using UK90 cut-points.

## Forecasts of likely development of childhood obesity in England

Figure C7 shows forecasts, based on historical data, for childhood obesity for boys and girls in the different English regions.

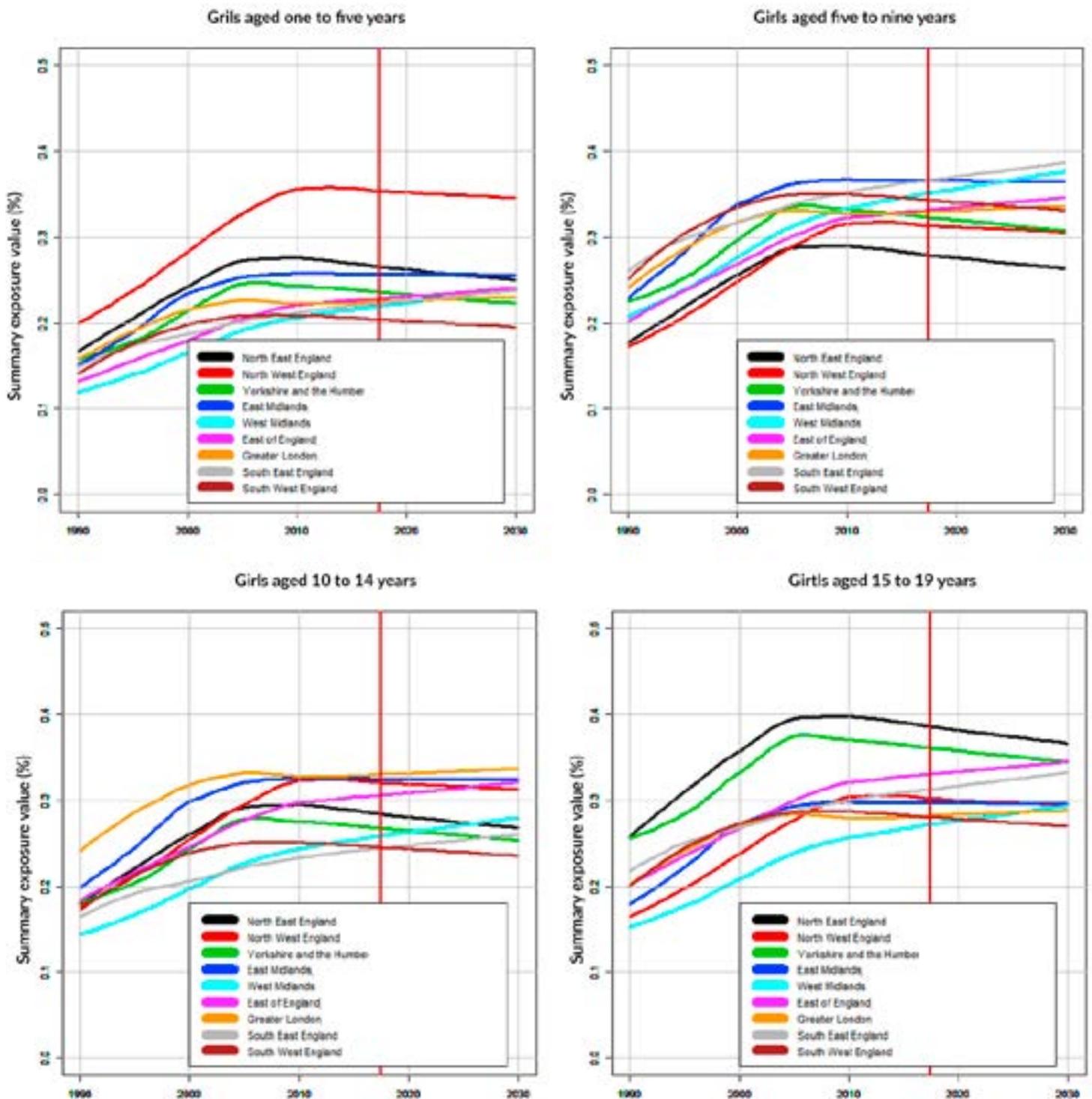
These forecasts have been produced using the Global Burden of Disease forecasting framework. Full details of methods can be found in the Chief Medical Officer's 2018 Annual Report.<sup>10</sup>

**Figure C7a: Historical trends and forecasts for childhood obesity amongst boys in the English regions**



# Epidemiology of and inequalities in childhood obesity in England

Figure C7b: Historical trends and forecasts for childhood obesity amongst girls in the English regions



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Annex D

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# Why are more children obese today?

## Introduction

Whilst body weight is a direct consequence of energy balance: calories in versus calories used, as anybody who has tried to lose weight knows the reality of losing excess weight or preventing weight gain is more complicated. The human body can decrease its background energy expenditure (or basal metabolic rate) in response to reductions in calorie intake. There is also a complex interplay between genes, including their “programming” early in life, the gut microbiome, human psychology, behaviour and the environments in which people live that affect body weight.

The role of individual choice in both the causes of and solutions to obesity has great appeal. Whilst individuals do make choices around food consumption and physical activity, the evidence shows that many of the decisions concerning eating and activity are made at a sub-conscious level and are shaped by the environments in which people live.<sup>1</sup>

The increases in the prevalence of obesity that have occurred in England, and elsewhere, over the past 50 years are profound. The observed changes are too great to be explained by changes in genetics, which typically take many hundreds of years to change or evolve. It also seems unlikely that such profound changes could be caused by reductions in self-discipline or motivation, or changes in understanding about healthy eating and activity.

### The role of the environment

The dominant scientific opinion is that changes in the environment, and principally changes in the availability and affordability of highly palatable calorie-dense foods, have driven the rise in obesity throughout the western world for both adults and children.<sup>2</sup> The marked increases in obesity that occur when people migrate from a country with a low prevalence of obesity to a country with a high prevalence

of obesity, underlines the importance of the environment in driving changes in obesity prevalence. As set out in this annex, the environment shapes eating and physical activity behaviours in many ways. Whilst each influence on its own may seem small, cumulatively and over time they are very significant.

Efforts to prevent childhood obesity need to be on changing the environment to enable children to eat healthily and be regularly active.

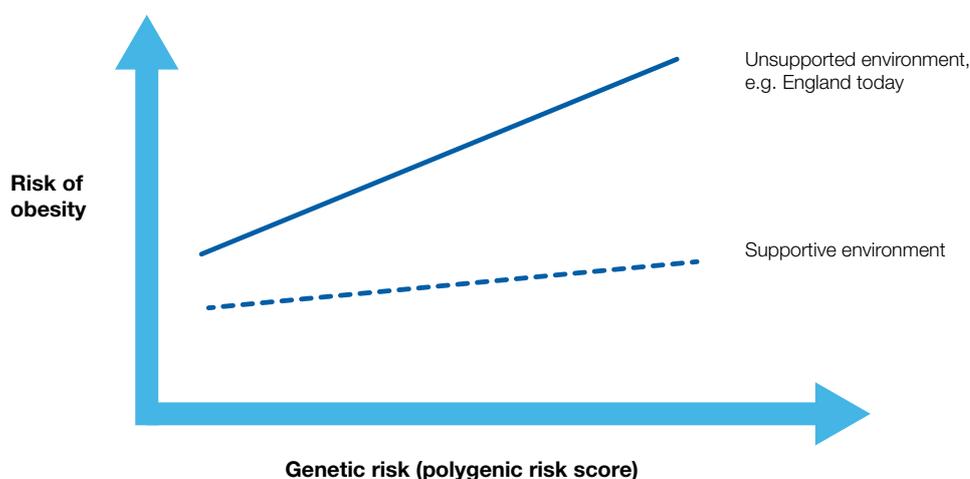
### The role of genes

As set out in the Chief Medical Officer’s Annual Report in 2016<sup>a</sup>, the research evidence shows that many people carry some genes that will increase the likelihood of gaining excess weight, although the effect of each of these changes on their own is nearly always very small. Those who carry more of these genes will be at greater risk of having obesity, which cumulatively may be important. Recent work shows that a high polygenic risk score for obesity (top 10% of the population) increases the risk of obesity four-fold compared to a low risk score (bottom 10% of the population), and differences can be apparent from early in childhood.<sup>3</sup>

There are also some very rare genetic disorders that cause a profound effect on an individual’s physiology resulting in obesity. Particularly in the environment in which we live, these people will need extra support and occasionally treatment to maintain a normal weight. However, these genes are not appreciably more common today than they were 50 years ago. They typically take many hundreds of years to change or evolve.

Whilst genes are influencing people’s individual risk of obesity, it is the environment that is increasing everybody’s risk of obesity (Figure D1).

**Figure D1: Schematic model showing the relationship between genetic risk and body mass index**



<sup>a</sup> CMO Report 2016, Chapter 7 Genomics and Obesity.

## Diet and physical activity

The scientific consensus is that the rise in obesity is mostly driven by changes in food consumption rather than declines in physical activity.

Declines in physical activity have been occurring for much of the last 100 years, whereas the rise in obesity is much more recent. Data from the USA, show that calorie intakes initially followed the downward trend in physical activity until the 1970s, then calorie intake and obesity prevalence began to increase.<sup>2</sup> Moreover, in the UK, research shows that the increases in the food supply, or food energy, are sufficient to account for nearly all the increase observed in bodyweight amongst women and over half the increase in body weight amongst men during the 1980s and 1990s.<sup>4</sup> The increase in average calorie intake was around 100 kcal, or equivalent to one banana or two standard sized biscuits.

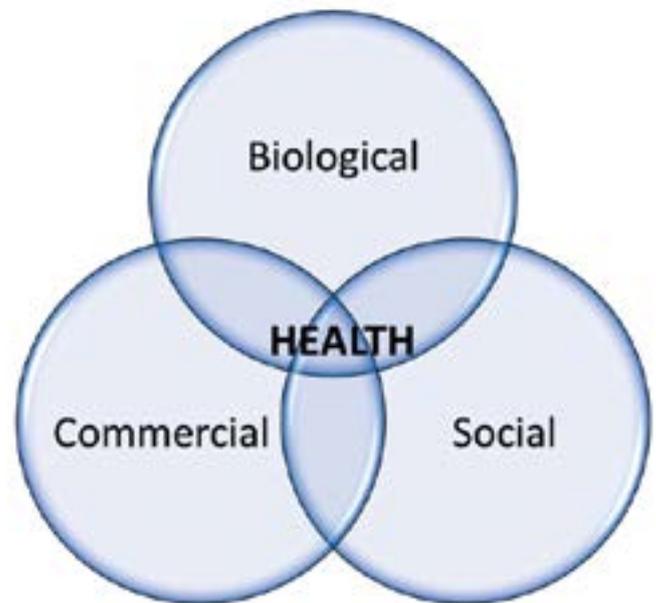
Whilst diet is more important in weight management, physical activity has an important role in helping people maintain a healthy weight. It can also mitigate against some of the risks associated with excess weight and has important effects on health, independent of any effect on body weight.<sup>b</sup>

Any approach to tackling obesity should include a strand focused on physical activity, but increasing physical activity alone will be insufficient to prevent childhood obesity. As a rule of thumb, in terms of preventing obesity, a greater effort (e.g. 80%) should be placed on diet with less (e.g. 20%) on physical activity.

