National Audit Office

Report
by the Comptroller
and Auditor General

Department of Health & Social Care

Childhood obesity

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National Audit Office

Department of Health & Social Care

Childhood obesity

Report by the Comptroller and Auditor General

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Comptroller and Auditor General
National Audit Office

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This report examines the effectiveness of the government's approach to reducing childhood obesity in England by considering the evidence base and progress so far.

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Contents

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Key facts

20.2%

proportion of 10 to 11 year old children who were classified obese in 2018/19

26.9%

proportion of 10 to 11 year old children who were classified obese in the most deprived areas in 2018/19

£61.7m

recorded spending by local authorities on childhood obesity in 2018/19, including the National Child Measurement Programme

20%	ambition for sugar reduction in foods most commonly eaten by children by 2020
2.9%	overall sugar reduction in foods most commonly eaten by children by September 2019
£240 million	revenue generated by the Soft Drinks Industry Levy in 2018-19
£6.1 billion	government estimate of annual cost of obesity to the NHS
£1.5 million	funding over three years from 2019-20 to 2021-22, for five local authorities to develop local actions to tackle childhood obesity

Summary

1 In the simplest terms, obesity is caused by energy intake exceeding energy use. In England, a large proportion of children are obese, particularly older children. Children who are overweight or obese have a higher chance of being obese adults, increasing the risk that they develop chronic diseases such as some cancers, type 2 diabetes and heart disease. Overweight or obese children are more likely to experience bullying, stigmatisation and low self-esteem than other children. Obesity also doubles the risk of dying prematurely and obese adults are more likely to be living with conditions like depression. There is evidence to suggest that obesity is a material risk factor for COVID-19 in adults. Government estimates that the cost of obesity to the NHS is £6.1 billion and £27 billion to wider society. Successive governments have tried to tackle the problem of childhood obesity.

2 The Department of Health & Social Care (the Department) is responsible for setting and overseeing obesity policy in England. In 2016, it published the first chapter of a new childhood obesity plan (the plan). The plan aimed to significantly reduce England's rate of childhood obesity over the next 10 years. The second chapter of the plan was published in 2018 and aimed to halve childhood obesity and reduce the gap in obesity between children from the most and least deprived areas by 2030.

3 The Department runs the Childhood Obesity Programme (the programme) to oversee the delivery of the actions set out in the plan. Several other government departments lead individual projects within the programme. NHS England & NHS Improvement (NHSE&I) is responsible for commissioning services which treat complications associated with obesity. Local authorities also have a role to support people who are already obese. The NHS Long Term Plan, published in 2019, also placed increased focus on prevention. This included the aim to support more obese people to attend weight management services.

4 In terms of public health, Public Health England's (PHE) objective is to protect and improve the nation's health and wellbeing, and reduce health inequalities by promoting healthier behaviours, advising government, supporting action by local authorities, the NHS and the public and providing an evidence base to improve understanding of public health challenges. Local authorities are responsible for improving the health of their local population and for delivering public health services, including reducing childhood obesity, for which they receive an annual ringfenced public health grant from government. They must provide several mandated public health functions with the grant (including the National Child Measurement Programme), but otherwise have a large degree of freedom in how they spend it. This includes spending on obesity services for adults and children which respond to the specific health challenges of local authorities.

5 On 18 August 2020, the government announced that it will merge PHE's health protection responsibilities with NHS Test and Trace to form the new National Institute of Health Protection with immediate effect. The government intends to engage on the future options for where PHE's other public health responsibilities, including its work on reducing childhood obesity, will sit in the future.

6 This report examines the effectiveness of the government's approach to reducing childhood obesity in England by considering the evidence base and progress so far. We have focused on children as dealing with obesity early in life prevents future costs and obesity-related health problems. We have also focused on preventive measures rather than treatment. The report sets out:

- levels and trends in childhood obesity (Part One);
- government action to reduce childhood obesity (Part Two); and
- local authorities' role in reducing childhood obesity (Part Three).
- We set out our audit approach in Appendix One and evidence base in Appendix Two.

Key findings

7 The government estimates that treatment of obesity-related conditions in England costs the NHS £6.1 billion each year. It also estimates that wider costs to society – for example, from absence from work – could be as much as £27 billion annually. There are limits with both these estimates. The cost to the NHS is based on 2014 costs which have been inflated and does not take into account changes in trends in obesity. The cost to wider society is based on a report from 2007 which overestimated increases in obesity by some 10% (paragraph 1.3).

8 **In 2018/19, nearly one tenth of 4 to 5 year olds and more than one fifth of 10 to 11 year olds were obese.** We estimate that roughly 1.4 million children aged between 2 and 15 were classified as obese in 2018. The rates for younger children (4 to 5 year olds) are stable between 2009/10 and 2018/19 while rates for older children (10 to 11 year olds) have increased slightly from 18.7% to 20.2% over the same period (paragraphs 1.2, 1.6 and Figure 2).

9 **Children in deprived areas are twice as likely to be obese than those in less deprived areas, and the gap is widening.** In 2018/19 in England, nearly 13% of 4 to 5 year olds in the most deprived areas were classified as obese compared with 6.4% of children living in the least deprived areas – a gap of 6.5%. At ages 10 to 11, this gap is greater with 26.9% of children living in the most deprived areas classified as obese, compared with 13% in the least deprived. This problem has worsened over time, particularly for older children. For 10 to 11 year olds, the gap has increased from just under 10% to nearly 14% from 2009/10 to 2018/19 (paragraphs 1.10 and 1.11 and Figures 6, 7 and 8).

10 **Obesity rates for children in different ethnic groups vary considerably.** For example, just over 9% of white children were obese in 2018/19 at age 4 to 5, compared with more than 15% of black children. These rates increase to more than 18% and nearly 29% respectively by age 10 to 11, widening the gap with white children. Some of this variance will be due to deprivation, as ethnic minorities are over-represented in deprived areas. However, PHE and the Department do not know the extent to which deprivation impacts on the variance in obesity seen in ethnic minorities and acknowledge more research is required (paragraph 1.12 and Figures 9 and 10).

11 **Previous governments have tried to reduce rates of childhood obesity but with limited success.** Successive governments have implemented strategies to tackle obesity with a strong focus on children. In 2008, the government set an ambition to reduce the proportion of overweight and obese children to 2000 rates by 2020. In 2011, the new government set a new ambition to achieve a sustained downward trend in the level of excess weight in children by 2020. These strategies had little impact on childhood obesity. While obesity rates in younger children are stable for now, obesity rates for 10 to 11 year olds have increased slightly from 19% at the time of the 2011 strategy to 20.2% in 2018/19. The Department has not fully evaluated whether these past strategies reduced childhood obesity. Therefore, it will struggle to prioritise actions or apply lessons from past strategies to its new approach with confidence of success (paragraphs 2.3 to 2.7, 2.12 and Figure 12).

12 The current ambitious childhood obesity plan takes a more interventionist approach. The government's childhood obesity plan has a stretching goal to halve childhood obesity by 2030 (which, at 2017/18 rates, would be to have reduced levels to 4.8% in 4 to 5 year olds, and 10% in 10 to 11 year olds). It also aims to reduce the gap in obesity between children from the most and least deprived areas by 2030 although has not set a target for the latter aim. While the plan has many similar themes and interventions to previous strategies, it includes more innovative legislative and regulatory action such as taxation. PHE notes that the plan is moving from voluntary to more legislative measures and has clear monitoring of delivery. However, other elements of the plan remain voluntary or subject to self-assessment. The United Nations Children's Fund (UNICEF) has noted that although much remains to be done to tackle childhood obesity, the UK is paving the way to ensure that all children grow up in a healthy food environment (paragraphs 2.9 to 2.15).

13 While the Department oversees the programme, it has few mechanisms to influence the performance and engagement of other departments. Due to the cross-government nature of the programme, accountability is fragmented as many projects in the programme have wider objectives and sit outside of the Department's control. While the Department has developed an overall governance structure for the programme, projects delivered by other departments are subject to their own departmental governance, accountability and monitoring arrangements and have different priorities for delivery. This means the senior responsible owner is not able to hold other departments to account for delivering their projects. There are no mechanisms to help the Department manage the risks that arise from this limited control (paragraphs 2.20 and 2.21 and Figure 13).

14 There is limited awareness and co-ordination across departments of wider activities that may impact on childhood obesity rates. The programme covers many of the influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations including food production and marketing, physical activity and food in the public sector. There are wider factors and activities that can influence and impact on obesity, such as sponsorship of sporting events by the food industry. These are not projects as such and so may not easily fit into the programme. Currently there is no co-ordination of these activities across government to ensure that they are compatible with the overall aim of reducing childhood obesity and there are no plans to introduce some co-ordination (paragraph 2.22).

15 Given its focus on treatment, NHSE&I has no formal role in the programme. The NHS's main role is to respond to, manage and commission services to treat medically diagnosed conditions linked to obesity, such as type 2 diabetes. This does not include community based preventive services, for which local authorities are largely responsible. In January 2019, the NHS's Long Term Plan set out some changes to how NHSE&I will help reduce obesity including additional support for people with type 2 diabetes, such as weight management services, where there is evidence that GP referrals to such services can lead to weight reduction. In autumn 2020, NHSE&I will begin to pilot low calorie diets on the NHS to help adults diagnosed with type 2 diabetes lose weight through a 12-month, low calorie weight-loss programme (paragraphs 2.18 and 2.19).

16 The childhood obesity plan is focusing on the right areas for interventions but the evidence that those interventions will reduce obesity rates is more limited. In 2007, in response to the report by the Government's Office for Science Foresight Programme, *Tackling Obesities: Future Choices,* the Department committed to take forward a research agenda on obesity. It did not act on that commitment until 2017 when it sponsored the creation of the National Institute of Health Research's Obesity Policy Research Unit to provide a research base for policies into obesity. PHE generated and brought together much of the evidence to support the sugar reduction work in the programme. It would be unrealistic to expect there to be detailed evidence for every intervention. This will particularly be the case for innovative approaches which have not been widely applied or in place for long enough to have been adequately evaluated. Our high-level review of the evidence base for, or evaluations of, interventions in the programme suggests that the focus of interventions, for example, calorie reduction, is largely right. However, the evidence base that the type of intervention used will reduce childhood obesity rates is more mixed. Some of the interventions have evidence of their effectiveness while for other interventions in the plan the evidence is limited or conflicting (paragraphs 2.23 to 2.25).

17 The Department does not know how much is spent tackling childhood obesity across central government. The Department has a £2.2 million programme budget for 2019-20 for the management of the programme. It also funds specific interventions in the programme as does PHE. Four other government departments fund other programme interventions. However, the Department has not been tasked to monitor how much is spent on all interventions across the programme, therefore there is no government-wide understanding on what has been spent tackling childhood obesity (paragraphs 2.29 to 2.32).

18 The Department cannot accurately quantify local authority spending on childhood obesity. PHE oversees local authorities' spending of the public health grant, with local authorities reporting how they spend this grant. However, because of the way local authorities categorise this spending, it is likely that some spending on childhood obesity services is not accurately reported. Local authorities report spending of £61.7 million on childhood obesity, with little change in recent years, out of total public health expenditure of £3.4 billion (paragraphs 3.4 and 3.5, and Figures 15 and 16).

19 Progress on the programme's key aim to reduce sugar and calories is mixed. As part of the programme, HM Treasury introduced a tax in March 2016 on sugary drinks (the Soft Drinks Industry Levy (SDIL) or sugar tax), which became law in 2018. The tax was to encourage industry to reduce sugar in certain drinks and raised £240 million in 2018-19. PHE has made some progress with encouraging industry to reduce sugar levels in certain products. However, this has not been the case across all products and government will not meet its ambition to have industry reduce sugar by 20% in certain products by 2020. PHE was due to report the latest progress in the first half of 2020 but now intends to report later in the year. PHE has not reported on progress with its ambition to have industry reduce calories by 20% in food that contribute significantly to children's calories by 2024. PHE has engaged with stakeholders on this and intends to publish final guidance for industry on achieving the government's ambition for calorie reduction in 2020 along with timeframes for reporting progress (paragraphs 2.33, 2.34 and Figure 14).

20 Local authorities have discretion to tackle childhood obesity as they see fit in their local area. The Department and PHE offer some tools and guidance through PHE. In January 2020, PHE did some work to understand the number of local authorities using the whole-systems approach and the specific interventions they may use to tackle childhood obesity. This work suggested that up to one third of local authorities were using the whole-systems approach to obesity in their local area. The Department recognised a lack of evidence about local interventions and, with PHE, launched the Trailblazers project in 2019 which aims to test interventions using existing powers and share good practice. In this, five local authorities receive £100,000 funding per annum for three years from 2019-20 to 2021-22, to support their local interventions – a total of £1.5 million (paragraphs 3.6 to 3.8).

21 On 27 July 2020, the government announced a new strategy to reduce obesity in adults and children. This was partly in response to evidence indicating that people who are overweight or obese who contract COVID-19 are more likely to be admitted to hospital, to an intensive care unit and to die from COVID-19, compared with those of a healthy body weight. This strategy pledged to take forward some elements of the existing programme, such as the 9pm advertising watershed. However, it did not include other elements of the programme which had not been implemented at that time, for example, the ban on selling energy drinks to children, which the Department commited to in July 2019. The Department's consultation on this proposal ended in November 2018, but it had not published its response, policies for, or timescales for implementation as of July 2020 (paragraph 2.16).

Conclusion on value for money

22 Governments have been grappling with childhood obesity since the 2000s, with limited success. In 2018/19, nearly one tenth of 4 to 5 year olds and more than one fifth of 10 to 11 year olds were classified obese. We estimate that roughly 1.4 million children aged from 2 to 15 years old were classified obese in 2018. Not only is obesity increasing for 10 to 11 year olds, it is increasing even faster for children in deprived areas. While the Department's programme aims to tackle this issue, it is not yet clear that the actions within the programme are the right ones to make the step-change needed in the timescale available. Progress with the programme has been slow and many commitments are not yet in place, although the new strategy announced in July 2020 has signalled new legislation and greater willingness to act to reduce obesity. The government will need to act with greater urgency, commitment, co-ordination and cohesion if it is to address this severe risk to health and value for money.

Recommendations

a **The Department should establish a robust evidence base**, commissioning further research if necessary, of what works to establish which interventions in the programme and actions by local authorities work best to reduce childhood obesity.

b **By autumn 2021, with the Cabinet Office, the Department should introduce stronger mechanisms into the Childhood Obesity Programme** that will hold other departments responsible for delivering their projects.

c In line with the timing of the proposed spending review, **the government should target support and funding to local authorities and population groups who have the greater obesity problems.**

d By spring 2021, the Department should have established its **timetable for responding to consultations and for implementing all elements in the programme,** including the measures relating to children announced in the new obesity strategy in July 2020.

e **The Department should provide greater support to local authorities** to help them implement efforts to reduce childhood obesity.

Part One

Trends in childhood obesity

1.1 In this part, we set out the impact of obesity and trends in childhood obesity. We examine regional trends and links with deprivation and ethnicity.

Why increasing rates of childhood obesity are a problem

1.2 Obesity has a human cost. Children who are overweight or obese have a higher chance of being obese adults, increasing the risk that they develop chronic diseases such as some cancers, type 2 diabetes and heart disease. Overweight or obese children are more likely to experience bullying, stigmatisation and low self-esteem than other children. Obesity also doubles the risk of dying prematurely and obese adults are also more likely to be living with conditions like depression. There is evidence to suggest that obesity is a material risk factor for COVID-19 in adults. Increasing levels of childhood obesity are likely to lead to increasing levels of obesity-related health problems in adults. We estimate that between 1.24 million and 1.62 million children aged between 2 and 15 were classified obese in 2018, with a most likely estimate being that 1.4 million were obese.[1]

1.3 Obesity also has a financial cost to the NHS and the wider economy which will increase if obesity rates continue to rise. The government has not estimated the specific and full costs but in England estimates it costs the NHS £6.1 billion a year to treat obesity-related conditions. The government also estimates that wider costs to society, such as absence from work and the reduction in quality of life, could be as much as £27 billion a year.[2] There are limits with both these estimates. The cost to the NHS is based on 2014 costs and has been inflated and does not take into account changing trends in obesity. The cost to wider society is based on a report from 2007 which overestimated increases in obesity by some 10%.

