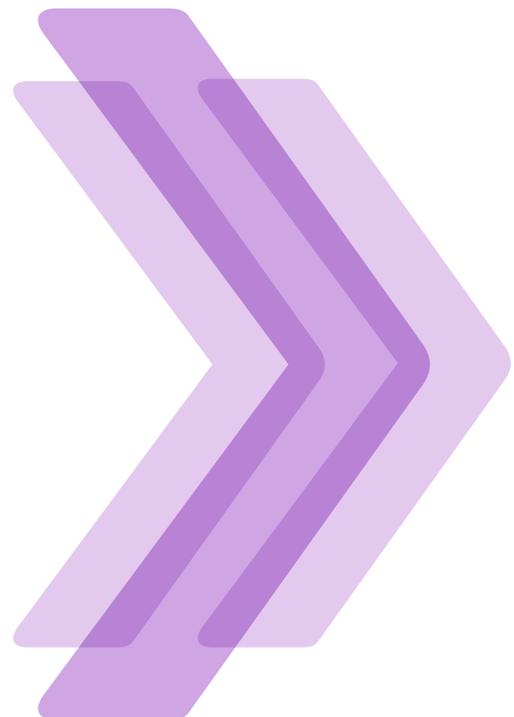


Tackling obesity

The role of the NHS in a whole-system approach

Jonathon Holmes

July 2021



Introduction

Rates of obesity in England are high and rising. The prevalence and rate of increase are not spread equally across society, and there is a strong systemic relationship between obesity and deprivation. Obesity rates are also higher in women than in men, and in some ethnic minority groups compared to the white British group.

Recent governments have taken a fragmented approach to tackling obesity, and while some individual policies have been successful, this approach has fallen short of the cross-cutting population health approach that is needed.

This briefing explores the role of the health and care system in tackling obesity, focusing on how the NHS can work with local partners and engage with communities to deliver targeted interventions to treat and prevent obesity.

Key messages

- In 2019, 64 per cent of adults in England were overweight, with 28 per cent being obese and 3 per cent morbidly obese (NHS Digital 2020a). Obesity is a significant health risk and is associated with increased risk of diseases including diabetes, heart disease and some cancers.
- There has been a significant increase in obesity in the most deprived communities in England in recent years, leading to a widening gap between the most and least deprived areas. The obesity prevalence gap between women from the most and least deprived areas is currently 17 percentage points and for men it is 8 percentage points, up from 11 percentage points for women and 2 percentage points for men in 2014 (NHS Digital 2020a; NHS Digital 2015).
- Childhood obesity has followed a similar pattern. For children in year six there was a 13-percentage-point gap in obesity rates between the most and least deprived children in 2019, up by 5 percentage points since 2006 (NHS Digital 2020b).
- The causes of obesity are many and varied. The most important risk factor is an unhealthy diet, while physical inactivity also plays a role. People in deprived areas often face significant barriers to accessing affordable, healthy food and to taking regular exercise (Public Health England 2017).

- In 2019/20 there were more than 1 million hospital admissions linked to obesity in England, an increase of 17 per cent on the previous year. Rising rates of obesity translate to increasing costs for the NHS. In 2014/15 the NHS spent £6.1 billion on treating obesity-related ill health, this is forecast to rise to £9.7 billion per year by 2050 (NHS Digital 2021; Public Health England 2017).
- Differences in obesity rates translate to worse health outcomes for people in more deprived areas and contribute to health inequalities. Rates of obesity-related hospital admissions in the most deprived areas of England are 2.4 times greater than in the least deprived areas (NHS Digital 2021; Ministry of Housing, Communities and Local Government 2019).
- There is more that the NHS can and should be doing to tackle obesity. This includes using local insights to target services at communities with the greatest need, training its workforce to offer advice about diet and nutrition, and incentivising referrals to specialist diet programmes and more intensive clinical interventions like weight-loss surgery.
- These levers, while effective, are best used as part of a whole-system approach to tackling obesity. There is an important, yet under-developed, role for integrated care systems and local place-based partnerships in co-ordinating action and helping partners to take a coherent approach.

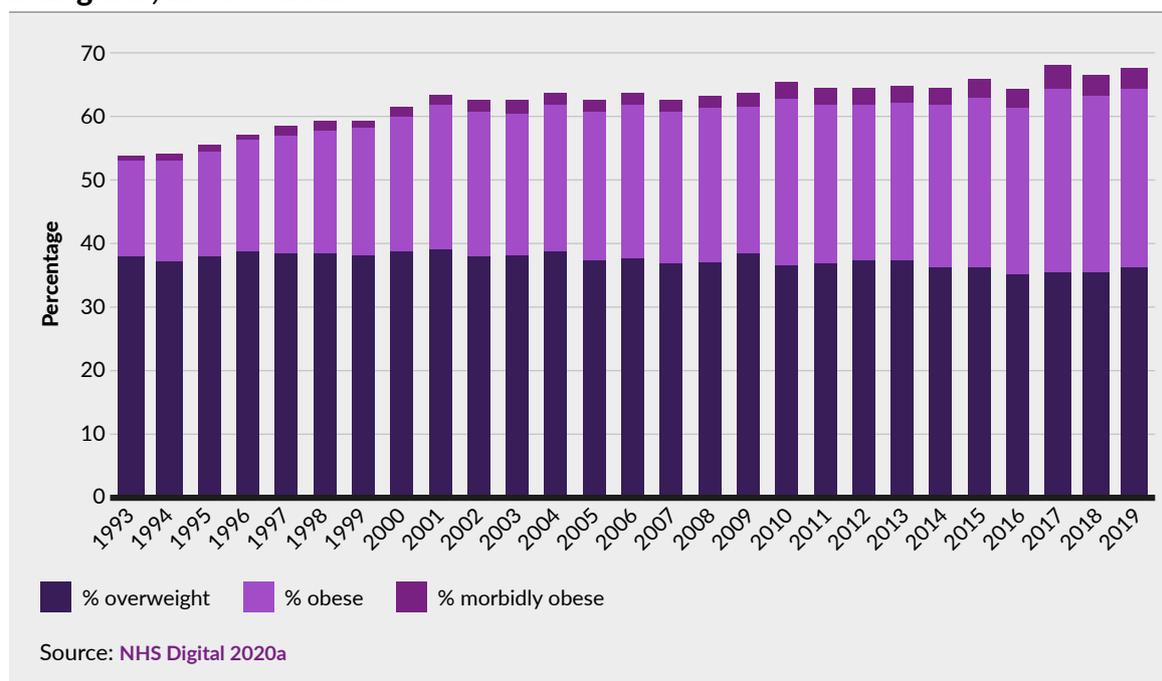
Trends and patterns in obesity prevalence