## The determinants of health

The Chief Medical Officer's 2018 Annual Report<sup>c</sup>, discussed how health is shaped by many factors, such as the places people live, the food people eat and access to healthcare. It framed the determinants of health in three main categories: biological, social and commercial, as shown in Figure D2. The same determinants influence childhood obesity.

Figure D2: The determinants of health



## Biological determinants

With the development of modern medicine, in the 19th century, came a recognition of the “biological determinants” or processes that influence health. Medicine and healthcare systems today have a very good understanding of the biological processes that underpin health, and which enable the delivery of many effective treatments.

The important biological determinants for obesity are: genetics; programming of biology that happens before birth and early in life that affects how the body responds to food; in all probability, the microbiome; and access to appropriate interventions (e.g. weight management) through the NHS. The role of the NHS and the health sector, including its contribution to the prevention and management of childhood obesity is described in Annex E.

Emerging evidence suggests the microbiome, the many millions of microbes living inside a human's gut, play an important role in health and disease. Babies are colonised as they are born from their mother's birth canal. Recent work has shown an association between antibiotic usage and increased weight gain in childhood.<sup>5</sup>

## Social determinants

While the NHS has contributed to significant improvements in health and treatment, many of the important determinants or influences on health lie outside the healthcare system. It has long been recognised that the conditions in which people are born, grow, work, live and age have important influences on health. These influences are often termed the “social determinants”.

<sup>b</sup> UK Chief Medical Officer's Report: Physical Activity Guidelines <https://www.gov.uk/government/collections/physical-activity-guidelines>

<sup>c</sup> CMO Annual Report 2019, Health 2040 – Better Health Within Reach.

The important social determinants for obesity are: the built environment and transport systems; values, culture and norms around eating; leisure centres and green space; education and schools; and poverty.

### **Commercial determinants**

Commercial companies use a range of strategies and other approaches to promote products and choices that affect human and environmental health, defined as the “commercial determinants” of health. Their importance is increasingly clear with the rise of non-communicable diseases (i.e. cardiovascular disease, cancer, respiratory diseases and type 2 diabetes), which are driven, at least in part, by excess consumption of calories or products developed, marketed and sold by commercial entities (e.g. tobacco, alcohol and high fat sugar salt foods). The commercial determinants of health have received insufficient attention.

The important commercial determinants for obesity are the production, supply, marketing and sale of high calorie sugar and fat foods.

To be clear, whilst each determinant has the potential to harm health, or contribute to obesity, each determinant also has the potential to improve health, and contribute to preventing obesity. There is overlap between the determinants: breastfeeding is an important biological determinant of obesity. It is influenced by social determinants (e.g. education, support, cultural values and norms around breastfeeding), and commercial determinants (e.g. marketing of milk substitutes and follow-on-formulae).

The next sections discuss important aspects of the environment that shape children’s risk of obesity. These aspects are:

- Food production, marketing and sale (commercial determinant).
- Nurseries and schools (social determinant).
- The built environment (social determinant).
- Public buildings (social determinant).

## Food production, marketing and sale

The production, supply, marketing and sale of foods has become unbalanced, with unhealthy options dominating, pushing out the healthy options. The unhealthy options appear to flow freely, flooding high streets, shops and checkouts. The production and sale of unhealthy products is more profitable, while the sale of healthy food, for many reasons, tends to be much less profitable. Healthy options tend to be less affordable than the unhealthy ones (see Figure D3).

For profit reasons, food companies will adopt strategies and approaches to promote their own products. These strategies and approaches will shape what children eat and ultimately their health. While some of these commercial decisions will have a negative impact on children's health, there are opportunities for commercial companies to have a positive impact on children's health. Regulation can help by creating a level playing field. Voluntary approaches can be hard on business, particularly those that are trying to sell healthy

products, as the playing field is not level. They also tend to be less effective, as was the experience with the "Public Health Responsibility Deal".<sup>6</sup>

Further improvements are possible, not least because public demand for healthier food is growing and there is widespread public support for measures that will help create healthy options for children (Table D1). The food industry, from farm to fork, is a vital part of our national economy and improvements in food production have contributed to significant improvements to public health in the past. The challenges today are different, and there must be a concerted effort to renew our systems of food production and sale. Doing this is important not only for our children's health, but also the health of our planet and would provide an opportunity for the UK to be a global leader in healthy sustainable food production. There is strong public support for the government to introduce measures to promote healthier eating (Table D1).

**Figure D3: Healthy food is much more expensive than unhealthy food**



Source: *The Broken Plate*, Food Foundation (reproduced with permission).

**Table D1: Public support for measures to promote healthier eating**

	Support	Oppose
Making healthy food and drinks cheaper than unhealthier ones	81%	4%
Reducing children's exposure to unhealthy food and drink advertisements	78%	4%
Reducing sugar content in foods	77%	8%
Reducing the concentration of fast food outlets, particularly outside schools	72%	7%

Source: ComRes surveyed 2,016 British adults aged 18+ between 24th and 27th May 2019 on behalf of the Foundation for Liver Research and the Lancet Commission on Liver Disease. Data were weighted to be nationally representative of British adults aged 18+ by key demographics including age, gender, region and social grade. Full tables can be found at [www.comresglobal.com](http://www.comresglobal.com)

## Marketing

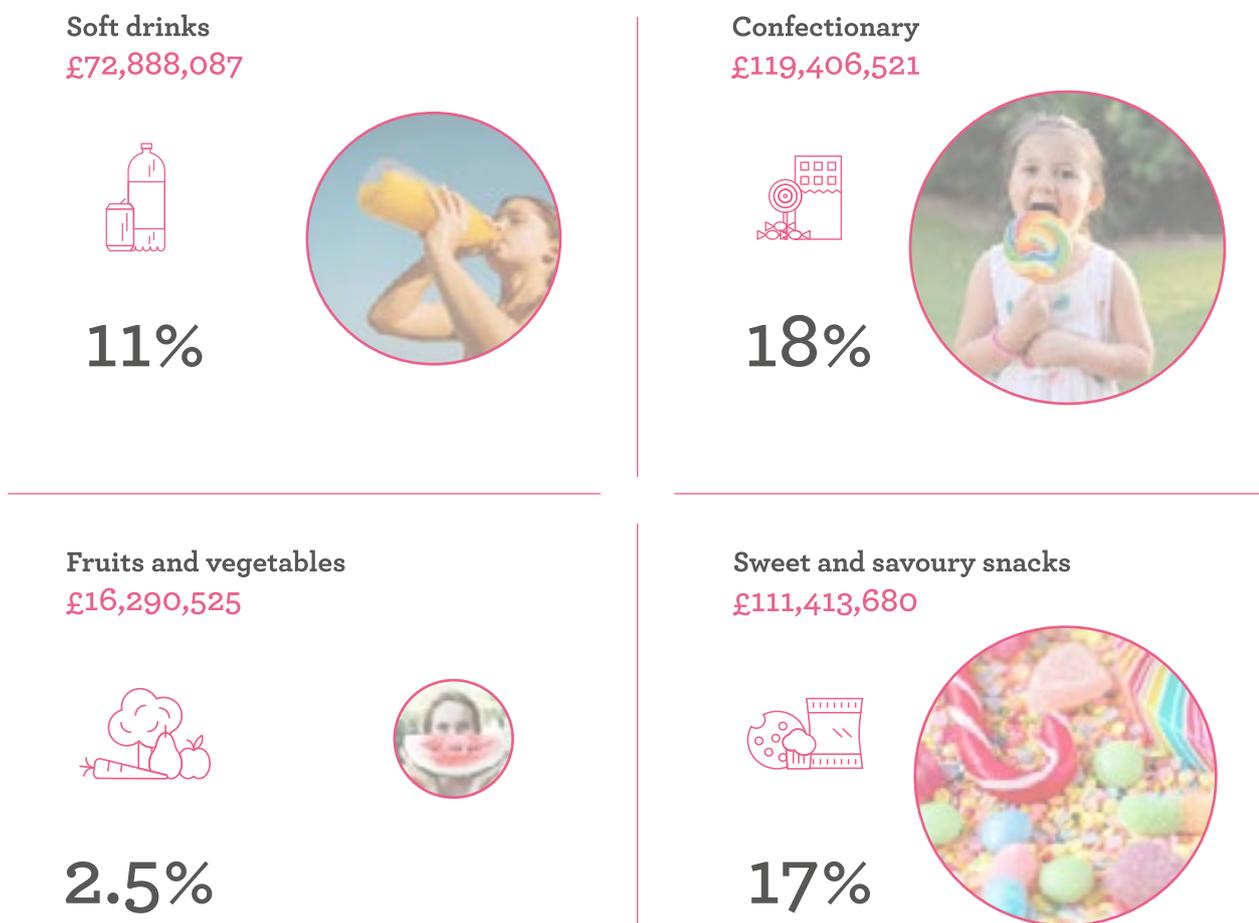
Everywhere children look they are dazzled by companies competing for their attention. In 2017, over £300 million was spent on advertising soft drinks, confectionary and sweet and savoury snacks, compared to £16 million spent on advertising fruit and vegetables.<sup>7</sup> Adverts are everywhere, from bus stops to our mobile phones.

Children are explicitly targeted with sophisticated techniques. Cartoon characters that particularly appeal to children are used. Companies will pay extra money to position their products centre stage in supermarkets where they are most likely to get children's attention. Sponsorship of sporting events and cultural events, many of which may have particular appeal to children, can be used to create a health

halo around products which are not healthy. All of these tactics help give unhealthy snacks, sugary cereals and other products a starring role in children's minds, shaping food preferences in both the short and long term. Advertising, even for unhealthy products, still receives tax relief, meaning some advertising is effectively free.

There are opportunities to set the stage for health. Research shows that when unhealthy options were removed from supermarket checkouts, purchases of sweets, chocolate and crisps fell significantly.<sup>8</sup> Research shows that children respond to unhealthy food advertising on television by eating more. They then fail to compensate at subsequent meals so this will, over time, lead to weight gain.<sup>9,10</sup> Limiting this on-screen advertising, as proposed by the Government<sup>d</sup>, can make valuable contributions to improving children's health.

**Figure D4: Annual expenditure on advertising in the UK on different types of food products**



Source: *The Broken Plate*, Food Foundation (reproduced with permission), based on data supplied by Nielsen AdDynamix.

<sup>d</sup> Chapter 2 Childhood Obesity Plan, Department of Health and Social Care, 2018.