1 This broad estimate is based on data from the Health Survey for England 2018, NHS Digital www.digital.nhs.uk
2 This figure includes some estimates of healthcare costs.

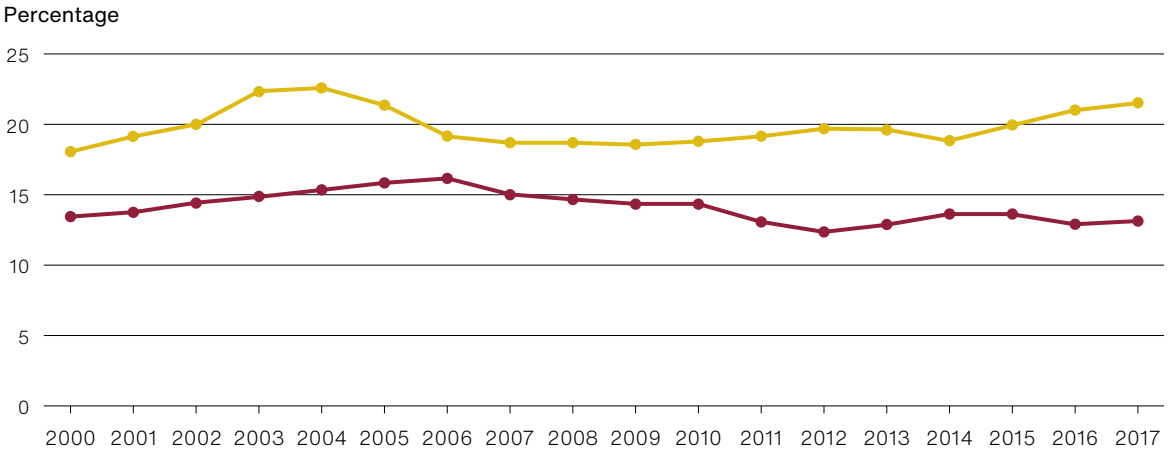
Trends in childhood obesity

1.4 The problem of childhood obesity has been evident for many years. To enable us to examine trends dating back to the year 2000, we have used the Health Survey for England. This data indicated that in England around the year 2000, 13.4% of 2 to 10 year olds were likely to be classified obese.[3] Older children had a greater tendency to be classified obese. During the same period, some 18% of 11 to 15 year olds, were likely to be classified obese (**Figure 1**).[4]

Figure 1

Rates of obesity in 2 to 10 year olds and 11 to 15 year olds in England from 2000 to 2017

Rates of obesity for 2 to 10 year olds in 2017 were slightly lower than 2000 levels but rates of obesity for 11 to 15 year olds have increased



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
2 to 10 year olds	13.4	13.7	14.4	14.8	15.3	15.8	16.1	15.0	14.6	14.3	14.3	13.0	12.3	12.8	13.6	13.6	12.9	13.1
11 to 15 year olds	18.0	19.1	19.9	22.3	22.5	21.3	19.1	18.6	18.7	18.5	18.7	19.1	19.6	19.6	18.8	19.9	20.9	21.4

Note

1 The survey presents data in three-year rolling averages to reduce the impact of random variation based on calendar years. For example, 2000 represents the three-year period 1999 to 2001. Owing to the nature of the data, these percentages are subject to a range of error and are indicative only.

Source: National Audit Office Analysis of NHS Digital *Health Survey for England 2018*, December 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2018

3 The data are from NHS Digital Health Survey for England, 2018 and are based on three year rolling averages to reduce impact of random variation. For the children in the age range 2 to 10 years, data are based on a sample of 4,109 children. Owing to the nature of the data, these percentages are subject to a range of error and are indicative only.

4 The data are from NHS Digital Health Survey for England, 2018 and are based on three year rolling averages to reduce impact of random variation. For the children in the age range 11 to 15 years, data are based on a sample of 2,265 children. Owing to the nature of the data, these percentages are subject to a range of error and are indicative only.

1.5 Since 2000, trends in obesity have worsened in older children. Rates of obesity in older children have increased by almost 20% since 2000, with a peak of 22.5% around 2004 reducing slightly to 21.4% around 2017 (Figure 1).[5] The rate of obesity in the younger group of children has decreased slightly some 17 years later, to 13.1% in 2017, having peaked at 16.1% around 2006.[6]

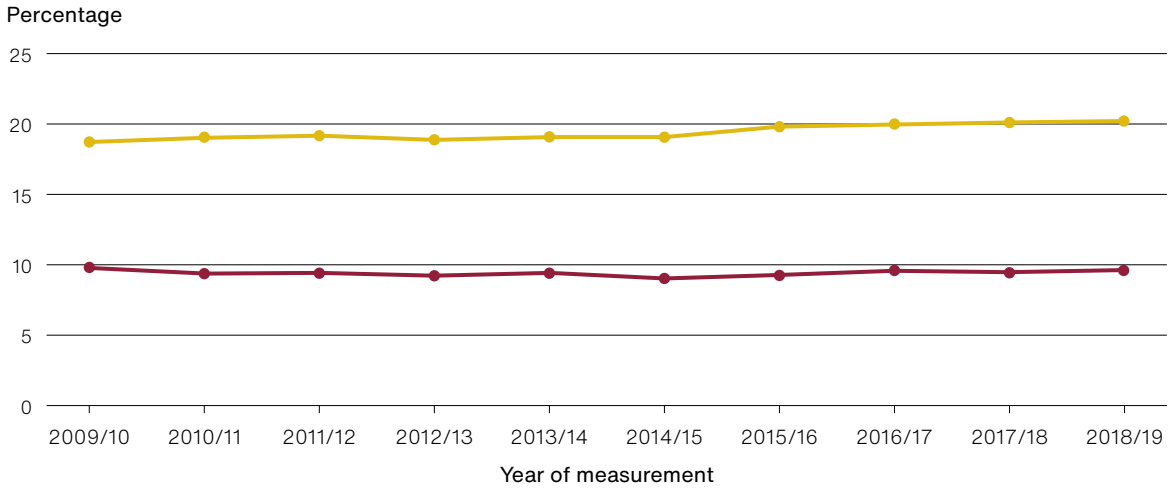
1.6 For more recent trends and for more detailed analysis we have used data from the National Child Measurement Programme, which is based on a near census of children and shows a similar trend (**Figure 2**):

- obesity rates in 10 to 11 year olds increased slightly from 18.7% in 2009/10 to 20.2% in 2018/19, with the most pronounced increase after 2014/15.
- obesity rates for 4 to 5 year olds have remained stable, decreasing slightly from 9.8% in 2009/10 to 9.7% in 2018/19.

Figure 2

Rates of obesity in 4 to 5 year olds and 10 to 11 year olds in England, from 2009/10 to 2018/19

Rates of obesity in 4 to 5 year olds have remained stable but the rates of obesity in 10 to 11 year olds have increased



	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
4 to 5 year olds	9.8	9.4	9.5	9.3	9.5	9.1	9.3	9.6	9.5	9.7
10 to 11 year olds	18.7	19.0	19.2	18.9	19.1	19.1	19.8	20.0	20.1	20.2

Note

1 NHS Digital reports that it is likely that the prevalence of obesity at age 10 to 11 in the first three years of the National Child Measurement Programme (2006/07 to 2008/09) were underestimates due to low participation. This, and the impact of other improvements in data quality, should be considered when making comparisons over time.

Source: National Audit Office analysis of NHS Digital *National Child Measurement Programme*, *England 2018/19 School Year [NS]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year

5 Data for 2004 are based on a three-year rolling sample of 2,489 children. Data for 2017 are based on a three-year rolling sample of 1,316 children.
6 Data for 2017 are based on a three-year rolling sample of 2,664 children. Data for 2006 are based on a three-year rolling sample of 9,085 children.

Rates of childhood obesity in the UK and internationally

1.7 The World Health Organization (WHO) considers childhood obesity to be one of the most serious public health challenges of the 21st century. It has attempted to develop a global picture of obesity rates using the WHO child growth standard. While this is the best comparative data available, it has many weaknesses and can only be used as an indication of global rates. The data indicate that the UK has some of the highest rates of obesity and overweight children in western Europe (**Figure 3**).

1.8 The four United Kingdom nations have broadly similar childhood obesity rates. All nations measure children's weight at ages 4 to 5 years albeit using different systems. Since 2012/13 (the first year where there is data for three of the four nations), rates of obesity in this age group have been broadly similar across England and Scotland. Rates in Wales have been around 2% higher. Rates in Northern Ireland appear lower but are not comparable with the rates in the other nations because of the methodology used.

Differences in childhood obesity at local level in England

1.9 In 2018/19, childhood obesity rates varied across local authorities for ages 4 to 5 and 10 to 11 (**Figures 4** and **5** on pages 18 and 19). This variation indicates that the scale of childhood obesity as a public health problem differs across local areas. This suggests that in addition to central government interventions, local actions that aim to reduce childhood obesity while taking into account local circumstances and public health priorities would be beneficial.

Factors associated with rates of childhood obesity

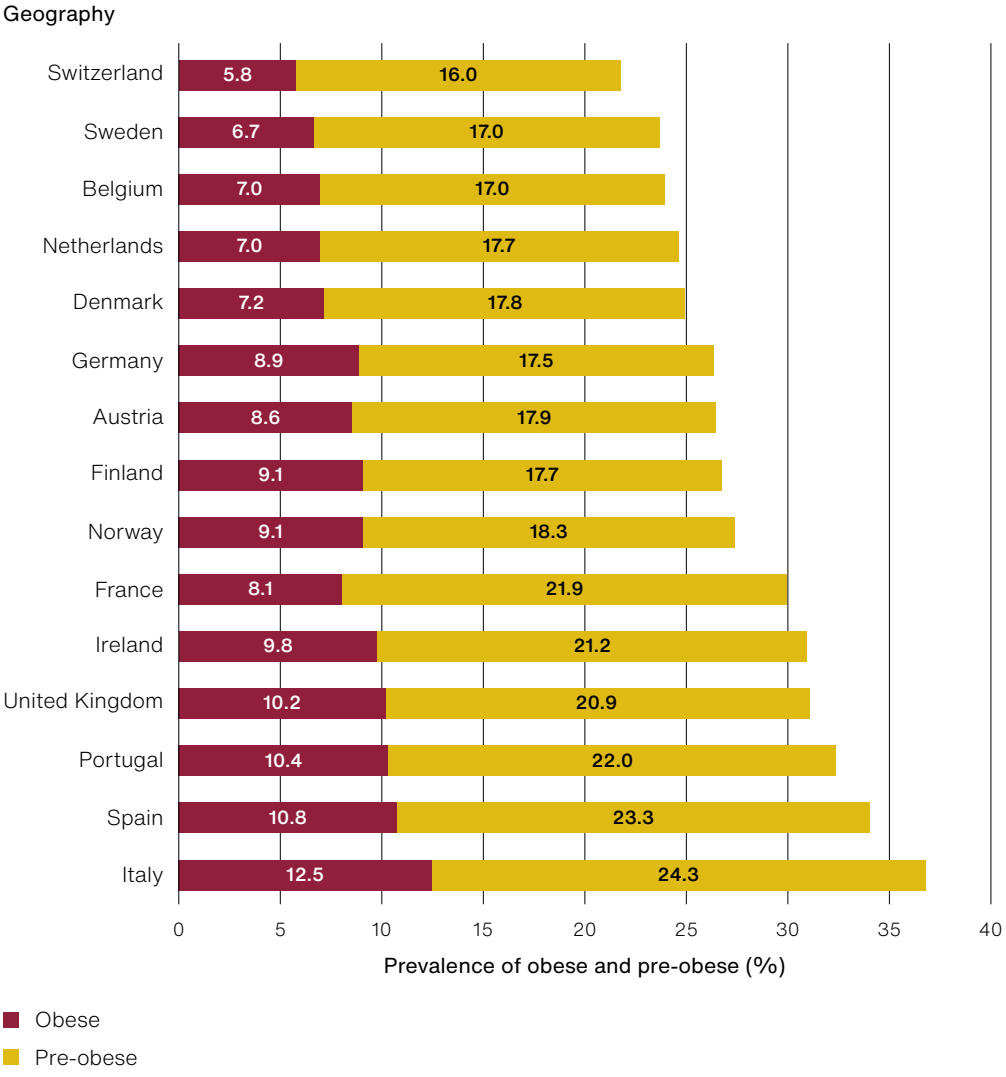
Deprivation

1.10 There is a strong association between deprivation and childhood obesity. Children living in the most deprived areas are twice as likely to be classified obese as children in the least deprived areas. In 2018/19 in England, nearly 13% of 4 to 5 year olds in the most deprived areas were classified obese compared with 6.4% of children living in the least deprived areas – a gap of 6.5%. At ages 10 to 11, the gap was greater, with 13% in the least deprived areas and 26.9% in the most deprived (**Figure 6** on page 20).

Figure 3

Rates of obese and overweight 5 to 19 year olds in western European countries in 2016

The UK has some of the highest rates of obese and overweight children in western Europe



Notes

1 'Pre-obese' is the World Health Organization categorisation for people also categorised as 'overweight'.

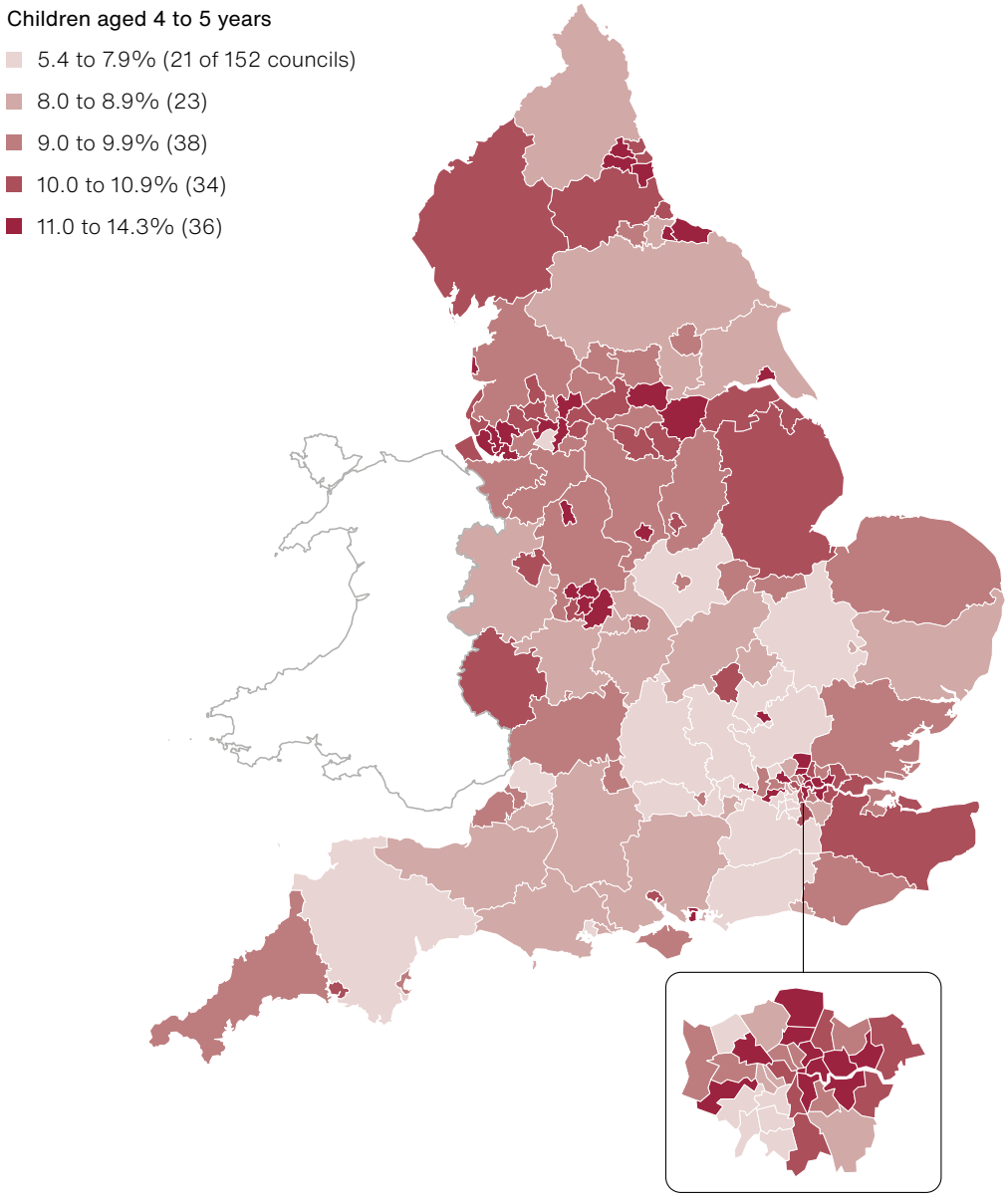
2 Organisation for Economic Co-operation and Development (OECD) analysis of World Health Organization Global Health Observatory data available at: www.who.int/gho/ncd/risk_factors/overweight_obesity/obesity_adolescents/en/

Source: Organisation for Economic Co-operation and Development Health Policy Studies, *The Heavy Burden of Obesity: The Economics of Prevention*, October 2019, available at: www.oecd.org/health/the-heavy-burden-of-obesity-67450d67-en.htm

Figure 4

Obesity rates in 4 to 5 year olds by English local authorities, 2018/19

There is variation in childhood obesity rates by local authority for children aged 4 to 5

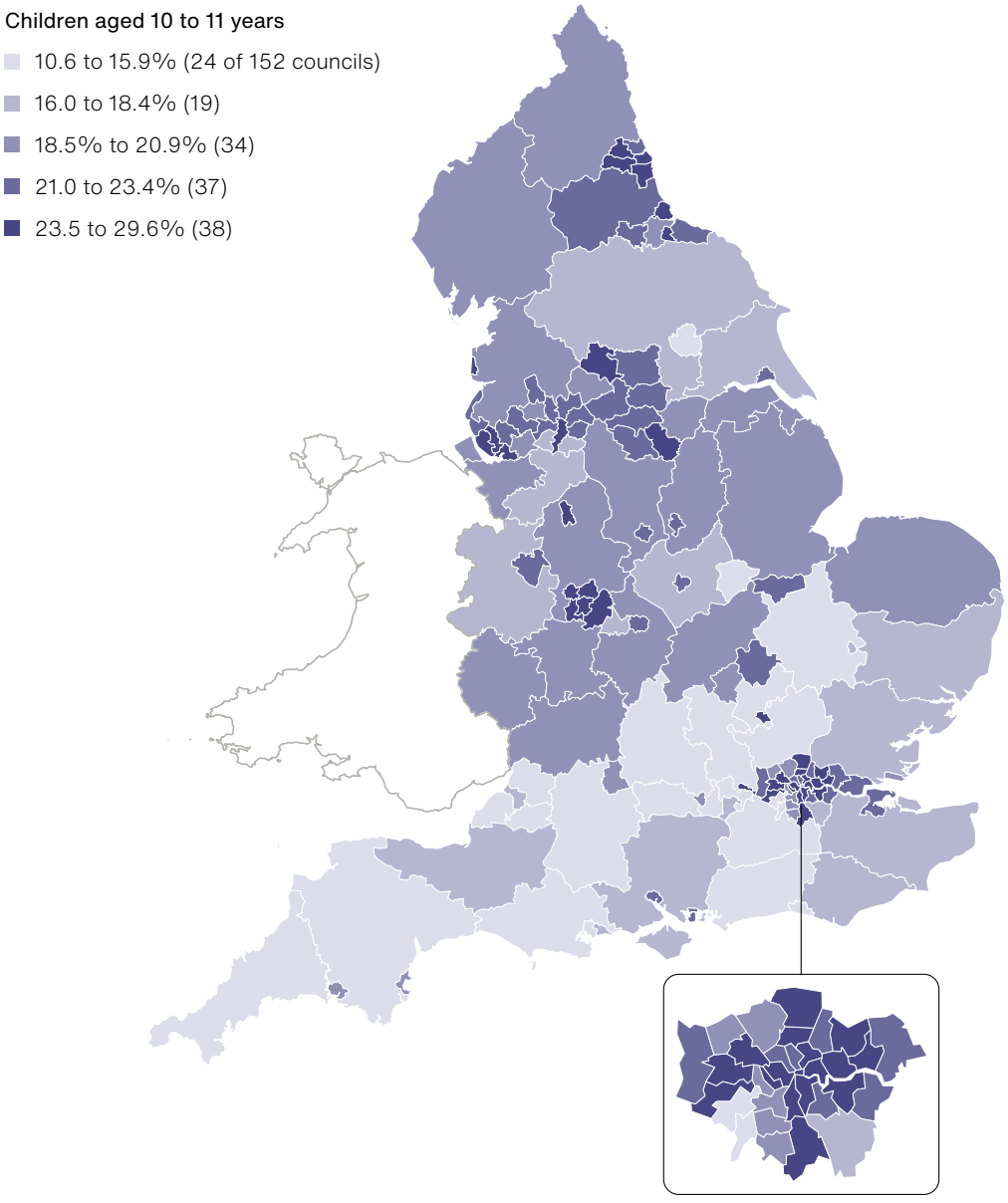


Source: National Audit Office analysis of NHS Digital *National Child Measurement Programme, England 2018/19 School Year [NS]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year

Figure 5

Obesity rates in 10 to 11 year olds by English local authorities, 2018/19

There is variation in childhood obesity rates by local authority for children aged 10 to 11

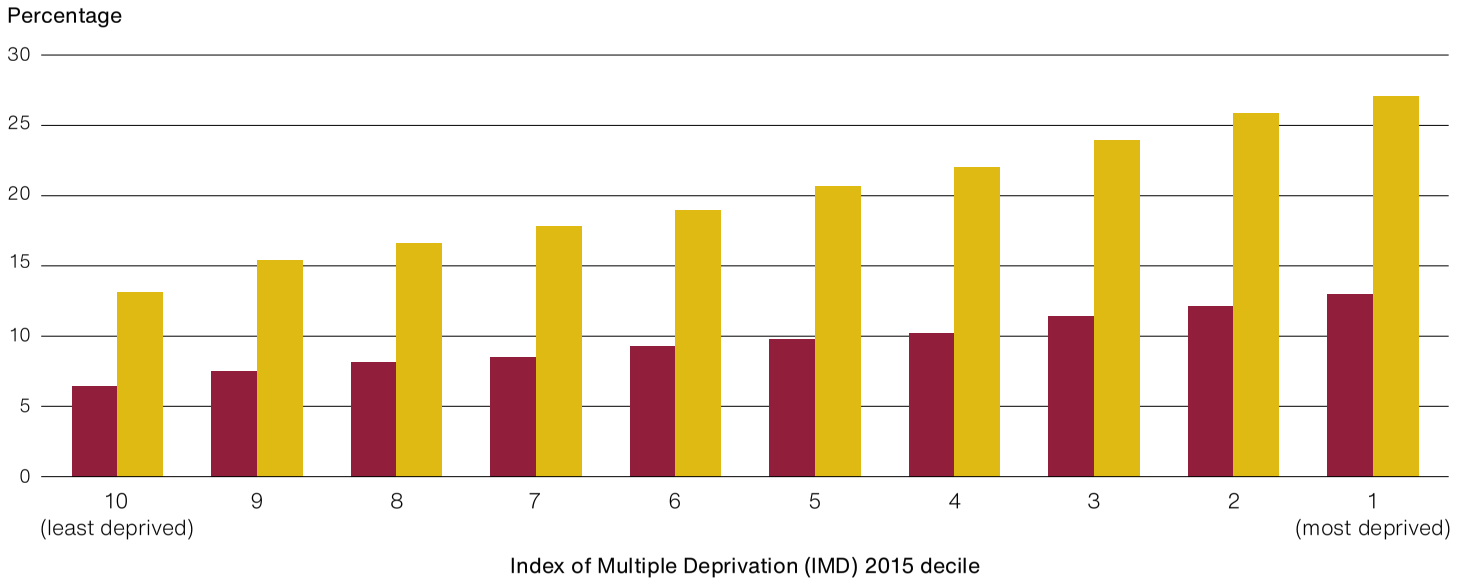


Source: National Audit Office Analysis of NHS Digital *National Child Measurement Programme, England in the 2018/19 school year [NS]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year

Figure 6

Rates of obesity in children by age group and level of deprivation in England in 2018/19

Children from the most deprived areas are more likely to be classified obese than those in the least deprived areas



	10 (least deprived)	9	8	7	6	5	4	3	2	1 (most deprived)
4 to 5 year olds	6.4	7.4	8.1	8.5	9.3	9.8	10.2	11.4	12.1	12.9
10 to 11 year olds	13.0	15.3	16.5	17.8	18.9	20.5	21.9	23.8	25.7	26.9

Notes

1 The Index of Multiple Deprivation (IMD) 2015 is the official measure of relative deprivation for small areas (lower super output areas) in England. IMD deciles are calculated by ranking the 32,844 small areas in England from most deprived to least deprived and dividing them into 10 equal groups. These range from the most deprived 10% of small areas nationally (decile 1) to the least deprived 10% of small areas nationally (decile 10). Further details are available at: www.gov.uk/government/statistics/english-indices-of-deprivation-2015

2 The IMD data are presented by location of the school.

Source: NHS Digital *National Child Measurement Programme, England in the 2018/19 school year [Accredited National Statistics]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year

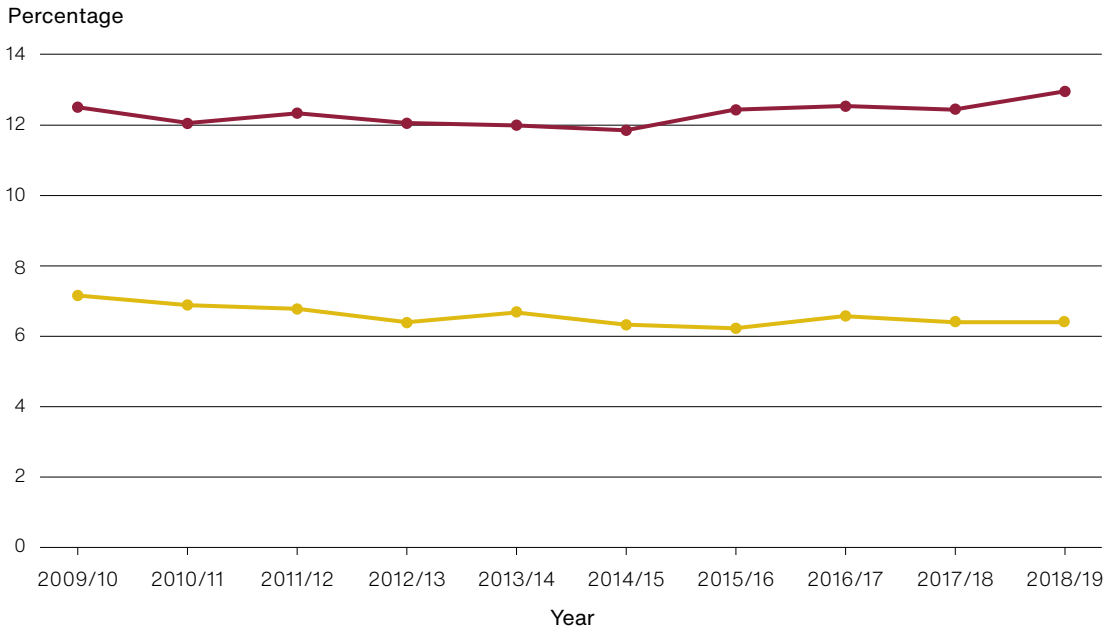
1.11 Between 2009/10 and 2018/19, obesity rates for children in the most deprived areas have increased, particularly in older children (**Figure 7** and **Figure 8** overleaf):

- Across 4 to 5 year olds, the gap has increased from 5.3% to 6.5% from 2009/10 to 2018-19, with a slight decrease in the proportion of children classified obese in the least deprived areas (7.2% to 6.4%), and a slight increase in those in the most deprived areas (12.5% to 12.9%).
- Across 10 to 11 year olds, the gap has increased from just under 10% to nearly 14% from 2009/10 to 2018/19. The proportion of children classified obese in the least deprived areas has decreased slightly from 13.6% to 13% over the same period. The proportion of children classified obese in the most deprived areas has increased from 23.5% to 26.9%.

Figure 7

Rates of obesity in 4 to 5 year olds in England by deprivation, from 2009/10 to 2018/19

The gap in obesity rates between younger children in the most and least deprived areas has increased



	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
1 (most deprived)	12.5	12.1	12.3	12.1	12.0	11.9	12.4	12.5	12.4	12.9
10 (least deprived)	7.2	6.9	6.8	6.4	6.6	6.3	6.2	6.6	6.4	6.4

Note

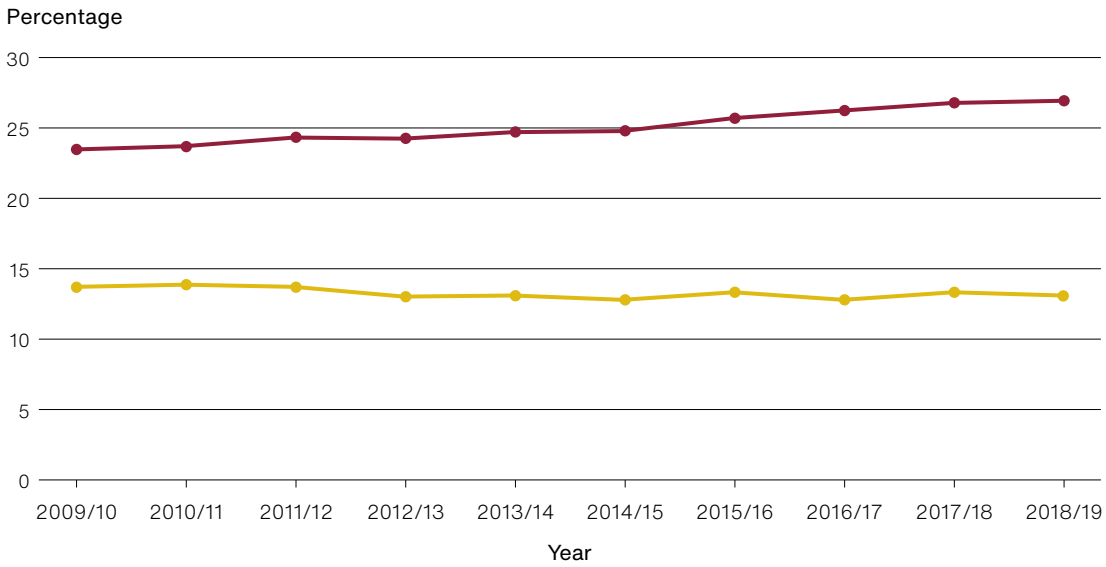
1 The Index of Multiple Deprivation (IMD) data are presented by location of the school.