# Why are more children obese today?

## Portion sizes

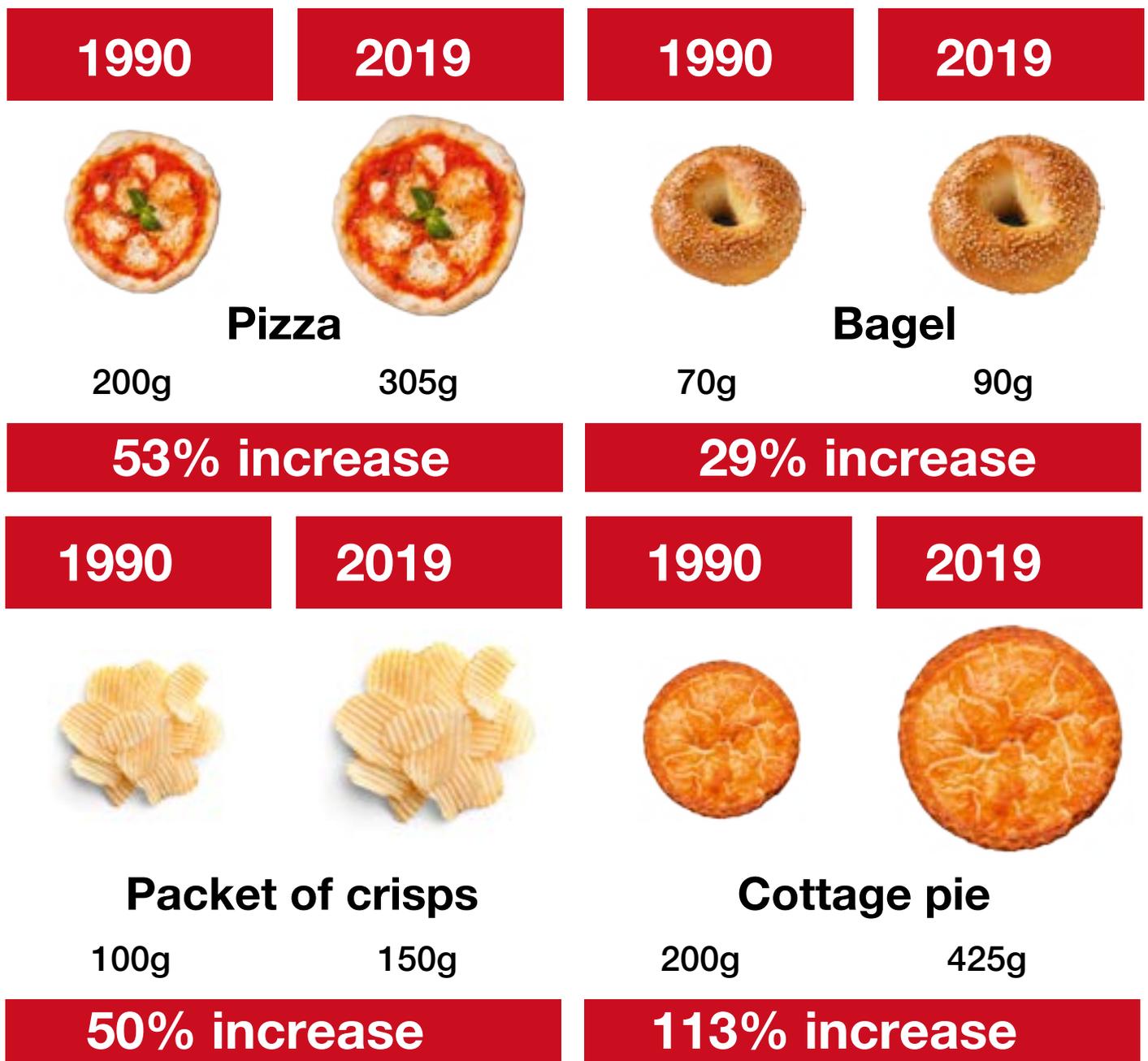
Portion sizes have increased substantially since the 1990s (see Figure D5).<sup>11,12</sup> The research evidence shows that larger portion sizes encourage people to eat more.<sup>13</sup> This increase in portion sizes has gradually started to shift public perception of what a normal portion size is. Portion sizes in the out-of-home sector tend to be particularly large. A recent survey in Liverpool found that a quarter of all takeaway meals sold exceeded 1,800 calories or three times the recommended meal size.<sup>14</sup> Direct work with wholesale and cash and carry businesses provide opportunities to change the size of portion boxes used by takeaway outlets.<sup>15</sup>

There is also marked variation in portion sizes between outlets and brands.<sup>12</sup> Moreover, inconsistent and sometimes unhelpful labelling, makes it hard for families to understand what they are consuming. The calorie labelling planned for food served out of the home will help families.

## Fiscal policies and affordability of food

The cost of food is unbalanced, with unhealthy food being cheap and healthy food being expensive. To meet government recommendations<sup>e</sup>, those on the lowest incomes would have to spend 50–60% of their disposable income on food alone.<sup>16</sup> Many families do not have the opportunity to provide a healthy balanced diet for their children. Compared

**Figure D5: Portion size of foods in 1990 and 2019**



Source: *Portion Distortion*, British Heart Foundation, 2013; analysis repeated in 2019.

<sup>e</sup> The Eatwell Guide, Public Health England, 2016

to other countries' food in England is much more frequently discounted or subject to price promotions (e.g. get two for the price of one).<sup>17</sup> Price promotions on unhealthy food tend to cause a greater uplift in sales than equivalent promotions on healthy foods.<sup>18</sup> These promotions influence how much people buy and in the long term can shape purchasing patterns and what people eat.

Pricing policies such as the Government's proposal to restrict the use of multi-buy discounts or "volume-driver" price promotions on unhealthy food, as happens in Germany and (on a voluntary basis) in some UK supermarkets can help.

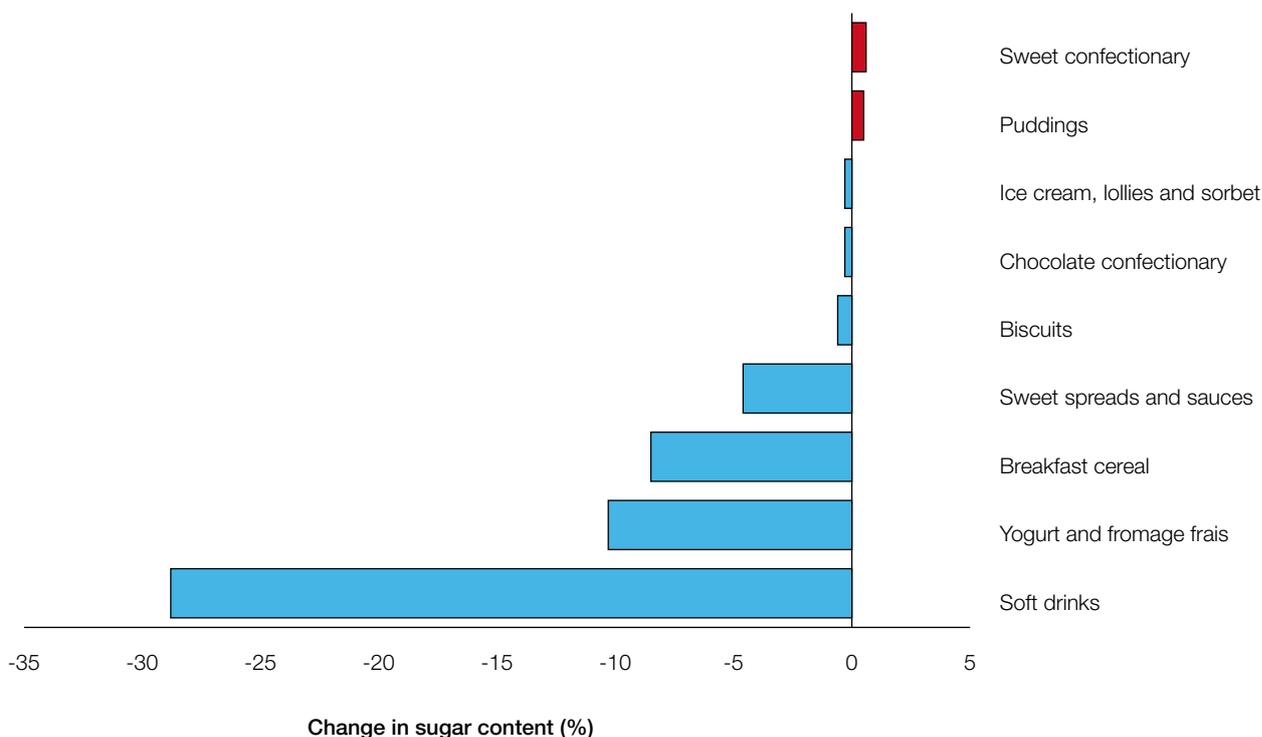
Fiscal measures also have a role in helping to tip the balance in favour of healthy food production and sale. The Soft Drinks Industry Levy has taken an estimated 30,100 tonnes of sugar out of the nation's diet between 2015 and 2018.<sup>19</sup> Whilst the food industry was initially resistant to the idea, it has adapted well and largely responded by reformulating. The soft drinks industry, as a whole, has not been detrimentally affected – with sales increasing. The average price pass-on to families has been minimal. The SDIL is well supported by the public.<sup>20</sup> It is noticeable that there has been marked reduction in sugar consumed from soft drinks, whilst there has been very limited if any change in other sugary products over the same period, where these other products have been subject only to a voluntary sugar reformulation programme (Figure D6). There is scope for greater use of fiscal measures, such as extending the Soft Drinks Industry Levy to sugary milk drinks

and making better use of the VAT regime on food to align with health. There are some clear anomalies in the current VAT system, for example:

- A gingerbread man with chocolate-covered trousers is subject to VAT, but not if it has chocolate eyes.
- Chocolate chip cookies and biscuits coated with caramel (made from sugar) remain zero-rated.
- Cakes and some biscuits are zero-rated, but biscuits with chocolate covering are standard-rated.
- Flapjacks are zero-rated but cereal bars are standard-rated.
- Corn chips are zero-rated but potato crisps are standard-rated.
- All breakfast cereals, even those with high levels of sugar are zero-rated.
- Bottled water is standard-rated.
- Food from takeaway food outlets, which is often calorie dense, is exempt from VAT as it is consumed off premises.

Healthy start vouchers are intended to help families on low incomes with young children, and have a role to play. These are currently worth £3.10 per week, but their value has not increased since 2009. Difficulties and stigma involved in obtaining and using these vouchers means many go unclaimed.

**Figure D6: Change in sugar content of foods subject to the voluntary reformulation programme and of soft drinks between 2015 and 2018**



Source: *Sugar reduction: progress between 2015 and 2018*, Public Health England, 2019.

## Infant and baby food

Infancy and early childhood are an important period for establishing food preferences and dietary patterns. Taste preferences are set in early childhood (e.g. for more or less sweet foods) and can influence what foods are chosen throughout life. Parents want healthier options and to know more about the nutritional value of the food and drink they buy for their families. Many parents get information on feeding from commercial brands, with government health advice being pushed into the background.

The quality and accuracy of information presented by commercial food companies is varied. For example, concern has been expressed that portion sizes recommended on some formula feed bottles exceed recommended amounts<sup>f</sup>, encouraging parents to overfeed their baby.<sup>21</sup> Information on formula food is focused primarily on safe preparation, but could be used to reinforce current best practice in terms of responsive feeding, appropriate portion sizes and daily allowances.

Many commercially available foods and drinks marketed for infants and young children do not conform to government nutritional guidance. Labels are often designed to make a product appear healthier than it really is.