Source: National Audit Office analysis of NHS Digital *National Child Measurement Programme, England 2018/19 School Year [NS]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year

Figure 8

Rates of obesity in 10 to 11 year olds in England by deprivation from 2009/10 to 2018/19

Obesity rates have increased in older children from the most deprived backgrounds and the gap between older children in the most and least deprived areas has increased



	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
1 (most deprived)	23.5	23.7	24.3	24.2	24.7	24.8	25.7	26.2	26.7	26.9
10 (least deprived)	13.6	13.8	13.7	13.0	13.1	12.7	13.3	12.8	13.3	13.0

Note

1 The Index of Multiple Deprivation (IMD) data are presented by location of the school.

Source: National Audit Office analysis of NHS Digital *National Child Measurement Programme, England 2018/19 School Year [NS]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2018-19-school-year

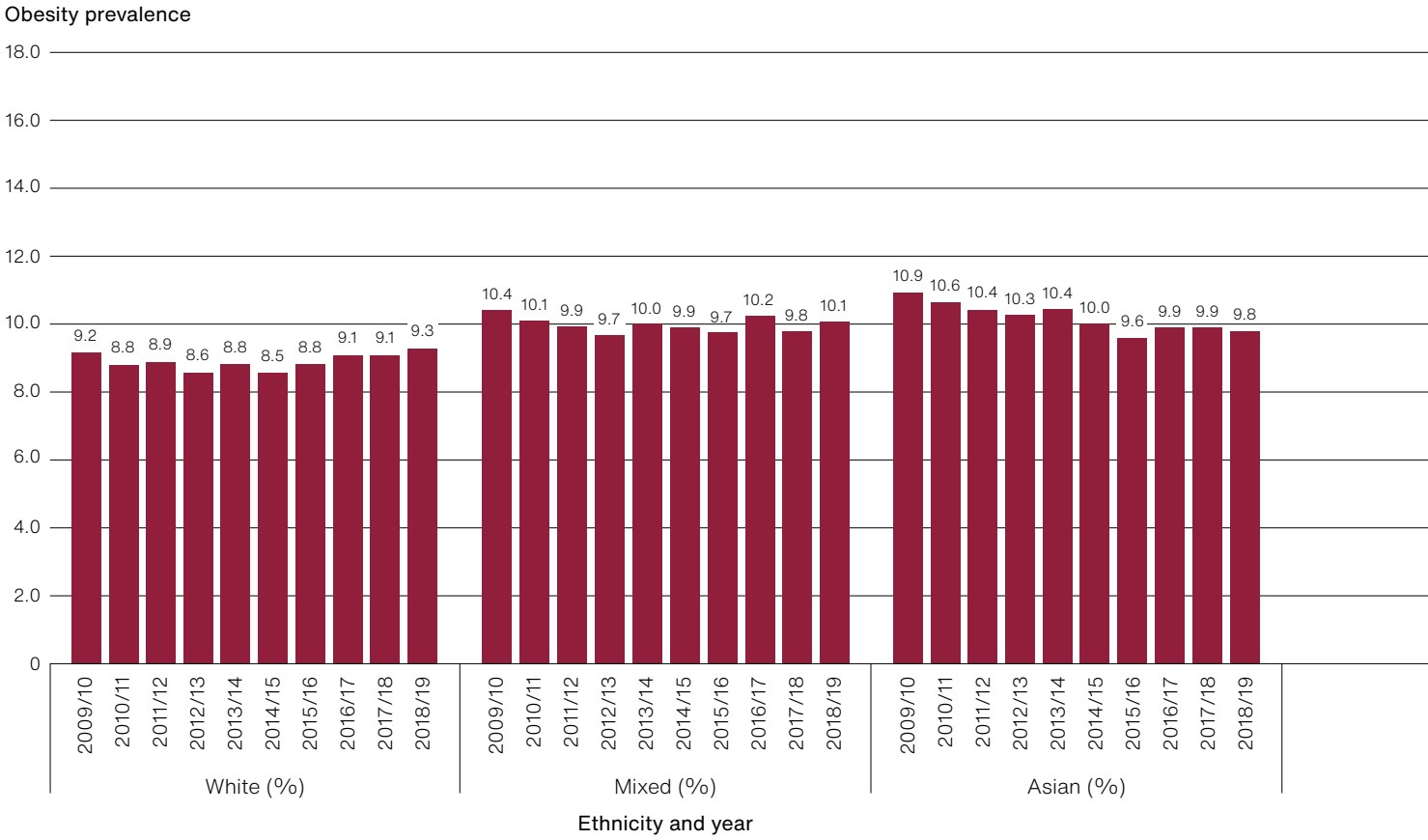
Ethnicity

1.12 Obesity rates vary in children in different ethnic groups at both age 4 to 5 and age 10 to 11. For example, just over 9% of white children were classified obese in 2018/19 at age 4 to 5, compared with more than 15% of black children. These rates increase to more than 18% and nearly 29% respectively by age 10 to 11 and the gap with white children is worsening. Rates vary from the England average in black 4 to 5 year olds and 10 to 11 year olds, and Asian 10 to 11 year olds (**Figure 9** on pages 24 and 25 and **Figure 10** on pages 26 and 27). Some of this variance will be due to deprivation, as ethnic minorities are over-represented in deprived areas. Public Health England (PHE) and the Department of Health & Social Care (the Department) are aware that obesity varies across different ethnic minorities but do not know the extent to which deprivation impacts on the variance in obesity seen in ethnic minorities. PHE and the Department acknowledge that there is a difficult relationship between deprivation, ethnicity and obesity and that further research is required. There may be other factors that are causing the differences in childhood obesity rates across ethnic groups which need different responses from central and local government.

Figure 9

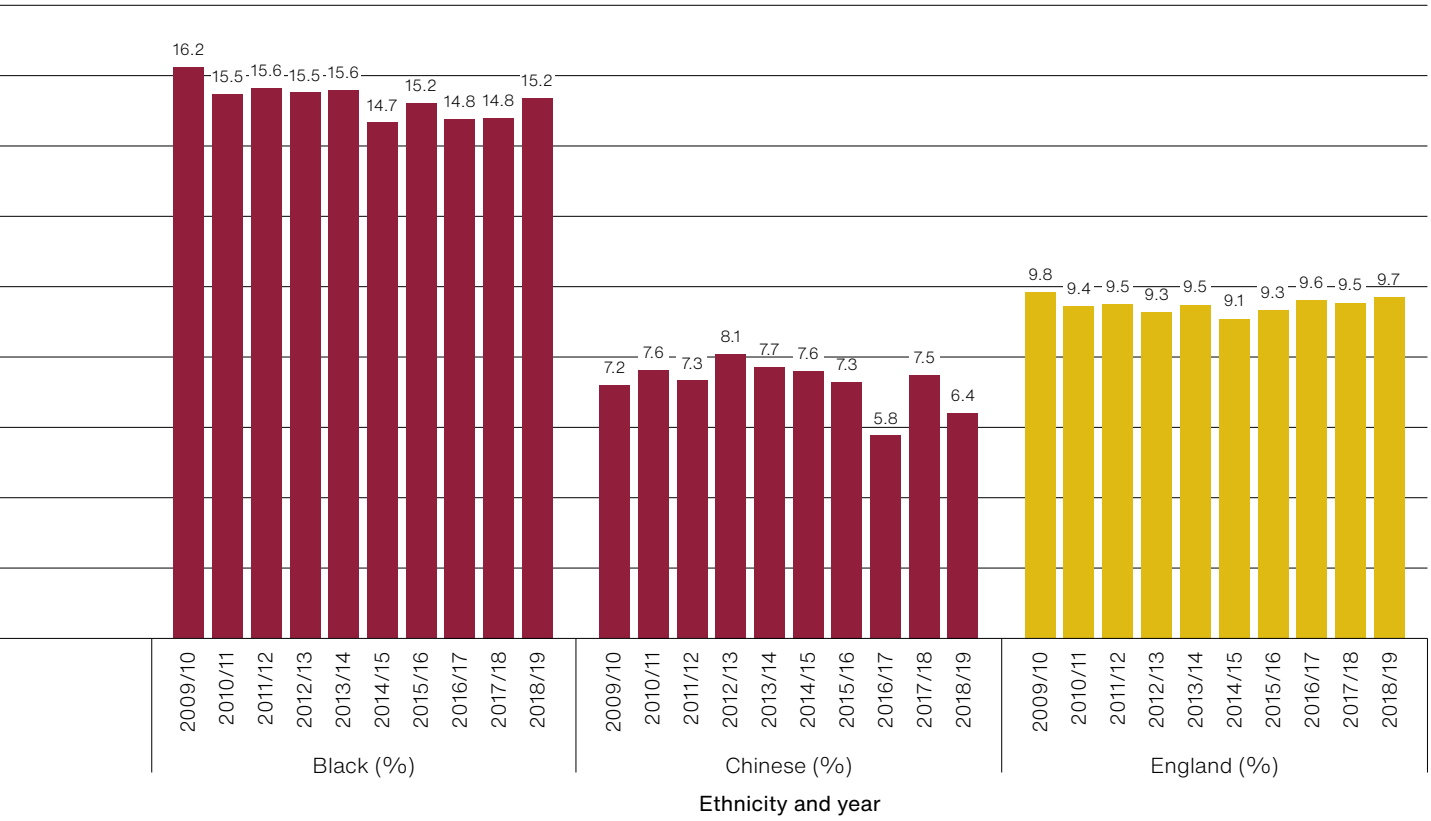
Rates of obesity by ethnic group in 4 to 5 year olds in England from 2009/10 to 2018/19

There are considerable variances in the rates of obesity in children in different ethnic groups



- Obesity prevalence in children aged 4 to 5 years
- Obesity prevalence in children aged 4 to 5 years – England overall

Source: National Audit Office analysis of data available across years 2009/10 to 2018/19 NHS Digital *National Child Measurement Programme, England 2018/19 School Year [NS]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme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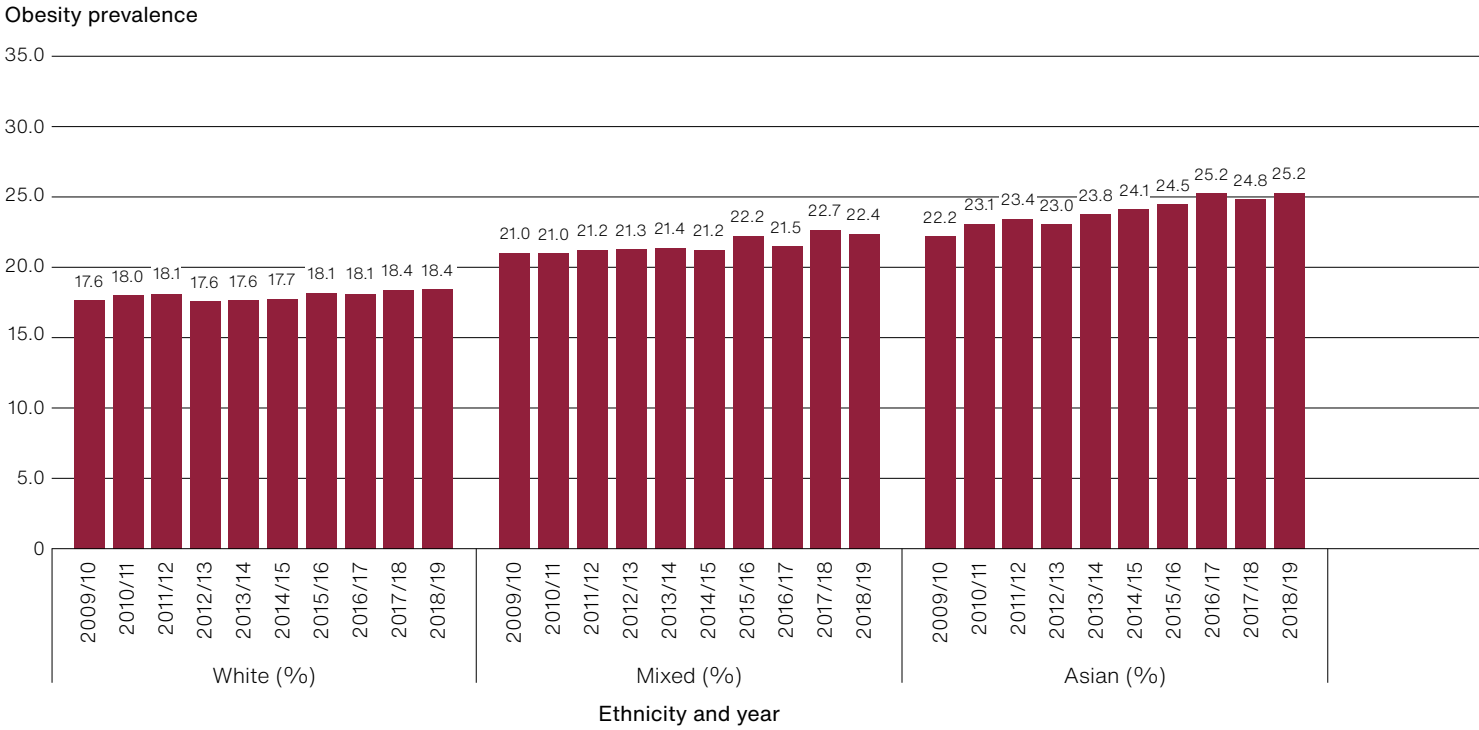
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
Black (%)
Chinese (%)
England (%)
Ethnicity and year

Figure 10

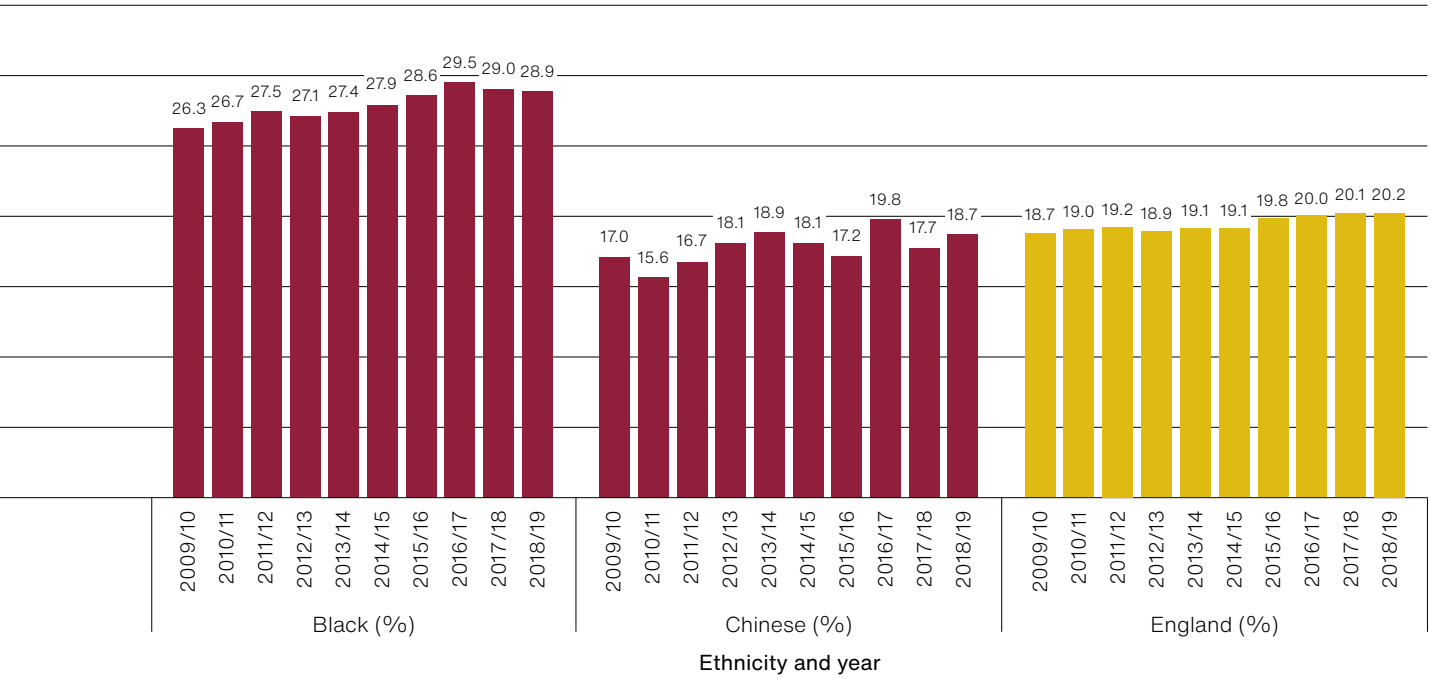
Rates of obesity by ethnic group in 10 to 11 year olds in England from 2009/10 to 2018/19

There are considerable variances in the rates of obesity in children in different ethnic groups



- Obesity prevalence in children aged 10 to 11 years
- Obesity prevalence in children aged 10 to 11 years – England overall

Source: National Audit Office analysis of data available across years 2009/10 to 2018/19 NHS Digital *National Child Measurement Programme, England 2018/19 School Year [NS]*, October 2019, available at:
https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme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20.1
20.2
2009/10
2010/11
2011/12
2012/13
2013/14
2014/15
2015/16
2016/17
2017/18
2018/19
Black (%)
Chinese (%)
England (%)
Ethnicity and year

Part Two

Central government's approaches to reducing childhood obesity

2.1 This part of the report examines:

- government's previous approaches to reducing childhood obesity;
- the current Childhood Obesity Programme (the programme), including the evidence base for the actions and interventions in the programme; and
- central government co-ordination of approaches to reduce childhood obesity.

2.2 In the simplest terms, obesity is caused by energy intake (through food) exceeding energy use (through activity). The report by the Government Office for Science's Foresight Programme, *Tackling Obesities: Future Choices* (2007) (the Foresight report), concluded that the multifactorial and long-term nature of obesity means that policies aimed at individuals and small-scale interventions will be inadequate (**Figure 11** on pages 30 and 31). Instead, a system wide approach which looks across relevant influences, including food and drink production, food and drink consumption, physical activity and biology, is needed to produce and promote healthy diets, redesign environments as well as encourage more active lifestyles and cultural changes around food and activity. Since its publication, successive governments have used the Foresight report as a starting point for their approaches to tackling obesity.

Government's previous actions to tackle childhood obesity

Healthy weight, healthy lives

2.3 In January 2008, the government published *Healthy weight, healthy lives: a cross-government strategy for England* (healthy weight, healthy lives). This was in response to the prediction in the Foresight report that nearly 60% of the UK population would be obese by 2050. This strategy aimed to, by 2020, reduce the proportion of overweight and obese children to 2000 levels. In 2008, some 14.6% of 2 to 10 year olds and 18.7% of 11 to 15 year olds were classified obese. The data for the year 2000 indicated that some 13.4% of 2 to 10 year olds and 18% of 11 to 15 year olds were classified obese. The strategy included additional funding of £372 million over the period 2008 to 2011, including £75 million for a three-year social marketing programme around Change4Life.

2.4 The government did not fully evaluate the impact of the healthy weight, healthy lives report. However, a 2012 independent academic evaluation of the Change4Life campaign found that while the campaign materials achieved increases in awareness of the campaign, they had little impact on attitudes or behaviour.[7]

Healthy lives, healthy people and the Responsibility Deal

2.5 In 2011, the new government declared that a new way of looking at and tackling obesity was needed to tackle childhood obesity. This new approach was *Healthy lives, healthy people: a call to action on obesity in England*. This set a challenging ambition to achieve a sustained downward trend in the level of excess weight in children by 2020. In 2010/11, 9.4% of 4 to 5 year olds and 19% of 10 to 11 year olds were classified obese. The strategy also extended to adults and emphasised the roles of individuals in taking responsibility for their health and taking action to manage their weight. It was part of the government's new public health strategy, which included the creation of Public Health England (PHE) and the transfer of public health duties to local authorities (see Part Three).

2.6 This new approach to obesity had four main components:

- empowering individuals through provision of improved guidance and information;
- involving partners such as the food and drink industry, including through the 'Responsibility Deal' which sought to get businesses to sign up to a series of commitments and pledges, including on food;
- giving local government the lead role in driving health improvement and the freedom to determine the approaches most suitable in local areas; and
- building the evidence base for the effectiveness and cost-effectiveness of interventions.

2.7 As with *Healthy weight, healthy lives*, the government did not fully evaluate the success of this strategy although it did assess some elements. When the London School of Hygiene and Tropical Medicine provided an independent review of the wider Responsibility Deal in 2015[8] it found that:

- some of the interventions proposed could contribute to improving people's diets if fully implemented but it was difficult to establish whether this had happened because of a lack of consistency in reporting;
- in many cases, businesses had already started interventions reported as part of the Responsibility Deal before it began; and
- many interventions likely to be most effective in improving diet were not consistently reflected in the pledges in the Responsibility Deal.

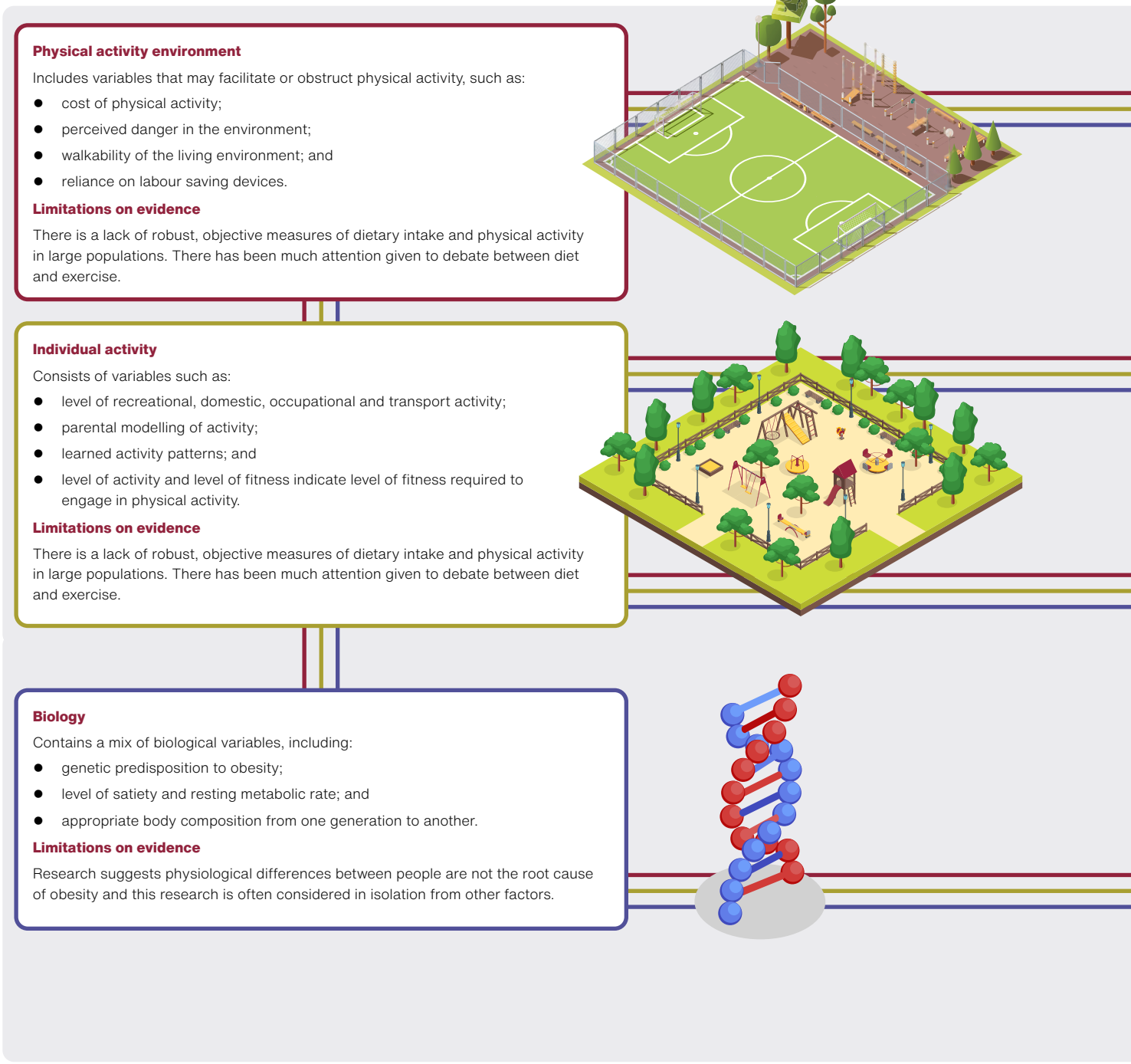
7 H Croker, 'Cluster randomised trial to evaluate the 'Change for Life' mass media/social marketing campaign in the UK', BMC Public Health vol. 12, (2012) https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-12-404

8 C Knai et al (2015), 'Has a public–private partnership resulted in action on healthier diets in England? An analysis of the Public Health Responsibility Deal food pledges'. Food Policy, vol 54. pp. 1-10, July 2015.

Figure 11
The causes of obesity are complex

The Foresight report highlighted the complexity of the obesity problem, that causes are multifaceted and relational and demonstrated the need for a long-term and system wide approach

Environmental Individual Biological



Source: National Audit Office analysis of The Government Office for Science Foresight Programme, *Tackling Obesities: Future Choices*, October 2007

Food production

Includes many drivers of the food industry and reflects the wider social and economic situation, including:

- pressure for growth and profitability;
- market price of food;
- cost of ingredients; and
- purchasing power and societal pressure to consume.

Limitations on evidence

The declining price of food, rise in convenience food markets and an increasing variety of techniques for promotional marketing mean that access to food and drink has increased. However, the evidence is limited and is focused on retail access.

Food consumption

Includes characteristics of the food market in which consumers operate:

- level of food abundance and variety;
- nutritional quality of food and drink; and
- energy density of food and portion size.

Limitations on evidence

There is a lack of robust, objective measures of dietary intake and physical activity in large populations. There has been much attention given to debate between diet and exercise.

Social psychology

Includes variables that have influence at the societal level, including:

- education;
- media availability and consumption; and
- social acceptability of fatness and importance of body size image.

Limitations on evidence

While highlighting the importance of habits, organisational and individual, some patterns of behaviour change quickly, such as what is fashionable at any one time.

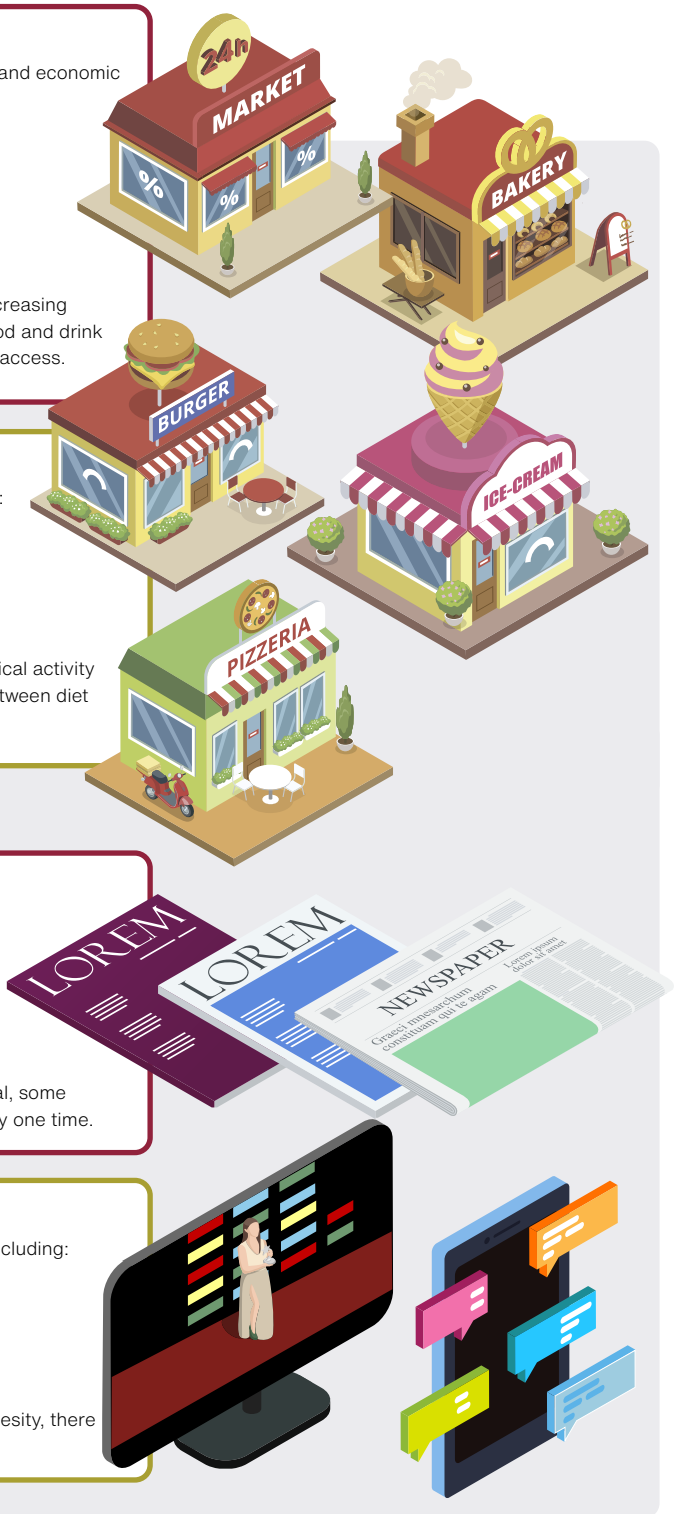
Individual psychology

Contains variables that describe a number of psychological attributes including:

- self-esteem and stress;
- demand for indulgence and level of food literacy; and
- level of parental control and level of children's control of diet.

Limitations on evidence

While there is evidence to suggest early life determines future risk of obesity, there are uncertainties surrounding this evidence.



The impact of the 2008 and 2011 strategies on childhood obesity

2.8 These strategies had limited impact on reducing the level of childhood obesity. Neither were on track to achieve a sustained reversal in the trend in obesity by 2020 and have since been superseded. There was more progress with stemming the increase of obesity in younger children (**Figure 12**).

The current approach

The childhood obesity plan

2.9 Starting in 2016 the government set out a new commitment to reduce childhood obesity with its childhood obesity plan (the plan). The plan is detailed in chapters one (2016), two (2018) and three (in the Prevention Green Paper, 2019).[9] The plan has a stretching goal from 2018 to halve childhood obesity by 2030 (which at 2017/18 rates would be to reduce levels to 4.8% in 4 to 5 year olds, and 10% in 10 to 11 year olds).[10] It also aimed to reduce the gap in obesity between children from the most and least deprived areas but did not state a target. In its 2019 State of the World's Children report, the United Nations Children's Fund (UNICEF), concluded that even though much remains to be done to tackle childhood obesity, the UK is paving the way to ensure that all children grow up in a healthy food environment.[11]

2.10 The policies set out in the plan have formed the programme. The programme is large and contains some 40 projects organised into three themes:

- sugar, calories and reformulation;
- marketing and promotions of food and drink; and
- education, local area action and supporting actions.

2.11 Not all of the projects were new to the childhood obesity plan. Some projects preceded the plan and became subsumed into the programme because they were considered to have some impact on childhood obesity even if it was not a specified objective. Many of these older projects have wider objectives than reducing childhood obesity and their impact on obesity is tangential. For example, the Bikeability project was launched in 2007 to encourage children to cycle and is part of the Department for Transport's (DfT's) cycling and walking investment strategy.

9 The Department of Health & Social Care, *Childhood obesity: a plan for action* (2016); The Department of Health & Social Care, *Childhood obesity: a plan for action* chapter 2 (2018); The Department of Health & Social Care, *Advancing our health: prevention in the 2020s* (2019).