## Agricultural policies

Farms provide our food. Agricultural policies over the long-run can help shape what people eat. For example, sugar was a protected and supported crop under the Common Agricultural Policy, which in the long-run served to make it a cheap and readily available product with a consistent supply in the UK, favouring its inclusion and use in many food products.<sup>22</sup>

The marked declines in coronary heart disease that occurred in Finland in the 1970s and 1980s have been attributed in part to changes in agricultural policy, and shift in production away from dairy to vegetable oil (canola) and berry production.<sup>23</sup>

Agricultural policy is therefore an important part of health policy and is being reviewed as part of the National Food Strategy.<sup>24</sup>

## Future opportunities and data

There is a recent trend for the sale of food to move online. This presents an opportunity to rebalance food in favour of healthy options, if regulated effectively.

Supermarkets and food companies hold and collect a wealth of data on families' shopping habits and food preferences. Greater use, co-ordination and sharing of this data with academics and the public sector could help monitor food purchases, understand dietary consumption and evaluate national policies.

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<sup>f</sup> Recommended feed volumes were revised down by WHO in 2004, and subsequently by the Scientific Advisory Committee on Nutrition in 2011. Add report.

## Nurseries and schools

Teachers report that children who are active and well-nourished have better attention, more resilient mental health and stronger educational outcomes. Children spend a significant amount of time in nurseries and schools, as well as other formal care settings, such as with childminders. These environments are key to securing children's health.

The prevalence of obesity double in the seven years between starting and leaving primary school, which underscores that this is an important period for intervention.

### Food

While good practice menus for early years settings exist<sup>g</sup>, these are not mandatory and there is no monitoring. While there is variation, generally nurseries in England are not serving sufficient vegetables, pulses and oily fish, and serve too many processed foods high in fat and sugar.<sup>25,26</sup>

School food is vital for children's health. Over one million children receive free school meals, and for many more children, school offers the best opportunity for a proper meal. School food standards<sup>h</sup> are only mandatory for schools under the direct control of local authorities ("maintained

schools") and some state schools which are not directly controlled by local authorities ("non-maintained" schools, e.g. free schools and academies). This means many schools, some state schools and independent schools, do not have to meet the standards. Monitoring and enforcement is weak. Even when school menus meet national minimum standards in principle, what is served in practice will vary in quality, nutritional content and portion size.

Some children bring packed lunches, although at primary schools the quality of these is often poorer than school meals. Unhealthy options such as chips, cakes and sugary drinks can dominate. At secondary schools, some pupils encouraged by social pressure will buy less healthy meals from takeaways or other off-site establishments. Meal times may be rushed, rather than being a time where children learn to eat well together.

Research studies from abroad suggest that schools that do have a healthy food environment (e.g. healthy menus, only selling healthy foods and drinks) are more likely to have children who are a healthy weight.<sup>27,28</sup>

**Table D2: Food standards in different childcare and education settings in England**

	Nurseries	Local authority schools (maintained schools)	Other state schools (academies, free schools)	Independent schools
Pupils		4,122,000 (48%)	3,786,000 (45%)	583,000 (7%)
Standards	Early Years Guidance	School Food Standards	School Food Standards	School Food Standards
Mandated	No – voluntary	Yes	Mandatory for some schools but not for schools established between 2010 and 2014	No – voluntary
Enforcement	None	No effective enforcement	No effective enforcement	None

Source: *School pupils and their characteristics*, Department for Education, 2017; *School Food in England*, Department for Education, 2019.

### Free school meals

Universal free school meals for young pupils offers an excellent start for establishing a good food culture. From age seven, children whose families earn less than £7,400 per year get a free school meal allowance. The allowance is only worth £2.30 per day, which is often insufficient to buy a healthy meal particularly in secondary schools. Tap water is not always available, meaning some children might need to

spend their free school meal allowance on bottled water or other drinks.

### Physical activity

In nursery settings, English children aged three to four years are more active in childcare settings than when they are at home with their parents.<sup>29</sup> The common nursery policy of allowing children to choose their activities inside and outside, may contribute to this.

At school, children spend two-thirds of their time sitting. For primary school children break times are an important

<sup>g</sup> Example menus for early years settings. Public Health England, 2015 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/658870/Early\\_years\\_menus\\_part\\_1\\_guidance.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/658870/Early_years_menus_part_1_guidance.pdf)

<sup>h</sup> Standards for school food in England. Department for Education, 2015 <https://www.gov.uk/government/publications/standards-for-school-food-in-england>

opportunity for activity, but since 1995 break times have decreased by 45–60 minutes per week.<sup>30,31</sup> Indoor play areas for wet weather are important for maintaining activity levels.<sup>32</sup> For secondary school children, the structure of the day (PE lessons and break times) protects against the decline in activity commonly seen as children get older. Most age-related declines in physical activity occur in non-school time.

## **Whole school approaches**

Whole school approaches involve an integrated approach to promoting children's health. The physical environment of the school and its surroundings, the social norms and cultures created in the schools as well as the formal curriculum; including Personal, Social, Health and Economic (PSHE) education; all work to support health. Taking this approach, improving children's health is not an additional activity for schools but is achieved through doing normal school activities differently. For example, growing vegetables on the school site, and subsequently harvesting, preparing and eating the vegetables, provides opportunities to be active, to value and learn about food and health. Sitting lessons can be broken by periods of activity, for example standing to put sticky notes on boards in different parts of the classroom or going outside to learn about the local area. Some schools and local authorities, in London and elsewhere, are experimenting with "health zones" around the school; for example, restricting car driving near the school at the end and start of the school day (to provide a safe environment for walking and cycling to school and to improve air quality) and restricting takeaway outlets near schools.

## The built environment

Outdoor activities, like walking, exploring, running, cycling and playing games are important parts of childhood. The positive outcomes of these activities go beyond the well documented health benefits of physical activity. Children, who have the opportunity to explore independently build a wide range of valuable life skills including resilience, self-confidence and anxiety management.

### Transport

Over recent decades, streets in towns, cities and villages have become increasingly dominated by motorised vehicles. Street and town design has often reinforced this. Streets have been made wide to facilitate fast and easy motorised travel. Homes and shops have been built on the outskirts of towns or places that are only reasonably accessible by car.

In designing streets around the car, the place of the pedestrian and the child has been forgotten. Many streets are not designed and managed to meet children's needs. Pavements are sometimes narrow. Roads are busy and hard to cross. Cul-de-sacs discourage walking. Busy roads can be a major barrier that discourage children walking or cycling to school; or preventing children getting to a nearby park.

Research shows that children do not explore and play in their neighbourhood in the ways they used to in the past, in part because of parental concern about their safety. Perceptions of road safety, which relate to vehicle speed and volume of motorised traffic, and possibly air pollution, are a deterrent to walking and cycling.

Parents can find the experience of accompanying children on foot or bike stressful, being on high alert keeping children safe from vehicles. Currently only 1 in 50 children cycle to school, but there is scope for this proportion to be much higher, if the physical and social environments are more supportive.<sup>33</sup> Children living in deprived communities, tend to grow up in areas that are more physically hazardous, limiting opportunities for play, walking and cycling.<sup>34</sup>

This is not inevitable. Some countries, and some parts of England, have chosen to take a different approach to designing their roads, transport systems and built environment. In doing this they have given more space and priority to people walking and cycling. They have taken a more person-centred approach to designing streets and urban areas, for example by using the evidence-based Healthy Streets indices (Figure D7).<sup>35</sup> Housing, schools, shops and leisure centres are planned to be accessible by foot, bicycle and public transport. These places are striving to create a more balanced environment, where there is more parity between motorised travel and people who walk and cycle.

The Government has committed two billion pounds to active travel, although this only equates to 1.5% of transport spending in England.<sup>36</sup> The proportions of local authority transport budgets that are spent on active travel show wide variation and significant investment, when it happens, is often not sustained.

Figure D7: The Healthy Streets Indicators are the essential factors for a healthy, child-friendly street



Source: Lucy Saunders.

### Planning and takeaway food outlets

Too many high streets are flooded with cheap unhealthy food and drink options. The out-of-home food sector has grown, with food now sold in many places, e.g. petrol stations, newsagents, clothes shops. Snacking is now a much more common occurrence. On average, children now consume three unhealthy snacks and sugary drinks a day, containing seven teaspoons of sugar.<sup>37</sup> Takeaway food outlets, which tend to serve large portions, are particularly linked with obesity.<sup>38,39</sup> They are more concentrated in areas of high deprivation (Figure D8). There has been marked growth in takeaway food outlets over the past 30 years, with the most rapid growth in areas of higher deprivation.<sup>40</sup>

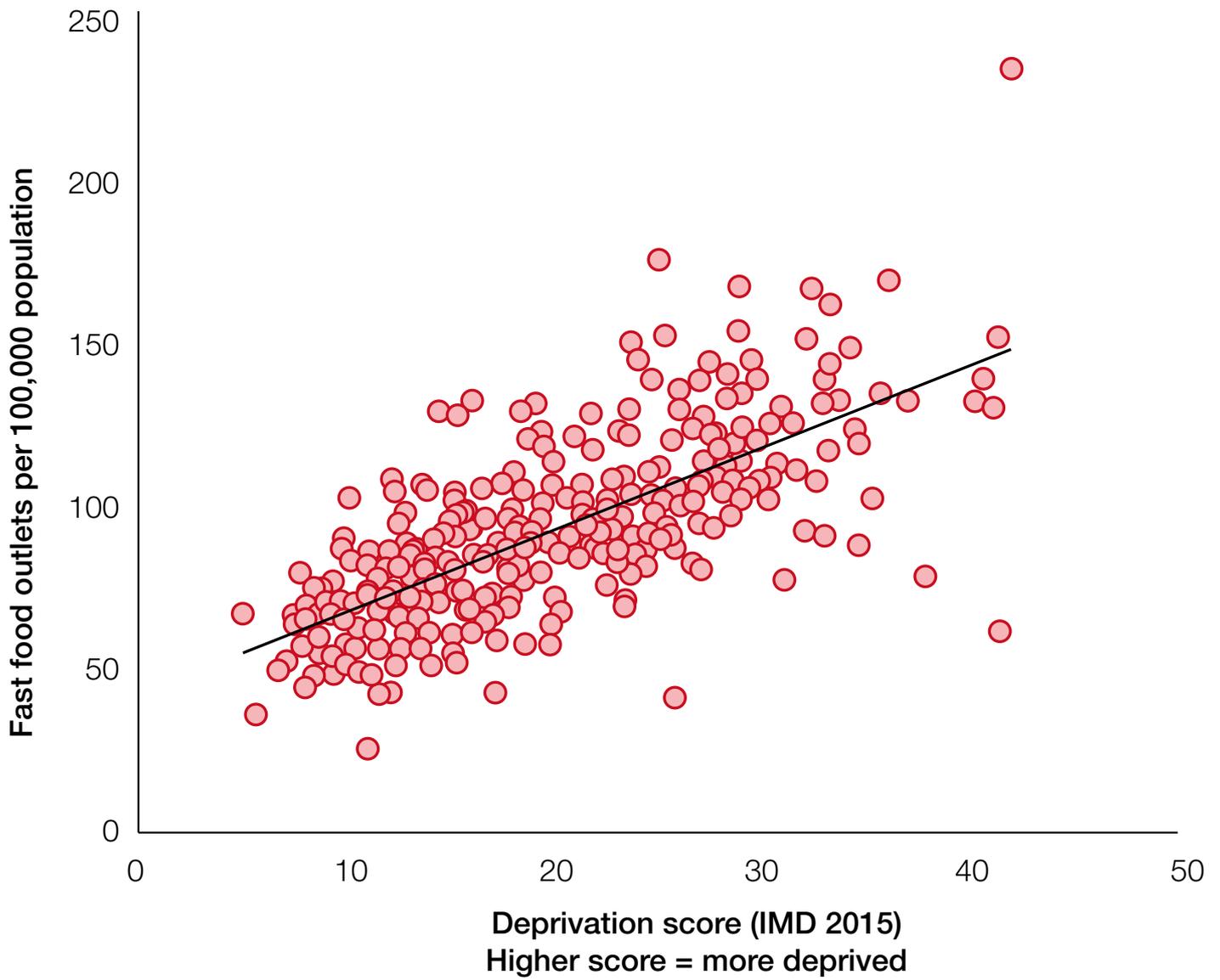
Some local authorities have tried to stem this using supplementary planning legislation to restrict the opening of new takeaways, but these policies are not always easy to implement. At best, these policies only ever stop future growth and have virtually no ability to reduce the number of existing takeaway outlets, because the licence for a takeaway outlet relates to the building and not the business. If one business closes a new one can readily take its place.

These planning restrictions are increasingly being challenged. Having made a local decision to implement restrictions, local authorities increasingly need to draw on specialised evidence and legal support to defend their decisions in front of the Planning Inspectorate, especially when challenged by the major fast food chains that have access to significant financial and legal resources. Communities need help to manage their local environments.

Other viable approaches include working with the takeaway food industry to deliver healthier takeaway meals (working upstream with the suppliers of the takeaway food industry shows particular promise) and introducing or incentivising new healthy takeaway outlets.<sup>15</sup> This can be hard. The takeaway business is highly competitive with low profit margins, which means businesses can be reluctant to make changes. Environmental health officers can have a role to play in promoting healthy approaches to food choice, portion sizes and cooking, though their core focus concerning food is on safety rather than prevention of obesity and related diseases.

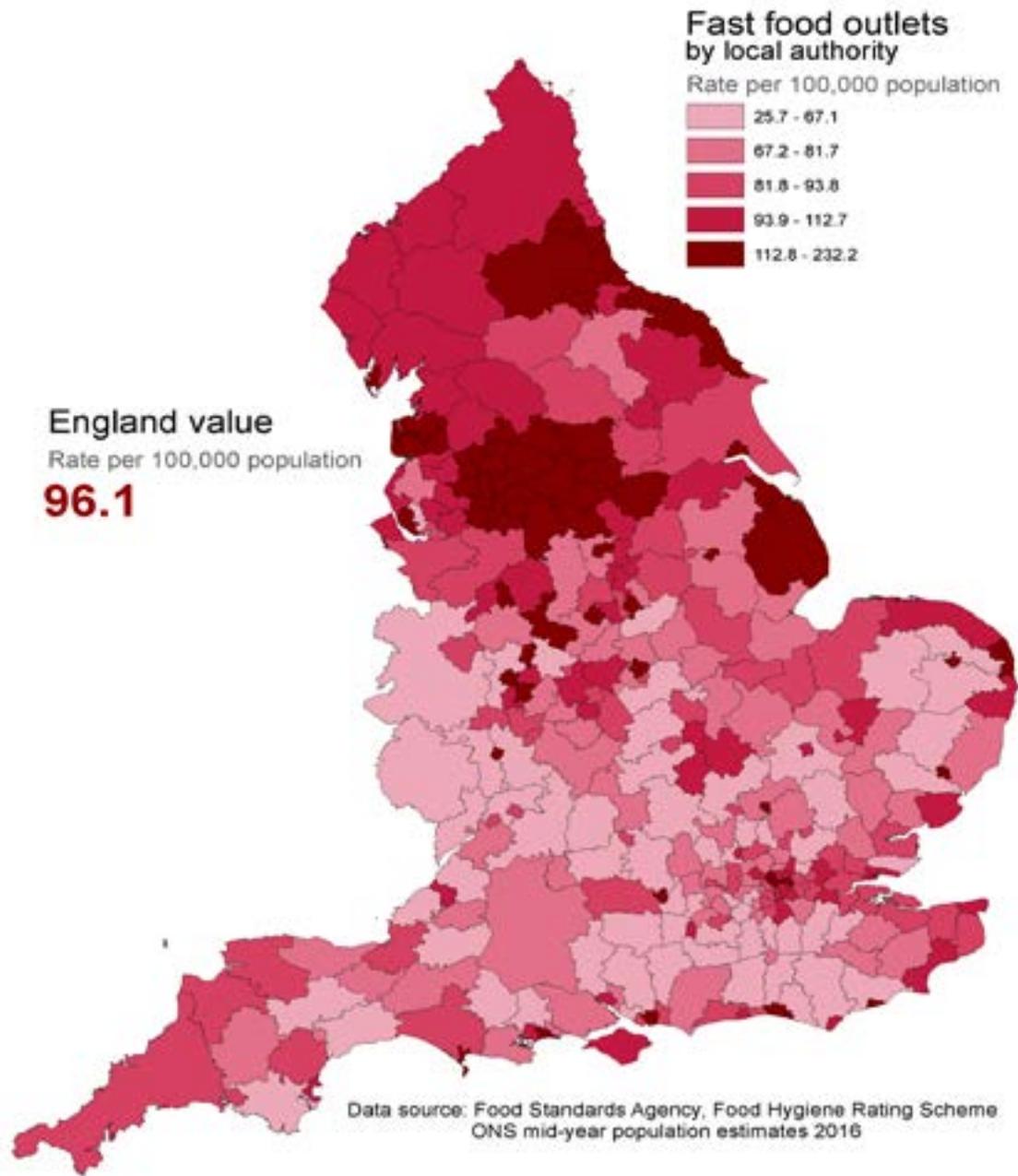
Overall, therefore, planning has an important role to play in creating attractive safe places for children to grow, live and play; as well as more specific opportunities to manage the risks of unhealthy food from the out-of-home sector and promote better nutritional opportunities to the public.

Figure D8: The relationship between density of fast food outlets and deprivation by local authority



Source: *Health matters: obesity and the food environment*, Public Health England.

Figure D9: Variation in the density of takeaway outlets by local authority in England



Source: *Health matters: obesity and the food environment*, Public Health England.

## Public buildings

Too often the food offer in leisure centres and other public buildings is unbalanced, giving too much prominence to foods high in sugar, fat and salt. Local authorities and others who commission these services can influence the retail offer in public spaces. Commissioners need to place greater emphasis on health when designing and managing contracts. Tools like Government Buying Standards for Food and Drink that set out minimum standards for healthiness of food<sup>i</sup>, and the Social Value Act which puts an onus on the public sector to commission for wider societal benefits when commissioning services, could be used much more to leverage change.

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<sup>i</sup> Government Buying Standards. <https://www.gov.uk/government/publications/sustainable-procurement-the-gbs-for-food-and-catering-services>

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Annex E

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# The role of the NHS and health sector

## Introduction

The NHS has some excellent weight management and treatment services. However, overweight and obesity at the levels seen today are a new problem. The NHS, as well as the wider health and care sector, has not modernised to systematically fulfil an effective role in preventing, managing and supporting children and their families. This needs to start by ensuring healthcare professionals are adequately trained and equipped, so that they can:

- identify children and pregnant women who need help with overweight or obesity
- understand stigma and are empowered to initiate, often difficult, conversations with children and families
- appropriately support and manage children with overweight or obesity

There are over 50 million contacts between children and the NHS each year.<sup>a</sup> There are opportunities to measure, feedback, support and guide families at every stage, yet these are often missed. Prevention and treatment are made more difficult by patchiness in data collection and inadequate linking and sharing of available data (see Box E1).

### Box E1: Weaknesses in NHS and health sector data on childhood obesity

#### Limited data sharing

- Recording of the 6 week and subsequent weight and height measurements is highly variable, largely confined to parent-held records (e.g. the Red Book) or community datasets – and not systematically shared with general practice.
- National Child Measurement Programme (NCMP) data is not routinely shared with schools, healthcare professionals and frequently not fed back to families.
- Linked measurement and education data could be used to identify children in need of help earlier, as well as understanding better the relationship between obesity and educational outcomes.

#### Use of Information Technology to understand data is limited

- Data is sequestered and needs linking.
- Interpretation of growth and BMI is more complicated in children than adults; the trend or longitudinal record of each individual is key. So, a simple body mass index (weight divided by height squared) is insufficient for children as the cut-points for overweight and obesity are age and sex specific.
- Primary care data systems lack functionality to record data accurately and calculate growth and BMI centiles.

#### Systems to identify and monitor overweight and obesity are not developed

- At risk children could be identified through existing data systems based on demographic factors, family history or growth trends. However there are generally no local shared data systems in place to systematically identify these children in their communities and to provide a point of service access for personalised support.
- In paediatric clinics up to 40% of children may be overweight, which is linked to common paediatric conditions, like asthma and neuro-disability. Yet overweight is rarely addressed in these clinics.

#### Commissioning of weight management services for children and families.

- Services, and data collection by those services, are not mandated, so are patchy.
- There is no recent data describing the extent, nature and effectiveness of the services offered to children and families.

<sup>a</sup> There are around one million general practice contacts with children each week, and four million paediatrician contacts with children each year

## Antenatal

Pre-conception and pregnancy are important times to give every child the best start in life. A child born to a mother with obesity is more likely to develop overweight or obesity as a baby and infant. Today, nearly one in every two women who gives birth is affected by overweight or obesity. Appropriate support and management during pregnancy can mitigate the risks associated with overweight, but the extent to which women are receiving essential support is very limited.

A mother with overweight is more likely to have problems during pregnancy, including gestational diabetes or pre-eclampsia. Babies born to mothers with obesity are likely to be bigger ('large for gestational age'), which increases the likelihood of a difficult birth or the need for a caesarean-section.

Excess weight gain during pregnancy and particularly amongst women who have overweight or obesity appears to modify the expression of the baby's genes, increasing their risk of developing obesity as a child, as well as chronic diseases in later life.

Currently, there are no national guidelines for the management of overweight or obesity during or after pregnancy. Antenatal preparation programmes for parents-to-be do not routinely include conversations about the importance of healthy weight and how to manage obesity during pregnancy. Some messages and norms around eating and activity during pregnancy are unhelpful.

Energy needs do not change in the first six months of pregnancy. Only in the last three months do a woman's energy needs increase by around 200 calories per day (equivalent to two medium sized bananas or two slices of bread), so there is no need to 'eat for two' or drink full-fat milk (as opposed to lower-fat milk). Moderate physical activity is safe, and women should be encouraged to be active during pregnancy.<sup>1</sup>

The first steps to prevent childhood obesity should be taken before conception and/or early in pregnancy, by tackling adult obesity, particularly among younger adults.

## Infancy and breastfeeding

Support for initiation and continuity of breastfeeding, as well as the education of parents on appropriate infant feeding, (including portion sizes and weaning), is highly variable across England and there are dramatic inequalities. Whilst antenatal preparation programmes frequently cover breast and infant feeding, they frequently omit the essential focus on obesity prevention in the first year of life.