10 Based on data for 2015/16.

11 UNICEF, State of the World's Children Report – Children, Food and Nutrition – October 2019), available at www.unicef.org/media/61356/file/SOWC-2019.pdf

Figure 12

Aims and achievements of previous government strategies to reduce childhood obesity

Previous strategies have not achieved most planned outcomes

Strategy	Aim	Target level of obesity	Current level of childhood obesity
Healthy weight, healthy lives (2008)[1]	By 2020: reduce the proportion of obese children to 2000 levels.	Less than: 13.4% of 2 to 10 year olds 18% of 11 to 15 year olds	As of 2017: 13.1% of 2 to 10 year olds 21.4% of 11 to 15 year olds
Healthy lives, healthy people (2011)[2]	By 2020: a sustained downward trend in the level of excess weight in children	Decrease from: 9.4% of 4 to 5 year olds 19% of 10 to 11 year olds	As of 2018/19: 9.7% of 4 to 5 year olds 20.2% of 10 to 11 year olds

Notes

1 Data are from the NHS Digital *Health Survey for England 2018*, December 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2018 to enable comparison with 2000 data.

2 NHS Digital *National Child Measurement Programme, England 2018/19 School Year [NS]*, October 2019, available at: https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme.

Source: National Audit Office analysis of Cross-Government Obesity Unit, Department of Health and Department of Children, Schools and Families, *Healthy Weight, Healthy Lives: a Cross-Government Strategy for England*, January 2008 and Department of Health, *Healthy Lives, Healthy People: A call to action on obesity in England*, October 2011

2.12 As with the 2008 and 2011 strategies, the programme follows the direction set out in the 2007 Foresight report and incorporates some learning from past strategies. Many of the programme's interventions repeat the focus of previous strategies, for example healthy eating in schools, physical activity, advertising restrictions and food and drink purchased by the public sector. The Department of Health & Social Care (the Department) has not fully evaluated whether these older strategies and interventions successfully reduced childhood obesity. Therefore, it will struggle to prioritise actions or apply lessons from past strategies to its new approach with confidence of success. PHE notes that the programme is moving from voluntary to more legislative measures and has clear monitoring of delivery.

2.13 While the programme has similar themes and interventions to its predecessors, it also represents a change in approach to implementing those interventions. The programme, unlike its predecessors, includes legislative and regulatory interventions, such as the Soft Drinks Industry Levy (SDIL – also known as the 'sugar tax') and consultations on banning price promotions. HM Treasury introduced this tax in March 2016 on sugary drinks which became law in 2018. The aim of the tax was to encourage industry to reduce sugar in certain drinks. Some interventions continue to rely on self-assessment or voluntary participation even though an evaluation of the voluntary 'responsibility deals' from the 2011 strategy found limitations with this approach including a lack of reporting of progress.[12] PHE notes that it is unlikely that a single action would be effective in reducing sugar intakes and it is important to have a range of interventions.

12 See footnote 8.

2.14 However, interventions grounded in legislation, once they have moved past the consultation stage, need to be implemented and enforced to be effective. For example, the Department for Education (DfE) is currently updating the Schools' Food Standards which place restrictions on salt, fat and sugar in school meals. These standards are mandated by legislation but only apply to maintained schools[13] and academies that were founded before 2010 and after June 2014.[14] However, DfE does not monitor whether schools comply with the current legislative requirement.

2.15 Since its introduction in 2016, the programme has focused on sugar reduction. However, excess sugar in the diet is not the only driver of obesity which is caused by consuming more calories than are used. The government set a 20% challenge for industry to reduce sugar in food most commonly eaten by children by 2020 with a reduction in calories "if possible" and no increases in saturated fat. In 2018, PHE published evidence on the need to take action to reduce calories in foods and the overarching ambition for the programme. Subsequently, the Department included a new ambition for industry to reduce calories in foods that contribute significantly to children's calorie intakes by 20% by 2024 and aimed for PHE to issue guidelines in 2019. PHE has not yet done so, but intends to publish final guidance for industry on achieving the government's ambition for calorie reduction later in 2020, along with timeframes for reporting progress.

2.16 On 27 July 2020, the government announced a new strategy on obesity for adults and children. This was partly in response to evidence indicating that people who are overweight or obese who contract COVID-19 are more likely to be admitted to hospital, to an intensive care unit and to die from COVID-19 compared with those of a healthy body weight. This pledged to take forward some elements of the existing programme, such as the 9pm advertising watershed. However, it did not include other elements of the programme which have not been implemented at that time, for example, the ban on selling energy drinks to children which the Department commited to in July 2019. The Department's consultation on this proposal ended in November 2018, but the Department had not published its response, policies for, or timescales for implementation as of July 2020. The main elements of the new strategy are:

- a 'call to action' for everyone who is overweight to take steps to move towards a healthier weight, with tools and apps with advice on how to lose weight and keep it off;
- working to expand weight management services available through the NHS, so more people get the support they need to lose weight;
- publishing a four nation public consultation to gather views and evidence on the current 'traffic light' label to help people make healthy food choices;

13 Maintained schools are those funded and controlled by a local authority.
14 For most academies founded between 2010 and 2014 the Department for Education's financial agreement specifies that the academies comply with the school food standards.

- introducing legislation to require large out-of-home food businesses, including restaurants, cafes and takeaways with more than 250 employees, to add calorie labels to the food they sell;
- consulting on the intention to make companies provide calorie labelling on alcohol;
- legislating to end the promotion of foods high in fat, sugar or salt by restricting volume promotions such as buy one get one free, and the placement of these foods in prominent locations intended to encourage purchasing, both online and in physical stores in England; and
- banning the advertising of foods high in fat, sugar or salt being shown on TV and online before 9pm and holding a short consultation as soon as possible on how to introduce a total restriction of advertising foods high in fat, sugar or salt online.

The involvement of other departments

2.17 Several government departments have roles and responsibilities in the programme (**Figure 13** overleaf). The Department oversees and co-ordinates the programme. It has direct responsibility for many projects in the programme along with PHE. Other departments, including DfE, DfT, HM Treasury and the Department for Digital, Culture, Media & Sport (DCMS) are responsible for delivering projects in the programme.

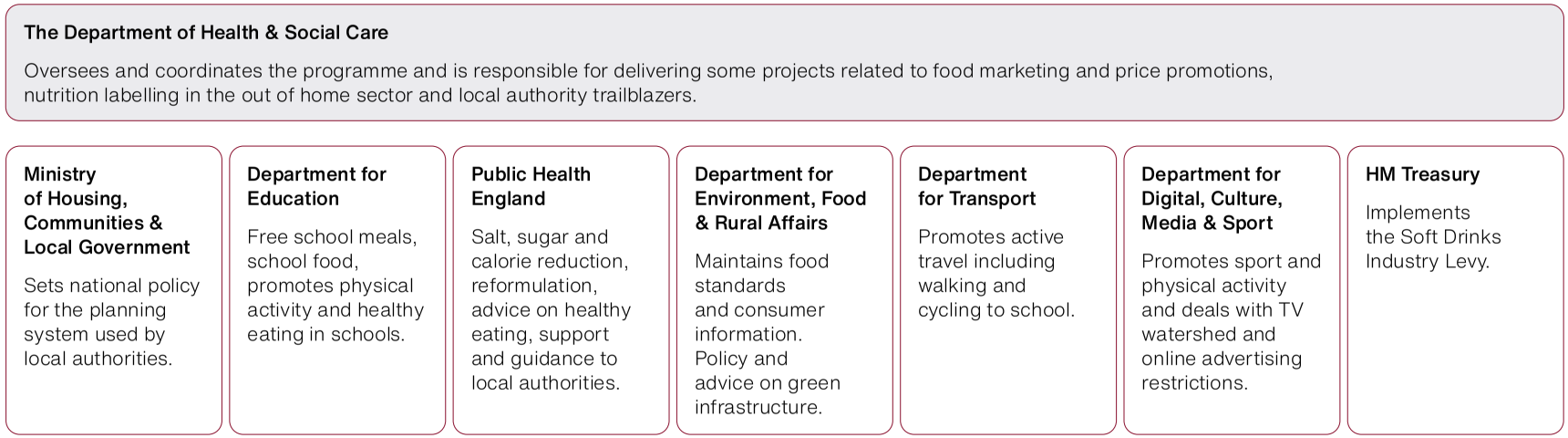
2.18 NHS England & NHS Improvement (NHSE&I) has no formal role in the programme, which focuses on prevention. With the transfer of public health responsibilities from the NHS to local authorities from 2013, the NHS's main role has been to respond to, manage and commission services which treat medically diagnosed conditions linked to obesity such as type 2 diabetes, rather than provide community based preventive services, for which the responsibility now largely fall to local authorities. GPs can play a role in dealing with obesity and there is also early evidence which indicates that when GPs refer patients to weight management services, patients lose weight. In January 2019, the NHS's Long Term Plan set out some changes to how the NHS will help reduce obesity. These actions mainly focus on adults and focus on treatment of conditions with a focus on improving diet. The Plan had:

- a commitment to expand the type 2 Diabetes Prevention Programme;
- greater emphasis on training on nutrition in medical training;
- encouragement for hospitals to provide healthier food and drink options; and
- an expectation that by 2022-23 the NHS would treat up to a further 1,000 children a year for severe complications related to their obesity, such as type 2 diabetes, cardiovascular conditions, sleep apnoea and poor mental health.

Figure 13

Organisation of the Childhood Obesity Programme

Several government departments are involved in the Childhood Obesity Programme



Source: National Audit Office analysis of the Childood Obesity Programme governance arrangements

2.19 In autumn 2020, NHSE&I will begin to pilot low calorie diets on the NHS in 10 Sustainability and Transformation Partnership/ Integrated Care System areas to help adults diagnosed with type 2 diabetes lose weight and to achieve remission from their diabetes through a 12-month, low calorie weight-loss programme which involves the provision of total diet replacement products and behavioural change support.

2.20 The Department has developed the governance for the programme. All partners report progress (which the Department collates into quarterly progress reports) and attend regular working-level meetings. There is very limited engagement by senior officials other than those in the Department and PHE. Governance includes:

- monthly working group progress meetings (all partners able to attend);
- quarterly reporting of projects (returns from all partners);
- quarterly progress meetings (all partners able to attend); and
- six weekly programme board meetings with the senior responsible owner, the Department and PHE.

2.21 While the Department oversees the programme, it has few mechanisms to influence the performance and engagement of other departments. The senior responsible owner is not able to hold other departments to account for delivering the planned outcomes of their projects. Due to the cross-government nature of the programme, accountability is fragmented as many projects in the programme have wider objectives and sit outside of the Department's control. While the Department has developed an overall governance structure for the programme, projects delivered by other departments are subject to their own departmental governance, accountability and monitoring arrangements and have different priorities for delivery. There are no mechanisms to help the Department manage the risks that arise from this limited control.

2.22 There is limited awareness and co-ordination within government of wider activities that may impact on childhood obesity levels. The programme covers many of the influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations including food and drink production and marketing, physical activity and food and drink in the public sector. There are wider factors and activities that can impact on obesity levels, such as sponsorship of sporting events by the food industry. These are not projects as such and so may not easily fit into the programme. However, currently there is no co-ordination of these activities across government to ensure that they are compatible with the overall aim of reducing childhood obesity and there are no plans to introduce some co-ordination.

Evidence for key interventions

2.23 In 2007, the Foresight report concluded that there were significant gaps in the evidence base for effective interventions for obesity prevention and emphasised the need for future strategies to evolve in response to new evidence. It noted the evidence available was heavily biased towards the causes of obesity rather than effective prevention. In response to the Foresight report, the Department committed to take forward a research agenda on obesity. However, the Department did not act on that commitment for several years. In 2017, it sponsored the creation of the National Institute of Health Research's (NIHR) Obesity Policy Research Unit to provide a research base for policies into obesity.

2.24 The Department developed chapter 1 of the childhood obesity plan before it created the Obesity Policy Research Unit. PHE generated and brought together much of the available evidence base to support actions in response to the Scientific Advisory Committee on Nutrition's report on carbohydrates and health, some of which formed the programme. The programme was launched with an understanding that it would need to "learn by doing" and develop interventions where there may be no existing evidence base. It would be unrealistic to expect there to be detailed evidence for every intervention. This will particularly be the case for innovative approaches which have not been widely applied or in place for long enough to have been adequately evaluated, such as interventions aimed at very young children (as in the early years project).

2.25 Our high-level review of the evidence base for, or evaluations of, interventions in the programme suggests that the focus of interventions, for example, calorie reduction, is largely right. However, the evidence base that the type of intervention used will reduce childhood obesity rates is more mixed. Some of the interventions have evidence of their effectiveness while for other interventions in the plan, the evidence is limited or conflicting.[15] For example:

- **Sugar reduction** – industry to voluntarily reduce sugar in food most commonly eaten by children. The salt reduction programme indicates this approach can work. However, a review of the 'Responsibility Deal' (paragraph 2.7 above) concluded that type of voluntary approach has limited success.[i,ii] PHE's review in September 2019 showed a 2.9% reduction in sugar across products, against a target of 20% by 2020.
- **Calorie reduction** – industry to voluntarily reduce calories in certain foods. There is a proven link between excess calorie consumption and weight gain.[iii] The salt reduction programme indicates this approach can work. A review of the 'Responsibility Deal' concluded that type of voluntary approach has limited success.[i,ii]

15 See paragraph 9 in Appendix Two for a list of sources.

- **Soft Drinks Industry Levy** – a tax on drinks with high sugar content. While there is not extensive evidence, the evidence available suggests fiscal measures and price increases would lead to consumers buying less.[iv] PHE's review of the Levy in September 2019 showed a 28.8% reduction in sugar in drinks that were within the scope of the Levy.

- **Restriction of promotions of products high in fat, sugar and salt by location and price**. Evidence shows that food and drinks high in sugar are more likely to be promoted and get shoppers to buy more than would otherwise be the case.[v]

- **9pm watershed for advertising products high in fat, sugar and salt**. Evidence suggests that advertising products high in fat, sugar and salt is more prevalent on TV than other food and drink product advertising. While children's exposure to advertised food high in fat, sugar and salt has fallen by more than 70% since some advertising restrictions were introduced in 2007,[vi, vii] there is also evidence that industry may respond to further regulation by changing advertising strategies.[viii] As there has been no overall reduction in obesity rates, this makes the extent of the impact of the watershed uncertain.

- **Out of home sector** – nutritional labelling on menus. A Cochrane review of existing evidence "tentatively suggested" that nutritional labelling on menus in restaurants could be used as part of a wider set of measures to tackle obesity. It noted that more high-quality research in real-world settings was needed to enable more certain conclusions. Another review concluded that calorie labelling alone was unlikely to reduce calories consumed, although providing further contextual or interpretive information, such as reference to recommended daily calorie intakes, traffic light symbols, or exercise equivalents may help.[ix, x]

- **Expansion of school breakfast clubs in lower income areas**. Reviews of breakfast clubs showed some schools struggled to attract children from the targeted demographics. Most schools perceived clubs result in pupils eating more healthily but weight was not measured.[xi, xii]

- **Active travel and physical activity in schools (such as Bikeability/Daily Mile and so forth**) Research on the Daily Mile in 40 schools showed a small and non-significant reduction in BMI (body mass index). A small study showed some improvements in body composition.[xiii] A review of Bikeability in 2019 showed a positive impact on numbers of children cycling but did not assess impact on weight.[xiv]

Responding to the links with deprivation and ethnicity

2.26 There is a clear link between childhood obesity and deprivation and children living in deprived areas are more likely to be obese (see paragraphs 1.10 and 1.11). This problem is worsening and it will take considerable effort to reverse this trend without resolving the problem of relative deprivation itself. The childhood obesity plan recognises the link between childhood obesity and deprivation and has an objective to: 'significantly reduce the gap in obesity between children from the most and least deprived areas by 2030'. It did not state a specific target for that reduction.