In 2004 the World Health Organization revised down the estimated energy requirements (feeding volumes) for infants by 15-20%. Yet based on parental reports, in 2011 three in four infants in England exceeded these recommended average intakes, suggesting that many infants were either being overfed or were eating too much.<sup>[Ref 2]</sup> Overfeeding in babies not only contributes to excess weight gain, but also to reflux and distress.

Breastfeeding for the first six months of life is protective of obesity for both the child and mother. Protection against maternal obesity is beneficial not only for the mother but also any subsequent children.

While breastfeeding initiation rates in England have improved (74% of women start)<sup>[Ref 3]</sup> and are now comparable to other European countries, sustained breastfeeding rates are low and persistence of exclusive breastfeeding (1% breastfeed

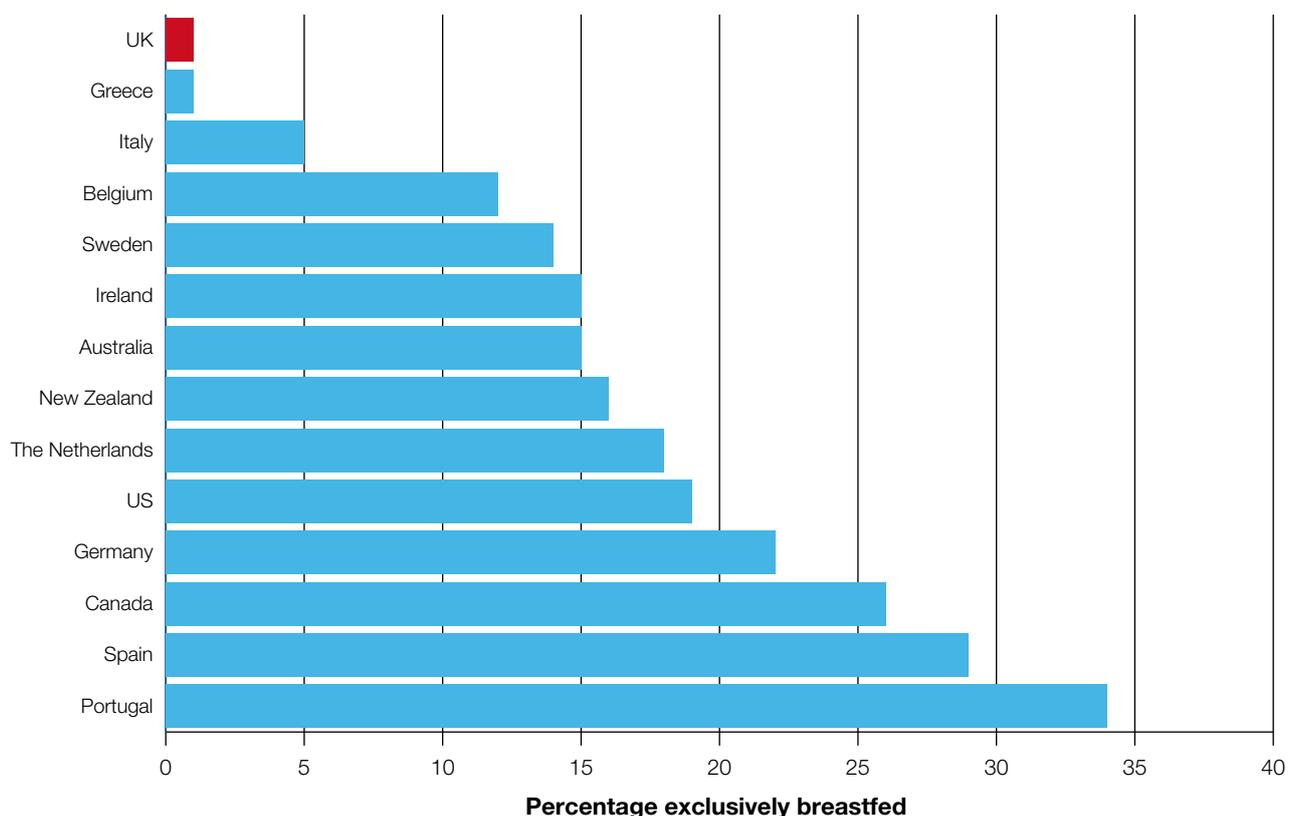
exclusively to 6 months in England) is very poor compared to other developed countries such as the US and Norway (see Figure E1).<sup>[Ref 4]</sup>

Where families receive the right support, such as one-to-one early help, peer support groups, vouchers and food packages, breastfeeding rates are higher. There needs to be more places for women to breastfeed in comfort when out and about or when working. Families, meanwhile, are exposed to a flood of messaging and marketing for formula milk, which is itself associated with premature cessation of breastfeeding. This needs to stop.

Breastfeeding offers multiple advantages, but parents who choose or need to bottle feed must also be supported. This is particularly important for children from deprived backgrounds, who are most likely to be bottle fed and are at greater risk of obesity.

Health visitors and midwives should be the backbone of this crucial support to women and families. A nurse and health visitor delivered support programme starting from birth and focused on how parents respond to their child's needs and involving infant feeding, sleeping and play, can halve the risk of overweight or obesity at three years.<sup>[Ref 5]</sup>

**Figure E1. International comparisons of the percentage of infants who are exclusively breast fed from birth to five months**



Source: Cheung R. *International comparisons of health and wellbeing in early childhood*. Nuffield Trust and Royal College of Paediatrics and Child Health, 2018

## Children's weight and height

The NHS measures children's height and weight many times; at birth, during infancy, and during childhood. Yet these measurements and their significance are not linked or systematically fed back and explained to parents. Too often these measurements are kept in isolated data systems and concerns about excess weight gain are usually restricted to the most isolated cases. Joining up this data for each child from infancy through to school would pave the way to develop systems and algorithms for early intervention of obesity. Combined with other data, it could also help identify vulnerable children who need support.

It is at Local Authority discretion whether a letter is sent parents after a child has been measured as part of the National Child Measurement Programme, and found to be overweight. Often this letter is the first time a child is clearly identified as overweight, despite many previous contacts with the healthcare system, when the issue could have been identified earlier. Children who are a healthy weight receive no letter.

Frequently the letter does not trigger a referral to appropriate services, or even signpost services or offer advice. Practice is still very variable and there has been resistance to using the programme as a means to offer help. This is a missed opportunity. In the Netherlands, when children are measured at school (as part of an holistic assessment of health), children with obesity are routinely signposted to appropriate services. Feedback and uptake of services is handled in a way that is satisfactory to parents, children and teachers, and is not (feedback is non-stigmatising).

Brief interventions for weight loss by general practitioners are effective in adults<sup>[Ref 6]</sup> and should be part of routine NHS service for mothers. There is currently no evidence base for similar interventions in children. There are important differences between children and adults that suggest modifications of adult-focused brief interventions for children should be developed and tested with care.

## Weight management services for children

The provision of weight management services is best considered in tiers (see Box E2). Currently, there is a significant mismatch between eligibility and access, based on NICE guidelines.<sup>[Ref 7]</sup> Prevention initiatives will only have limited success in reducing obesity in the short term, so investment in services is needed.

Prevention efforts, which ensure the places in which children live support health, are likely to help make weight management interventions more effective, by creating the opportunities for healthy eating and activity during and following treatment. Focusing only on weight loss programmes without changing the environments that promote excessive energy consumption is like treating people for cholera and then sending them back to communities with contaminated water supplies. Both approaches are needed.

Currently there is no national comprehensive approach to commissioning weight management services for children and too few well-functioning services for children at every level. Children from disadvantaged backgrounds are less likely to use these weight management services, and the reasons for this under-use are not fully understood. A recent Cochrane review of 153 trials showed that weight management services that adopted strategies for changing diet, physical activity or both, were modestly effective at preventing overweight and obesity in younger children (both 0-5 years, and 6-12 years).<sup>[Ref 8]</sup> There was less evidence that these were as effective in older children (aged 13-18 years). As with adult

weight loss programmes, the extent to which the effects are sustained in the long-term is less clear. This underlines the importance of high-quality commissioning of services that includes robust involving data collection and monitoring. Despite the modest effect size, if effective services are implemented widely this should contribute to a meaningful reduction in childhood obesity.

Current data shows that bariatric surgery in adolescents is highly cost-effective (c. £2,000 per QALY) and improves quality of life.<sup>[Ref 9]</sup> Typically only around 10 adolescents will have bariatric surgery for obesity in England each year, despite it being estimated that as many as 90,500 may be eligible.

There are less than ten paediatric obesity services in England offering specialist services (tier 3). Four of these units (Bristol Children's Hospital, King's College Hospital London, Sheffield Children's Hospital, University College Hospital London) have some record of providing bariatric surgery (tier 4) to adolescents.

Service provision is insufficient to meet present needs, so at present the majority of extremely obese children and young people are not able to access the services they need. The NHS Long Term Plan has announced increases in the service provision for children with obesity. However, the plans will still not meet current need, further scaling up of existing services will be necessary.Box E2. Different tiers of weight management services for children

### Box E2. Different tiers of weight management services for children

Tier	Intervention	Eligible Children (estimate)	Service Provision
1	Universal interventions – primarily preventative	10,900,000 children in England aged 2-18 years eligible	Unknown
2	Lifestyle interventions, which may be multi-disciplinary, to support changes in diet and/or activity for children with obesity.	1,200,000 children eligible for weight management programmes	Unknown but in 2015 most areas offered tier 2 services
3	Specialist weight management services, e.g. using specialist multi-disciplinary teams or anti-obesity drugs, which also involves assessment of related diseases	310,000 children (aged 13-18 years) eligible for anti-obesity drugs (only children aged 13-15 years are eligible for anti-obesity drugs)	Unknown but in 2015 only a minority of areas offered tier 3 services
4	Bariatric surgery	90,500 children in England eligible for bariatric surgery (only children aged 13-18 years are eligible for bariatric surgery)	Around 10 operations per year for under 18 year olds.

Source: based on information within:

*Weight management: lifestyle services for overweight or obese children and young people Public health guideline [PH47], NICE (2013), and Burden of child and adolescent obesity on health services in England, Viner RM, et al. (2017) and National mapping of weight management services Provision of tier 2 and tier 3 services in England, Public Health England (2015).*

## Training of healthcare professionals

Training of healthcare professionals who work with children, including nurses, health visitors, dieticians and doctors, will be key to effective prevention and support. Practice and evidence in areas of infant feeding, behaviour change, and weight management have evolved significantly in the last decade, and training should change to reflect this. Whilst assessment of weight is a routine part of the initial assessment of any child, this needs to evolve to focus as much on BMI status and overweight as the traditional focus on underweight. Recognition of overweight and obesity is more complicated in children than adults and depends on age-specific BMI measures and/or changes in weight over time. Given the present high prevalence of overweight and obesity, there is not enough time and emphasis in training and curricula on preventing, identifying and managing overweight and obesity.

Training, and the consequent messages that healthcare professionals give to parents, have tended to emphasize weight gain, rather than appropriate weight gain, particularly in the first year of life.

As many as one in four infants may have gained too much weight by age 18 months, and during this period three-quarters of infants exceed the recommended average intakes.<sup>b</sup>

This focus on weight gain reflects historical concerns and training about insufficient weight gain particularly in children from deprived backgrounds and ethnic minority groups. Today, for most infants, the greater risk is undoubtedly excess weight gain. This is particularly so for children from more deprived backgrounds and some ethnic minority groups.

Recently developed resources, for example to support healthcare workers to have healthier weight conversations, can help with these issues.<sup>[Ref 10]</sup>

<sup>b</sup> In the Diet and Nutrition Survey of Infants and Young Children, 2011, 26% of boys and 22% of girls aged 4-18 months, exceeded the 91<sup>st</sup> percentile on UK-WHO growth charts.

# The NHS estate and provision of food

The food which is available to buy in shops, canteens and vending machines in most hospitals is too often high in fat, sugar and salt. Some improvements have occurred, but more can be done. Some NHS Trusts are taking a proactive approach to managing contracts with 'outlets' and vending machines. There have been significant reductions in the sales of sugary drinks in hospitals. The next version of the hospital food standards, to be published this year, should strengthen the requirements. They must include measures to bring about a substantial reduction in the sale of unhealthy food and drinks, for example, by controlling the positioning of these items and the amount of shelf space they can occupy, whilst giving preferential positioning to healthy options. In addition, there should always be easy availability of free drinking water through fountains.

It is also important for the NHS to show leadership by creating a healthy work place for staff.

## Summary

The NHS and health sector can do more to support children and families manage weight problems by prioritising recognition and discussion of the issues throughout its workforce. Barriers such as discomfort and concerns about stigma mean this often doesn't happen. This is achievable but requires: education; access to midwives, health visitors, doctors and nurses; and investment in effective appropriate weight management services. It also requires a change in the retail food environment available and offered on NHS premises.

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Annex F

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# Children's Rights

## Protecting children's health

In the UK, there is a long tradition of politicians acting to protect children's health, often using legislation (see Table 1). Politicians should take bold action to protect children from overweight and obesity. They must ensure that all children have a healthy environment, so that all children, irrespective of where they live, can have the best start in life.

In the 1870s the government legislated to prevent children working in factories and as chimney sweeps to protect children from serious accidents, occupational cancers (e.g. scrotal cancer in chimney sweeps), and death. In 1889 the government introduced the Children's Charter that gave the State the right to intervene to protect children from abuse. Since the 1950s legislation like the Clean Air Act, banning of tobacco advertising, lead free petrol and seat belt legislation have all protected children's health.

As with all interventions these measures were met with resistance at the time but quickly became normal and a fully accepted part of people's lives. Politicians acted because society recognised that children were vulnerable, needing additional protections compared to adults. These laws, over time, changed societal norms and behaviours.

**Table 1. Examples of the state intervening to protect children in the UK**

1842	Stopping children under 10 years working in coal mines
1870	Schooling made compulsory for children from five to 13 years
1874	Stopping children working in factories
1875	Stopping children working as chimney sweeps
1885	Raising age of heterosexual consent to 16 years
1889	Intervening to protection children from abuse by their parents
1907	Providing medical care and meals in schools
1908	Preventing the sale of cigarettes to children under 16 years
1942	Providing of free or subsidized cod liver oil, milk and fruit juice to all children under five years and pregnant women
1946	Providing free school milk to protect against rickets
1956	Intervening to improve air quality
1965	Banning tobacco advertising on television
1968	Introducing measles vaccination
1970s onwards	Increasing taxation on tobacco
1986	Abolishing corporal punishment in schools
1989	Mandating the wearing of seat belt in the back of car
1999	Mandating lead-free petrol
2002	Banning all forms of tobacco advertising
2007	Providing smoke free workplaces
2015	Mandating smoke free cars for children
2018	Introduced an industry levy on the sugar in soft drinks

## Children need additional protection

The present high levels of childhood overweight and obesity are like a canary in the mine: a warning sign of a much bigger issue, around poor-quality diets and lack of opportunities to be active for all children and not just those who are overweight or obese. Annex B, *The health and societal costs of childhood overweight and obesity* shows that childhood obesity has a profound effect on a child's physical and mental health during childhood, and casts a long shadow into adult life. This is not just in terms of health but also life chances, such as employment and earnings.

As set out elsewhere in this report, no child chooses to be overweight or obese. A child's likelihood of developing obesity and overweight is influenced predominantly by the environment in which they live and grow up in, and, to a lesser extent, by their genes. Children have no control over these.

Children are more vulnerable than adults, because they are still developing, physically and mentally. It is legally recognised, and shown by research, that children's brains, including those of adolescents, are less mature than adults and less able to make reasoned choices. For example, the evidence shows that children are more easily influenced by advertising than adults.<sup>[1,2]</sup> Similarly, children are less adept at assessing the speed of vehicles and judging road danger and consequently are more vulnerable near roads than adults.<sup>[3]</sup>

# Children living in deprived neighbourhoods

Whilst overweight and obesity affects children from all backgrounds, it is noticeable that children who live in the most deprived areas of the country are much more likely to be overweight or obese. These children are even less likely to have opportunities to be healthy; less likely to be breastfed, more likely to live in neighbourhoods with a high density of takeaway outlets and have fewer safe places to run and play. Childhood overweight and obesity can entrench lifelong disadvantage and poor health for these children.

## Children's rights

Children's rights provide a formal framework that gives moral weight and legal accountability to a public response. Under a rights-based approach, policies should be enacted not just because they are in the 'interests' of children or because they fulfil a 'need', but because the children have a 'right' to it.

The UK has ratified the UN Convention on the Rights of the Child (1989), like all countries (with the exception of the USA).<sup>[4]</sup> The Convention sets out children's rights to protection, education, health care, shelter and good nutrition. The Convention is the most rapidly and widely ratified international human rights treaty in history. The Convention changed the way children are viewed and treated, as human beings with a distinct set of rights instead of as passive objects of care and charity.

Consistent with the scientific evidence that shows the rise in obesity is primarily environmental in origin, a child rights approach requires us to frame childhood obesity as the responsibility of the State, and as an issue that must be addressed across society, rather than providing a solution on a child-by-child basis.

As set out in Box 1, there are five specific strands of the Convention that are relevant to childhood obesity: the best interests of children; access to information from the media; health and healthcare; adequate standard of living; leisure, play and culture. While the convention does not provide the basis for litigation, the UK is bound by this convention under international law and has an obligation to abide by it. Being legally binding and widely accepted, the Convention gives both moral and legal weight to a governmental response to childhood obesity.

*Article 3* of the Convention requires that states make children's best interests a primary consideration in any decision concerning them – including decisions by government when deciding on legislation and policy.

*Article 24* of the Convention refers to the need to 'combat disease and malnutrition' in part 'through the provision of adequate nutritious food'. The Global Nutrition Report defines malnutrition not only as children who are underweight, but also to children 'who are carrying too much weight or whose blood contains too much sugar, salt, fat or cholesterol'.<sup>[5]</sup> Moreover, the United Nations Special Rapporteur on rights and health has made clear that this requires states to address obesity in children.<sup>[6]</sup>

Other aspects of the Convention are also relevant. *Article 17* recognises the role of mass media and requires not only that States ensure that the child has access to reliable information from a variety of sources, but also that children are protected from materials that could harm them. The United Nations Committee on the Rights of the Child has stated that the

marketing of less-healthy foods should be regulated, and their availability controlled, particularly where such marketing is focused on children.<sup>[7]</sup> Consistent with this, the existing evidence base suggests that children's exposure to less-healthy food advertising prompts children to consume more calories,<sup>[8]</sup> and influences food preferences and purchasing patterns towards these foods.<sup>[9,10]</sup> Cumulatively this can be expected to contribute to excess weight gain and, in some children, overweight or obesity.

### Box 1. Summary of key parts of the UN Convention on the Rights of the Child relevant to childhood obesity

**Article 3: Best interests of a child.** The best interests of the child should be the primary consideration in all decisions and actions concerning children. When governments are faced by conflicting priorities (or lobby groups) children must be given priority.

**Article 17: Access to information from the media.** Every child has the right to reliable information from a variety of sources, especially when this has the potential to impact on their social, physical and mental health – and governments should encourage the media to provide information that children can understand. Governments must help protect children from materials that could harm them.

**Article 24: Health and health services.** Every child has the right to the best possible health. Governments must ensure good quality health care, clean water, nutritious food, and a clean environment and education on health and well-being so that children can stay healthy. Richer countries should help poorer countries achieve this.

**Article 27: Adequate standard of living.** Every child has the right to a standard of living that is good enough to meet their physical and social needs and support their development. Governments must help families who cannot afford to provide this.

**Article 31: Leisure, play and culture.** Every child has the right to relax, play and take part in a wide range of cultural and artistic activities.

*Article 27* states that every child has the right to a standard of living adequate for the child's physical, mental, spiritual, moral and social development. *Article 31* relates to a right to play, central to physical activity. The Committee on the Rights of the Child has expressed concern that growing dependence on screen-related activities may be associated with reduced levels of physical activity among children, poor sleep patterns, growing levels of obesity.<sup>[11]</sup>

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Annex G

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# **Progress against UK government and NHS commitments to tackling child obesity**

This annex sets out progress against the commitments in the Government's Childhood Obesity Plan - chapters 1<sup>1</sup> and 2<sup>2</sup> as well as the ambitions included in the NHS Long Term Plan<sup>3</sup> and Prevention Green Paper "Advancing Our Health – Prevention in the 2020's."<sup>4</sup>

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1 Childhood Obesity A plan for action Chapter 1 2016 <https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action>

2 Childhood Obesity A plan for action Chapter 2 2018 <https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2>

3 NHS Long Term plan – implementation framework <https://www.longtermplan.nhs.uk/implementation-framework/>

4 Advancing our health; prevention in the 2020 – July 2019 <https://www.gov.uk/government/consultations/advancing-our-health-prevention-in-the-2020s>

## The impact of the Soft Drinks Industry Levy (SDIL) <sup>5</sup>

HM Revenue and Customs (HMRC) introduced the Soft Drinks Industry Levy (SDIL) in April 2018 aiming to reduce sugar intake. Because calories consumed is a major driver of increasing obesity.

The levy on industry has three rates, depending on sugar content: the 'standard rate' (18p per litre) for total sugar content from 5g/100ml up to (but not including) 8g/100ml, and a 'higher rate' (24p per litre) if total sugar content >8g/100ml. No levy is applied to drinks with sugar content of less than 5g per 100ml.

Comparing 2018 with 2015, overall sales (in litres) of soft drinks within the three sugar tiers of the levy increased by 10.2%. The increase is all in the lowest sugar / no sugar ≤5g/100ml category.

At the same time the total sugar content within the soft drinks sold decreased by 21.6% removing 30,133 tonnes of sugar (around 37.5 billion fewer kcalories sold in sugary drinks a year)

Sales went up and sugar went down in every social group.

The majority of families with children are in groups A-D where reduction in sugar was 20-26%

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<sup>5</sup> Data from Sugar reduction: report on progress between 2015 and 2018. Public Health England, 2019.