2.27 Few of the interventions in the programme specifically address deprivation. The Department and PHE consider that population wide measures, such as the SDIL, can have disproportionately positive effects upon reducing obesity among the most deprived communities with higher levels of obesity. However, it is not clear if the programme will have sufficient positive impact on obese children in more deprived areas. School breakfast clubs and Sport England's Families Fund target families in deprived areas. Other interventions, such as sugar reduction are targeted at the whole population. PHE has a general commitment to reduce health inequalities and aims to incorporate the reduction of inequalities in all aspects of its work but this is not a specific part of its remit in the programme. PHE and the Department regard local authorities as having a key role in targeting interventions to address deprivation as part of their public health duties. Their role is discussed in Part Three.

2.28 None of the national interventions in the programme target ethnic minorities even though some ethnic groups see higher levels of childhood obesity (paragraph 1.12). PHE and the Department regard working with ethnic minorities to reduce childhood obesity as the remit of local authorities rather than that of central government. One of the five local authorities selected as 'trailblazers' to lead innovative local actions to tackle childhood obesity (paragraph 3.8) is targeting specific ethnic and religious groups. PHE told us that while some ethnic groups have higher rates of childhood obesity than the national average, at a population level, these are small numbers of children and therefore action led by local authorities targeted to the local population is more likely to be effective. The Department and PHE acknowledge that they will have to keep this approach under review.

Expenditure and funding

2.29 Funding for the Childhood Obesity Programme comes from various sources. The Department's budget for managing the programme for 2019-20 was £2.2 million which included funding to PHE for work to have industry reduce sugar levels in food and external evaluation of the programme. It also funds specific interventions in the programme as does PHE.

2.30 Four other government departments directly fund interventions in the programme. This includes:

- DfT contributed funding of £12.5 million and £620,000 respectively in 2018-19 to the Bikeability and Walk to School projects; and
- the Sport England Families Fund received up to £40 million of National Lottery funding to invest in projects meeting the criteria [over four years from 2018];

2.31 This funding structure means the Department lacks control over most of the money spent in the programme, further weakening how it can influence other departments' performance in delivering projects. It also hampers the Department's ability to shape the programme and focus interventions. For example, the Department does not determine on what the income from the SDIL is spent – some £240 million in 2018-19. This funding has been linked to a number of health interventions including doubling DfE's Sports Premium which aims to help primary schools improve PE, sports and physical activity.

2.32 The Department has not been tasked to monitor or know how much is spent on tackling childhood obesity annually across government through the programme. Monitoring spend on childhood obesity is complicated because many interventions often have wider objectives than simply reducing rates of obesity and so it is difficult to attribute the element of that spend to obesity reduction. There is no government wide understanding on what has been spent on tackling childhood obesity.

Progress to date

2.33 Government departments have made varying progress with projects within the scope of the programme. Due to COVID-19, consultations and work on the programme was paused for four months. We have set out details of the progress made with some of the most high-profile new interventions introduced by the programme in **Figure 14** overleaf.

2.34 As set out in Part One, rates of obesity have not reduced since the development of the programme in 2016 which is not surprising given the timescales. While it is too early to make any connection between new interventions and rates of childhood obesity, the Department has undertaken some theoretical analysis of the potential impact of the programme on obesity rates. However, impact is difficult to measure and the Department has admitted that there is significant uncertainty in its analysis.

Figure 14

Childhood obesity interventions introduced by the Childhood Obesity Programme

Government departments have made varying progress with projects within the Childhood Obesity Programme

Intervention	Progress
Introduce a Soft Drinks Industry Levy	**Implemented in 2018.** Led to a 28.8% reduction in sugar in drinks that are in the scope of the Levy. Brought in £240m of revenue in 2018-19. HM Treasury to consider bringing other products in scope in 2020.
Take 20% of sugar out of food most commonly eaten by children by 2020	**Ongoing (ambition will not be met).** 2.9% reduction in sugar across products by September 2019 against the 20% ambition. Industry made better progress with some products but others had increased sugar content. Public Health England was due to publish the latest progress in the first half of 2020 but now intends to publish later in 2020. The Department of Health & Social Care will consider further action if industry does not make sufficient voluntary progress.
End the sale of energy drinks to children	**Consultation response delayed.** Consultation ran from August to November 2018. In July 2019, the Department of Health & Social Care committed to its implementation, but has not yet published its response to the consultation, policies for, or timescales for implementation.
Take 20% of calories out of food that contribute significantly to children's intakes by 2024	**Ongoing (no progress report to date).** Public Health England published its scope in March 2018 and undertook stakeholder engagement in autumn 2018 but has not yet reported specifically on progress. The latest progress report on sugar found no change in calories in products consumed on a single occasion in-home, and a 1.8% increase in the out of home sector. Public Health England has engaged with stakeholders on this and intends to publish final guidance for industry on achieving the government's ambition for calorie reduction in 2020 along with timeframes for reporting progress.
Introduce consistent nutritional labelling in the out of home sector	**Measure announced in July 2020.** Consultation ran from September to December 2018 and was one of seven measures the government announced in July 2020. No date for implementation given at the time of announcement.
Introduce a 9pm advertising watershed on TV and online for products high in fat, sugar and salt	**Measure announced in July 2020.** Consultation ran from March to June 2019 and was one of seven measures the government announced in July 2020 with implementation by the end of 2022.
Review online advertising rules for unhealthy foods	**Implemented.** The Committee of Advertising Practice reviewed the rules in July 2018 and published the response to its consultation in July 2020.
Restrict promotions of products high in fat, sugar and salt by volume, location and price	**Measure announced in July 2020.** Consultation ran from January 2018 to April 2019 and was one of seven measures the government announced in July 2020. No date for implementation at the time of the announcement.

Source: National Audit Office analysis

The potential impact of COVID-19

2.35 The impact of COVID-19 and the restrictions on children's activities and schooling is unlikely to be known for many months. The impact is likely to be varied for different children depending on their experiences during lockdown. During the lockdown, most children were unable to go to school and therefore unable to participate in school-based physical activities and access services such as breakfast clubs and free school meals. However, children may also have been more active at home, for example, through 'daily exercise', and their diets may have improved as a result of restrictions on eating out.

Evaluation plans

2.36 The Department has an overarching evaluation framework for the programme which will require sufficient funding and commitment if it is to be successful. Its planned approach to evaluation is stronger than that of previous strategies. The planned evaluation consists of three main strands:

- monitoring change across key indicators including the rates of obesity and changes in children's diets, and seeking to understand the range of factors that are contributing to any changes;
- conducting impact evaluations of the key interventions within the programme that are most likely to be leading to change across key indicators – these are the sugar reduction programme, the SDIL, and the Families Fund. The Department plans to evaluate all the proposed regulatory policies using post implementation reviews. It will commission these evaluations when the policies are announced; and
- conducting evaluative research to establish whether the mechanisms designed to bring about change are in place, focusing on whether it is plausible that interventions in the programme have brought about that change.

2.37 The Department will not try to assess the impact of the programme as a single entity as it does not consider that it would be able to separate the impact from that caused by other factors given the way that these interventions have been designed and the multitude of other influences on childhood obesity. Given this approach and the wide ranging nature of the programme, it will be hard to identify how individual interventions have contributed to any changes in the rate of obesity.

Part Three

Local authorities and obesity

3.1 This part of the report covers the role of local authorities in tackling childhood obesity, how they work with central government and interventions they have made.

Roles and responsibilities

3.2 Local authorities are responsible for improving the health of their local population and for public health services including most sexual health services and services aimed at reducing drug and alcohol misuse and obesity. The 2012 Health and Social Care Act gave local authorities new responsibilities to improve the health of their local populations. The Act requires local authorities to take steps to ensure that they are aware of the health needs of their local populations, and what the evidence suggests the appropriate steps would be to take to address those needs. Each local authority has a Director of Public Health.

Funding to local authorities for public health

3.3 The Department of Health & Social Care (the Department) provides an annual public health grant to local authorities. The government allocated just over £3.1 billion to local authorities in 2019-20 – a 4.5% real-terms decrease since 2018-19 (just under £3.3 billion).[16] This is ringfenced funding that local authorities must spend on delivering public health services. Local authorities must provide seven specific public health functions, including the National Child Measurement Programme. Otherwise, they have discretion in how they spend their public health grant in their area, including interventions to reduce childhood obesity.

16 The published value of the Public Health Grant in 2018-19 was inflated to 2019-20 prices (that is, 2019-20 = 100). As the actual GDP deflator index is not yet available, this uses the forecast for percentage change on the previous year at 1.92% for 2019-20 to calculate the forecast for 2019-20 GDP deflator index. This Public Health Grant in 2018-19 (in 'real' terms with 2019-20 as the base year) has then been compared with the published value of the 2019-20 Grant to determine the year-on-year percentage change of -4.5%.

Local authority spending on obesity

3.4 The way that local authorities categorise and report spending makes it difficult to determine how much they spend on tackling childhood obesity. Public Health England (PHE) has an assurance framework to assure that the spend by local authorities is for public health. However, local authorities do have some scope in how they categorise spend. They are able to record some activities that could help reduce childhood obesity in categories other than 'childhood obesity' (other than the mandated elements of the National Child Measurement Programme which they record separately). As a result, local authorities might be spending more on tackling childhood obesity than is clear from the reported financial information.

3.5 The amount that local authorities reported that they spent on childhood obesity interventions (including the National Child Measurement Programme) in 2018-19 has decreased since 2016-17 (**Figure 15** overleaf).[17] At £61.7 million out of public health expenditure of £3.4 billion, it is one of the lowest areas of public health spend by local authorities. Most other areas of public health spend have also seen reductions in real terms over the past five years such as sexual health, drugs and smoking (**Figure 16** on page 47). There has also been a decrease in other services that could help tackle childhood obesity. For example, there was a 46% reduction in local authority expenditure on recreation and sport from 2010-11 to 2016-17.[18]

Local authority interventions to reduce childhood obesity

3.6 In 2014, PHE and the Association of Directors of Public Health surveyed Directors of Public Health in local authorities to understand their current focus on obesity and how PHE could support them with this agenda. This survey found that most local authorities wanted help in promoting a whole-systems approach to obesity, as recommended in the 2007 Foresight report. Funded by the Department, PHE worked with the Local Government Association, the Association of Directors of Public Health and Leeds Beckett University over a four-year period to produce national guidance and tools for local areas on how to set up and implement a local whole-systems approach to tackling obesity.

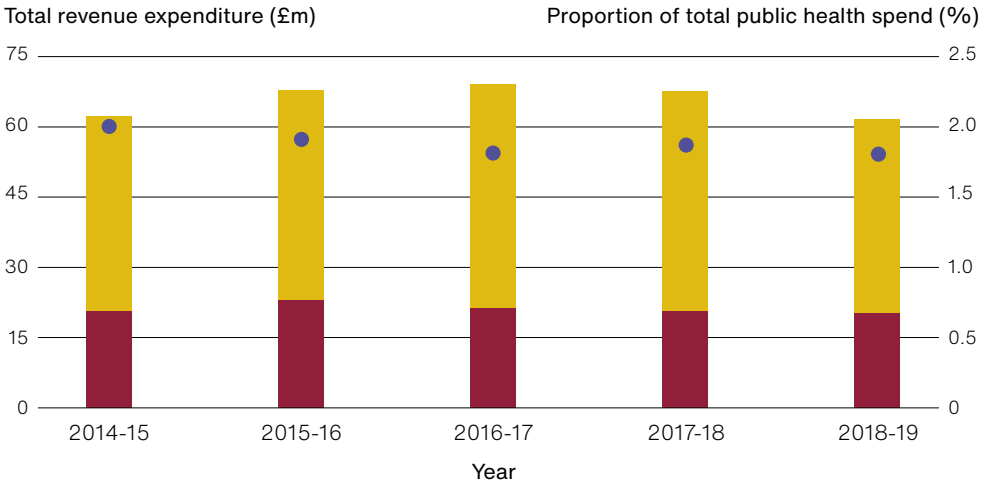
17 The numbers of children participating in the National Child Measurement Programme have increased from 1,101,611 in 2013/14 to 1,198,261 in 2018/19.

18 Comptroller and Auditor General, *Financial Sustainability in local authorities*, Session 2017-2019, HC 834, National Audit Office, March 2018.

Figure 15

Revenue expenditure and proportion of public health spend on the National Child Measurement Programme and childhood obesity by local authorities in England from 2014-15 to 2018-19

The amount local authorities reported they spent on childhood obesity and the National Child Mreasurement Programme in 2018-19 has decreased by 11% since 2016-17



	2014-15	2015-16	2016-17	2017-18	2018-19
Spend on National Child Measurement Programme	20.9	23.1	21.3	20.7	20.2
Spend on childhood obesity	41.5	44.5	47.8	46.8	41.4
Proportion of Total Public Health Spend (%)	2.0	1.9	1.8	1.9	1.8
Total	**62.4**	**67.6**	**69.1**	**67.5**	**61.7**

Notes

1 Amounts may not add up owing to rounding.

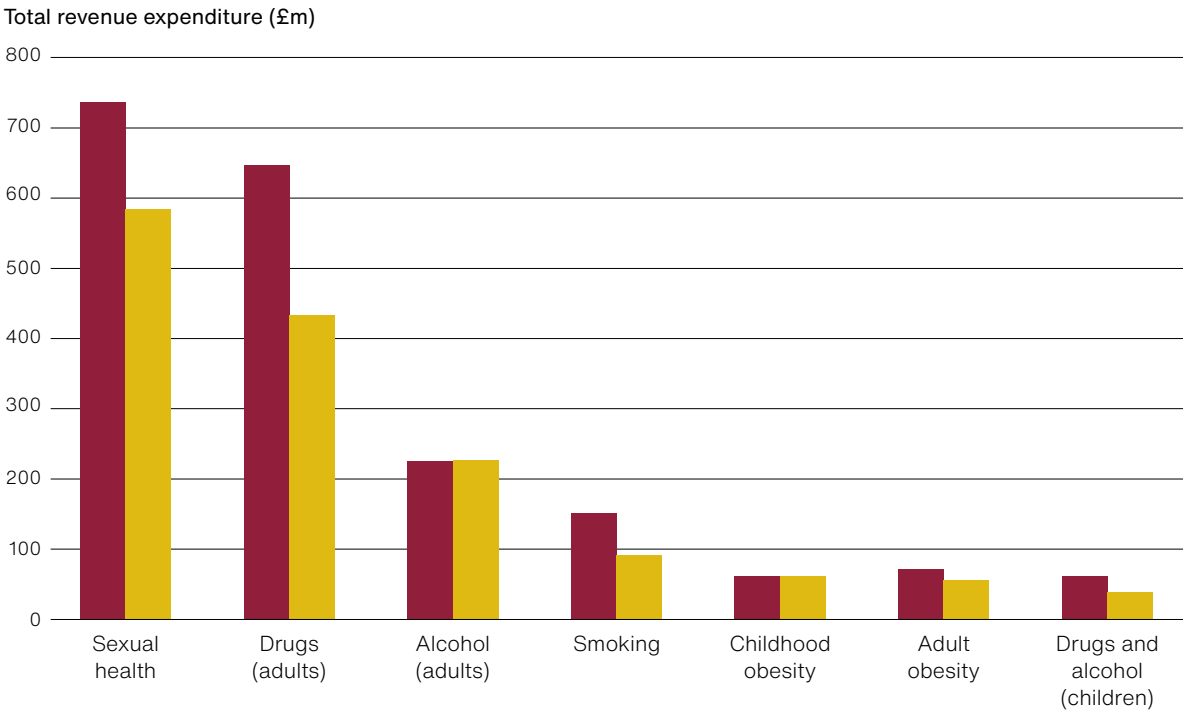
2 Real-terms expenditure at 2018-19 prices as per GDP deflator index published at www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-march-2020-budget on 12 March 2020

Source: National Audit Office analysis of Ministry of Housing, Communities & Local Government, *Revenue outturn social care and public health services (RO3)*, July 2020, available at: www.gov.uk/government/collections/local-authority-revenue-expenditure-and-financing

Figure 16

Local authority expenditure by different public health areas in England from 2014-15 to 2018-19

Childhood obesity is one of the lowest areas of public health spend by local authorities



	Sexual health	Drugs (adults)	Alcohol (adults)	Smoking	Childhood obesity	Adult obesity	Drugs and alcohol (children)
2014-15	734.8	645.7	224.8	151.3	62.4	70.6	62.2
2018-19	582.9	433.3	226.1	91.0	61.7	56.7	40.1

Note

1 Real-terms expenditure at 2018-19 prices as per GDP deflator index published at www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-march-2020-budget on 12 March 2020

Source: National Audit Office analysis of Ministry of Housing, Communities & Local Government, *Revenue outturn social care and public health services (RO3)*, July 2020, available at: www.gov.uk/government/collections/local-authority-revenue-expenditure-and-financing

3.7 PHE issued this guidance and tools in 2019. They are designed to support local authorities to work with key stakeholders including the NHS, local businesses, the voluntary sector and communities to understand complex local drivers of obesity and identify where there are opportunities for change. In January 2020, PHE did some work to understand the number of local authorities using the whole-systems approach and some of the specific interventions local authorities may use to tackle childhood obesity. This work suggested that up to one third of local authorities were using the whole-systems approach to obesity in their local area.