## Progress updates on commitments in The Childhood Obesity Plan chapters 1 and 2.

Commitment	Progress update
Review of the sugar reduction programme	A progress update was most recently published here; <a href="https://www.gov.uk/government/publications/sugar-reduction-progress-between-2015-and-2018">https://www.gov.uk/government/publications/sugar-reduction-progress-between-2015-and-2018</a> Further guidelines will be published in spring 2020.
Introduce calorie reduction programme	Programme development underway
Adoption of Government Buying Standards for Food and Catering Services across central Government and local authority run leisure centres.	The consultation on strengthening the standards has been completed. Date for the publication of the consultation response is still to be confirmed.
Consult, before the end of 2018, on strengthening the nutrition standards in the Government Buying Standards for Food and Catering Services, to bring them into line with the latest scientific dietary advice.	The consultation on strengthening the standards has been completed. Date for the publication of the consultation response is still to be confirmed.
Consult before the end of 2018 on our intention to introduce legislation ending the sale of energy drinks to children.	Consultation closed. Announcement made in Advancing Our Health – Prevention in the 2020's to adopt new legislation to end the sale of energy drinks to children under 16 years old.
Consult on updating the Nutrient Profiling Model.	Consultation closed. Response being considered by Government.
Consult, before the end of 2018, on introducing a 9pm watershed on TV advertising of high fat, sugar or salt (HFSS) products and similar protection for children viewing adverts online, with the aim of limiting children's exposure to HFSS advertising and driving further reformulation.	Consultation closed. Response being considered by Government.
Consult on restricting promotions of products high in fat sugar and salt (HFSS) by location and by price.	Consultation closed. Response being considered by Government.
Introduce legislation to mandate consistent calorie labelling in England for the out of home sector.	Consultation closed. Response being considered by Government.
Healthy breakfast clubs in school's.	DfE's lead supplier, Family Action, has confirmed that it has reached the recruitment target of 1,775 schools. The programme will kick-start or improve sustainable and healthy breakfast clubs in these schools.
Good practice menus for early years settings.	In 2017, DfE published example menus and useful guidance for early years settings to help meet the Early Years Foundation Stage requirements for food and drink. <a href="https://www.gov.uk/government/publications/example-menus-for-early-years-settings-in-england">https://www.gov.uk/government/publications/example-menus-for-early-years-settings-in-england</a>
DFE Healthy Schools Rating Scheme.	Schools will start to receive ratings in 2019 for this self-assessment tool, which is designed to help schools improve the health and wellbeing of their pupils. Full guidance is published here: <a href="https://www.gov.uk/government/publications/healthy-schools-rating-scheme">https://www.gov.uk/government/publications/healthy-schools-rating-scheme</a>

# Progress against UK government and NHS commitments

Commitment	Progress update
Ofsted will undertake research into what a curriculum that supports good physical development in the early years looks like.	Ofsted published this review in July 2018. <a href="https://www.gov.uk/government/publications/obesity-healthy-eating-and-physical-activity-in-primary-schools">https://www.gov.uk/government/publications/obesity-healthy-eating-and-physical-activity-in-primary-schools</a>
Update the School Food Standards to reduce sugar consumption. The update will be coupled with detailed guidance to caterers and schools so they are well prepared to adapt to the changes.	Public Health England has been commissioned by DfE to develop updated standards. On 7 May 2019 an advisory group of key stakeholders were brought together in the first in a series of meetings to discuss the proposed updates to the standards. A further meeting is planned for the autumn term.
In 2019, define a set of standards to demonstrate what "good" green infrastructure looks like	The national framework of green infrastructure standards and associated guidance are expected to be published in spring/summer 2020.
Develop resources that support local authorities who want to use their powers. Help set out the economic business case for a healthy food environment and provide up to date guidance and training for planning inspectors.	Programme development underway
Enhancing use of NCMP data and feedback to parents	Programme development underway
Primary PE and Sport Premium Review survey	Survey complete results being analysed.
Work across Government to review how the least active children are being engaged in physical activity in and around the school day.	Survey complete results being analysed.
Promote a national ambition for every primary school to adopt an active mile initiative, such as the Daily Mile.	Ongoing
Ofsted will undertake research into what a curriculum that supports good physical development in the early years looks like.	No progress
Programmes to increase the rates of children who walk to school.	Ongoing - Government support will be provided until the end of the academic year.
The Government will also invest an additional £1 million during 2018/19 to expand Bikeability, the national cycling training programme for schoolchildren, in order to support secondary school children to cycle safely and confidently on local roads.	Bikeability was expanded to support secondary school children to cycle safely and confidently on local roads through £1 million pounds of investment.
Develop a trailblazer programme with local authority partners to show what can be achieved within existing powers and understand "what works" in different communities.	5 Trail blazers authorities selected. Local plans will include testing levers to; <ol style="list-style-type: none"> <li>a) Restrict out-of-home HFSS advertising.</li> <li>b) Create healthier food environments through the planning system.</li> <li>c) Use community and faith assets.</li> <li>d) Incentivize businesses to improve their retail offer.</li> <li>e) Improve accessibility and affordability of healthier foods, improve job opportunities and growth in health, food and physical activity sectors.</li> </ol>

## NHS Long Term Plan commitments relating to obesity.<sup>6</sup>

The vision in the Long Term Plan is to reduce the gap between obesity between children from the most and least deprived areas by 2030.

### Interventions

- Targeted **funding will be available from 2021/22** to increase the capacity to treat obese children and the severe health complications related to their obesity (i.e. **increasing access to Tier 3 services**)- details on the level of funding not yet known.
- Provide targeted support for access to **weight management services in primary care for adults with a diagnosis of type 2 diabetes or hypertension with a BMI over 30.**
- **Treat up to 1,000 children a year for severe complications related to obesity** - diabetes, cardiovascular conditions, sleep apnoea and poor mental health – by 2022/23.
- The NHS will test a programme **supporting very low calories diets for obese people with type 2 diabetes.**
- Strengthening of **the hospital food standards.** Including further restrictions of high fat, salt or sugar food and beverages on hospital premises (All NHS trusts will be required to deliver against the NHS standards).
- **Nutrition training on professional education** curriculum – ensuring frontline health care staff are equipped to talk to patients about nutrition and achieving a healthy weight and be able to refer patients appropriately.
- Funding for **hospitals to become UNICEF** accredited.
- **Improve hospital food for staff and visitors** – Trials underway and being progressed via the NHS Long Term Plan.

<sup>6</sup> NHS Long Term plan – implementation framework <https://www.longtermplan.nhs.uk/implementation-framework/>

## Advancing our health – prevention in the 2020’s – commitments relating to childhood obesity.

Commitment	Progress update
PHE will <b>publish guidelines for industry</b> in early 2020 for businesses to <b>improve the nutritional content of commercially available baby food and drinks</b> . Industry’s progress will be <b>monitored</b> and reported to the government. If insufficient progress is made, the government will consider other levers	Programme development under way. <a href="https://www.gov.uk/government/publications/commercial-infant-and-baby-food-and-drink-evidence-review">https://www.gov.uk/government/publications/commercial-infant-and-baby-food-and-drink-evidence-review</a>
<b>Build on the successes of our current front-of-pack nutritional labelling scheme</b> once we have left the European Union	Consult by end of 2019.
Consider extending the Soft Drinks Industry Levy to sweetened milk based drinks with added sugar.	HMT to consider in 2020
Publish revised salt reduction targets in 2020 for industry to achieve by mid-2023 and report on industry’s progress in 2024.	Programme development underway
Explore how to <b>improve the marketing and labelling of infant food</b> .	PHE evidence review completed. Programme development under way <a href="https://www.gov.uk/government/publications/commercial-infant-and-baby-food-and-drink-evidence-review">https://www.gov.uk/government/publications/commercial-infant-and-baby-food-and-drink-evidence-review</a>
Modernise the <b>healthy child programme</b> .	Review in progress, led by PHE
Commissioning an <b>infant feeding survey</b> to provide information on breastfeeding and the use of foods and drinks other than breastmilk in infancy.	Programme development underway
Improve the quality of <b>brief advice</b> given on health issues, including weight management, in <b>general practice</b> . Explore the use of quality improvement approaches, and test any new, innovative proposals through the new <b>NHS Primary Care Network Testbeds</b> , as appropriate	Programme development underway
Explore how <b>NCMP data can be shared directly with digital child health records</b> and presented appropriately so that it’s consistently accessible for both parents, carers and health professionals.	Programme development underway
<b>Review the current digital weight management offer on the NHS Apps Library</b> and promote the app marketplace to encourage the availability of more products and services.	Programme development underway
Continue to <b>develop Our Family Health, a digital approach to support families</b> with children aged 4 to 7 years with lifestyle behaviour change.	Programme development underway.
Update the <b>UK Chief Medical Officers’ Physical Activity guidelines</b> .	Update guidelines published September 2019. <a href="https://www.gov.uk/government/collections/physical-activity-guidelines">https://www.gov.uk/government/collections/physical-activity-guidelines</a>

Commitment	Progress update
<p>Launching a second phase of the national <b>Moving Healthcare Professionals partnership programme</b> supporting healthcare professionals <b>to promote physical activity to their patients.</b></p>	<p>Phase 1 has been successful and recruitment to expand the number of clinical champions is almost complete. Phase 2 roll out is ongoing.</p>
<p>The UK's leading health charities and Sport England to <b>launch of a new physical activity campaign</b>, which seeks to empower and inspire those living with health conditions to be more active.</p>	<p>Campaign launched September 2019.</p>
<p>Work across government to encourage</p> <ol style="list-style-type: none"> <li>Local authority <b>planning</b> decisions to <b>promote active lifestyles</b></li> <li>More people to switch from driving to public transport, <b>cycling and walking – especially on the school run</b></li> <li><b>Strengthening the evidence base about the social and economic value of physical activity.</b></li> </ol>	<p>Healthy towns guidance published <a href="https://www.england.nhs.uk/ourwork/innovation/healthy-new-towns/">https://www.england.nhs.uk/ourwork/innovation/healthy-new-towns/</a></p> <p>DFT ongoing commitment to increase walking and cycling rates.</p>
<p>Work across government to <b>encourage nurseries</b> to build opportunities into their daily routine for <b>physical activity</b> such as <u>energetic play, walking and skipping.</u></p>	<p>Programme development underway.</p>

# Editors in Chief and Acknowledgments

# Acknowledgments

**Editor-In-Chief** Dr Oliver Mytton

**Editor-In-Chief** Miss Emma Pawson

With thanks to the following for written submissions, review of material, or substantial policy advice

Michael Barnes, Tim Cole, Catherine Falconer, Claire Fenton-Glynn, Elizabeth Fuller, Caroline Hancock, Jenny Harries, Kathryn Hesketh, Tamsyn Hyatt, Nicky Hawkins, Russell Viner, Marc Masey, Orla Murphy, Ken Ong, Jonathan Pearson-Stuttard, Lucilla Poston, Ross Pow, Harry Rutter, Lucy Saunders, Anna Taylor, David Taylor-Robinson, John Wass, Sandra White.

With thanks to: Attendees at the CMO round table on childhood obesity; Attendees at the 2030 visioning workshop; Guy's and St. Thomas Charity; Institute for Health Metrics and Evaluation, University of Washington; Public Health England; MRC Epidemiology Unit, University of Cambridge; NatCen Social Research; NHS Digital; The Policy Institute, King's College; The Liver Foundation; and Versus Arthritis.



## Department of Health & Social Care

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Produced by APS Group for the Department of Health and Social Care.

First published (online only) October 2019.

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Please cite as:

Davies, S.C. Time to Solve Childhood Obesity, Department of Health Social Care 2019.