3.8 The Department recognised that there was a lack of understanding of what local areas can achieve with existing powers and what works in different communities. In 2019, with PHE and the Local Government Association, the Department selected five local authorities in England to become 'trailblazers', to lead innovative local actions and testing existing powers to tackle childhood obesity. The aims of the programme are to test the limits of existing powers, share learning and best practice, and develop solutions to local obstacles. The Department will give each of the five local authorities a grant of £100,000 per year for three years from 2019-20 to 2021-22, to develop their projects (a total of £1.5 million). There is a clear monitoring process for the project, but some evaluation plans are still in their infancy and it is not yet clear how all local authorities will evaluate their own projects. The trailblazers and projects are:

- **Birmingham** – test powers to influence the upstream, social and economic determinants of health to shift towards a healthier food and physical activity economy and environment through planning powers, apprenticeships and employment training;
- **Blackburn and Darwen** – test planning powers to restrict food retailers that do not offer healthier options and to test a range of levers to incentivise them to improve their offer;
- **Bradford** – take a community assets approach to work with Islamic religious settings to support healthier behaviours and influence structural change in the local environment;
- **Lewisham** – test powers to restrict advertising of products high in fat, salt and sugar and use unsold advertising space for health promotion advertising; and
- **Nottinghamshire** – test powers of leadership and service provision in early years, and extension of the school meals food supply chain to the early years to improve the community food environment to develop food skills, access and support for families with children in the early years.

3.9 Amsterdam is frequently cited as an exemplar in reducing childhood obesity. Officials in Amsterdam have taken a localised approach to tackling childhood obesity, including targeting specific neighbourhoods with high rates of obesity. When this programme began in 2013, it did not have any additional funding. However, since 2015, the programme has had an annual budget of €2.5 million, with an additional €2.81 million from the Dutch government. The funding is mainly for specific city-wide projects or objectives covering both prevention and treatment. The programme has achieved some good results and the levels of childhood obesity in Amsterdam has fallen, although there is some evidence to suggest that this decline has levelled off and success is not seen equally across all age groups.

Case studies

3.10 We conducted five case study visits and interviews in November and December 2019 to Leeds, Nottinghamshire, Wigan, Bristol and Lewisham. We spoke with local authority Directors of Public Health, public health teams and councillors. There is variation in how local authorities are tackling childhood obesity in their local areas and the case study visits enabled us to understand some of this work (**Figure 17** overleaf).

Figure 17
Local authority case study visits in England

Local authorities use a range of approaches and specific local interventions to tackle childhood obesity in their local area

Local authority	Approach to tackling childhood obesity	Examples of specific local interventions
Leeds	• Universal approach to offering weight management services. • Consider they are using the whole systems approach. • Leeds aiming to be a 'child friendly' city.	• Maternal services, breastfeeding support and early years health. • Commissioned specific services, such as HENRY programme. • Healthy Schools intervention.
Wigan	• Focusing on inequalities. • Place-based approach to public health. • Move away from being topic-specific and look at deeper-rooted social issues.	• Services to address holiday hunger. • Increasing active participation, such as 'Getting Wigan Borough on the move'.
Nottinghamshire	• Consider they are using a whole systems approach. • Trailblazer authority. • Place-based approach to individual choices.	• Consider health in the planning system at all stages. • Healthy options takeaway scheme for takeaways to join and receive promotion.
Bristol	• Working towards creating a sustainable food environment. • Consider they are using a whole systems approach. • Focus on environment, transport and food poverty.	• Eating better awards to reduce eating out of home habits. • Increasing participation in physical activities. • Healthy schools scheme.
Lewisham	• Consider they are using a whole systems approach. • Trailblazer authority. • Obesity alliance made up from different stakeholders within the authority and across the borough.	• Restricting advertising of high fat, sugar and salt products. • 'Be inspired' initiative, working with different communities to address dietary issues.

Notes

1 Case study visits took place in November and December 2019. We spoke to local authority Directors of Public Health, public health teams and elected members.

2 Case study visits not representative of all local authorities.

3 The health, exercise, nutrition for the really young (HENRY) programme is a skills-based learning programme for parents to improve food knowledge and help adopt a healthier family lifestyle.

Source: National Audit Office analysis of case study visits

Appendix One

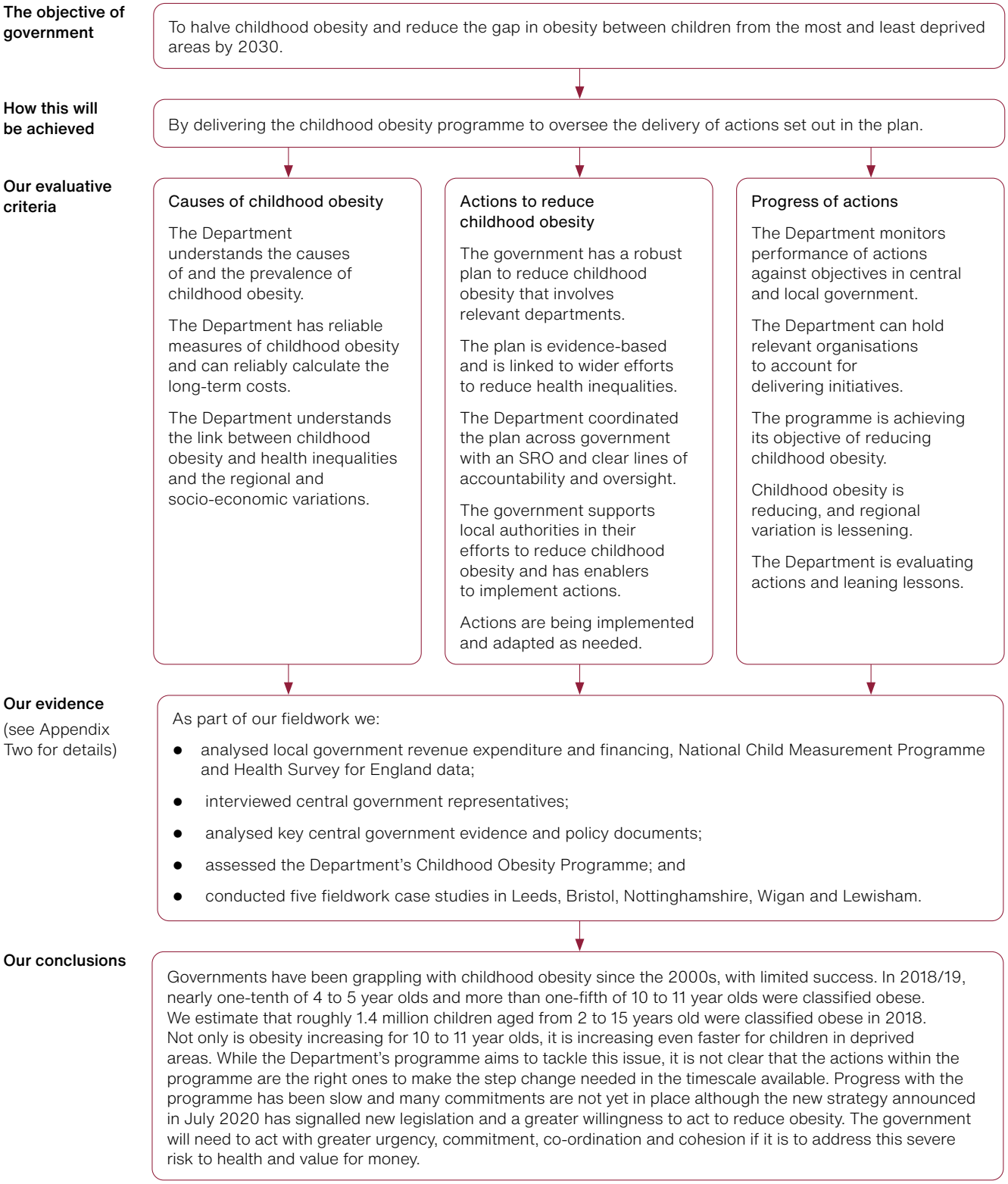
Our audit approach

1 This report examines the effectiveness of the government's approach to reducing childhood obesity in England by considering the evidence base and progress so far. We examined whether the Department of Health & Social Care (the Department):

- understands the causes and impacts of childhood obesity;
- is taking appropriate action to tackle childhood obesity;
- is on track to reduce childhood obesity by achieving objectives through actions within the Childhood Obesity Programme (the programme).

2 Our audit approach is summarised in **Figure 18** overleaf, and our evidence base is set out in Appendix Two.

Figure 18
Our audit approach



Appendix Two

Our evidence base

1 We analysed data, mainly from the Department of Health & Social Care (the Department), NHS Digital and Public Health England (PHE). We analysed published data from National Child Measurement Programme and the Health Survey for England. We analysed published data on local government spending. We also analysed spend by the Department on the Childhood Obesity Programme (the programme). The key data sources are:

a **The National Child Measurement Programme (the measurement programme).** Through the measurement programme, local authorities run schemes to measure the weight and height of children in schools at ages 4 to 5 and ages 10 to 11. Schools and parents can opt out, although local authorities collected data on around 95% of children in these two age groups in 2018/19. This means that the measurement programme provides near census level data. The data are based on the school year and so time periods are expressed as 2018/19 rather than 2018-19, which represents a financial year.

b **The Health Survey for England.** The health survey monitors trends in the health of children aged 0 to 15 and adults aged 16 and over, including rates of obesity. It therefore provides data on children at all ages but on a much smaller scale than the measurement programme. Some 2,000 children took part in the 2018 health survey. The survey presents data in three year rolling averages to reduce the impact of random variation.

c **Local Authority Revenue Expenditure and Financing.** Local authorities submit annual returns to the Ministry of Housing, Communities & Local Government that describe both the funding sources they receive, and also how these funds have been spent. Using the detail contained within the Social Care and Public Health Services section of the Revenue Outturn documents (RO3), we have grouped categories of spend to create aggregate cohorts. Our focus was spending on public health across England, using the England totals from the RO3 which include spend by all local authorities, including for example, Greater London and Greater Manchester, as well as estimates for local authorities unable to submit returns in some years. We have used total expenditure to measure the total amount being spent in providing these services by local authorities across England. This does not take into account small amounts of income received from sales, fee and charges, or other sources.

2 **We assessed the Department's Childhood Obesity Programme.** We analysed the governance of the programme, the evidence base for the programme and evaluated the interventions in the programme against the Department's evaluation framework.

3 **We interviewed central government representatives** from the Department of Health & Social Care, Public Health England, the Department for Education, the Department for Transport, the Department for Digital, Culture, Media & Sport, the Department for Environment, Food & Rural Affairs, NHS England & NHS Improvement and HM Treasury.

4 **We interviewed representatives from a range of other organisations active in the food and health sector** including the Obesity Health Alliance, Guy's and St Thomas' Charity, the Local Government Association, the Association of Directors of Public Health, Cancer Research UK, and the British Retail Consortium.

5 **We reviewed government policy documents, guidance and consultation documents.** We reviewed previous and current policies and guidance on childhood obesity.

6 **We reviewed research by academic and industry bodies** including research from the Government Office for Science and Public Health England.

7 **We carried out a review of external literature**. We reviewed external literature including Select Committee reports and evidence to other Parliamentary committees. We also carried out a media review.

8 **We conducted five case study visits and interviews** in November and December 2019 to Leeds, Nottinghamshire, Wigan, Bristol and Lewisham. We spoke with local authority Directors of Public Health, public health teams and councillors. The work was designed to understand the local authority perspective and the challenges they face, particularly in terms of the whole-systems approach and funding for childhood obesity interventions.

9 We conducted a high level review of the evidence base for, or evaluations of, interventions in the programme. We reviewed a sample of literature and assessed whether they provided extensive or clear evidence, or limited or conflicting evidence. This review was high level and in no way exhaustive. The sources are listed below and are examples, not an exhaustive list.

i Scientific Advisory Committee on Nutrition, Carbohydrates and Health report (2015) and Public Health England: *Sugar Reduction, the evidence for action* 2015.

ii C Knai et al, '*Has a public–private partnership resulted in action on healthier diets in England? An analysis of the Public Health Responsibility Deal food pledges'*, (2015) Food policy, 54. pp. 1-10.

iii Public Health England, *Calorie reduction, the scope and ambition for action* (2018).

iv Public Health England, *Sugar reduction: the evidence for action*. *Annex 2: Review of behaviour changes resulting from experimental studies of fiscal methods*.

v Public Health England, *Sugar reduction: the evidence for action. Annex 4 An analysis of the role of price promotions on the household purchases of food and drinks high in sugar*.

vi Cairns G, Angus K, Hastings G. (2009). The extent, nature and effects of food promotion to children: a review of the evidence to December 2008. World Health Organization, WHO Press. Boyland, E & Whalen, R. A, Liverpool University (2017), 'Watershed' Moment: *Why it's Prime Time to Protect Children from Junk Food Adverts.'* Commissioned by the Obesity Health Alliance.

vii The joint Department of Health & Social Care and Department for Digital, Culture, Media & Sport: Impact assessment: Introducing a 2100-0530 watershed on TV advertising of HFSS (food and drink that are High in Fat, Salt and Sugar) products and similar protection for children viewing adverts online (March 2019).

viii Rachel Griffith et al, '*The potential impacts of banning television advertising of HFSS foods before the 9pm watershed*', (2019) Institute of Fiscal Studies.

ix RA Crockett et al, 'Nutritional labelling for healthier food and non-alcoholic beverages for purchase and consumption', (2018) Cochrane database of systematic reviews.

x Cochrane database of systematic reviews and Sinclair et al, '*The influence of menu labelling on calories selected or consumed: a systematic review and meta-analysis*', (2014) Journal of the Academy of Nutrition and Dietetics, 114(9), 1375-1388.

xi British Nutrition Foundation *National pupil and teacher survey* (2015).

xii Department for Education, *Review of breakfast clubs in schools with high levels of deprivation* (2017).

xiii K. Breheny et al, '*Effectiveness and cost-effectiveness of the Daily Mile on childhood weight outcomes and wellbeing, a cluster randomised controlled trial' (2019) International Journal of obesity; and R Chesham et al, 'The Daily Mile makes primary school children more active, less sedentary and improves their fitness and body composition: a quasi-experimental pilot study'*, (2018) BMC Medicine vol. 16.

xiv Department for Transport, Bikeability impact study: final report. A study commissioned by the Department for Transport. May 2019.

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