In 2019, 64 per cent of adults in England were overweight.¹ This includes 28 per cent who were obese and 3 per cent who were morbidly obese (NHS Digital 2020a).²

After a period of steady increase through the 1990s, the overall percentage of adults classed as overweight has remained very high, but stable, between 2000 and 2019, at slightly more than 60 per cent.

This overall stability masks some concerning underlying trends, as rates of obesity and morbid obesity have increased in absolute terms and as a proportion of all those who are overweight (see Figure 1).

Figure 1 Per cent of adults classified as ‘overweight’, ‘obese’ and ‘morbidly obese’ in England, 1993 to 2019 



1 Includes people who are overweight, obese or morbidly obese.

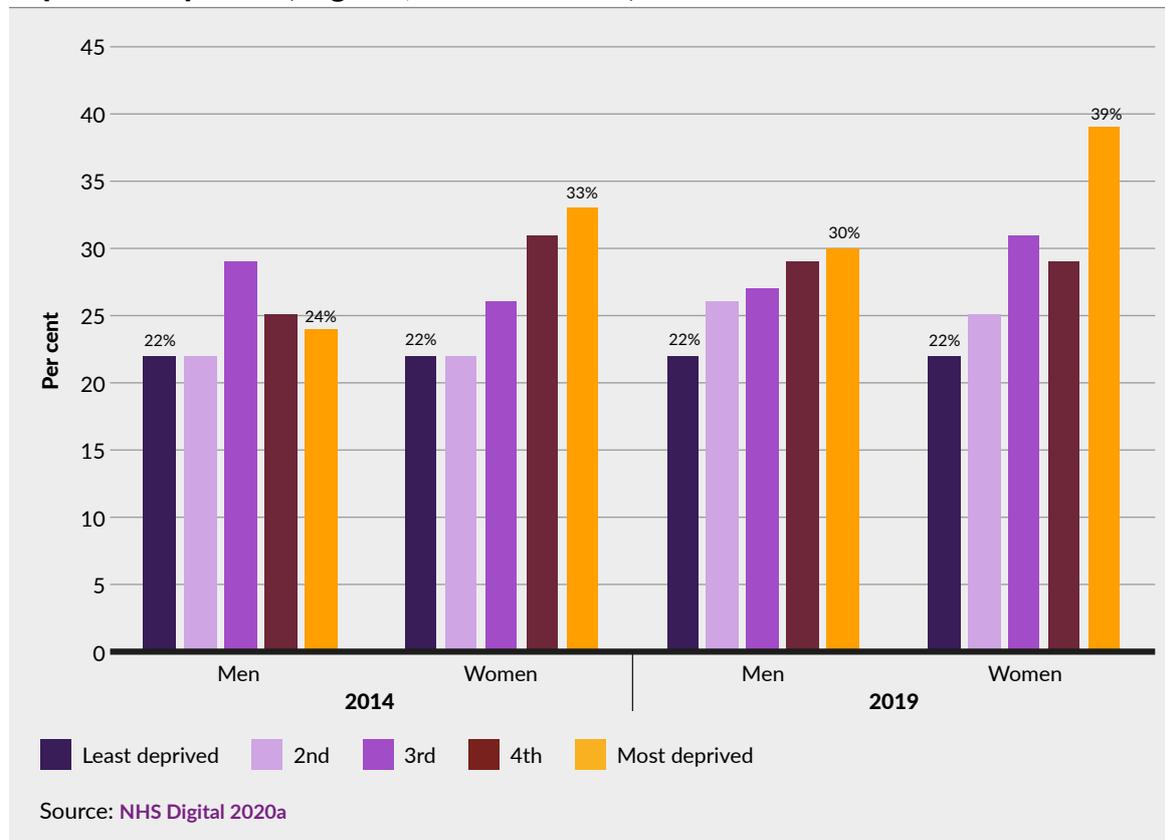
2 Overweight and obesity are defined using body mass index (BMI) = weight(kg)/height(metres). People who are overweight have a BMI of 25–29.9; those who are obese have a BMI of 30–39.9; and people who are morbidly obese have a BMI >40.

The UK also compares poorly to other high-income countries and has one of the highest rates of obesity in Europe. Average adult obesity prevalence across the nine EU countries where comparable data is collected is 23 per cent, compared to 28 per cent in the UK (Organisation for Economic Co-operation and Development and European Union 2020).

In England, the prevalence of obesity is not spread equally. On average, the greatest rates of obesity are seen in the most deprived parts of the country. In 2019 the obesity gap between the most and least deprived areas stood at 8 percentage points for men and 17 percentage points for women (NHS Digital 2020a).

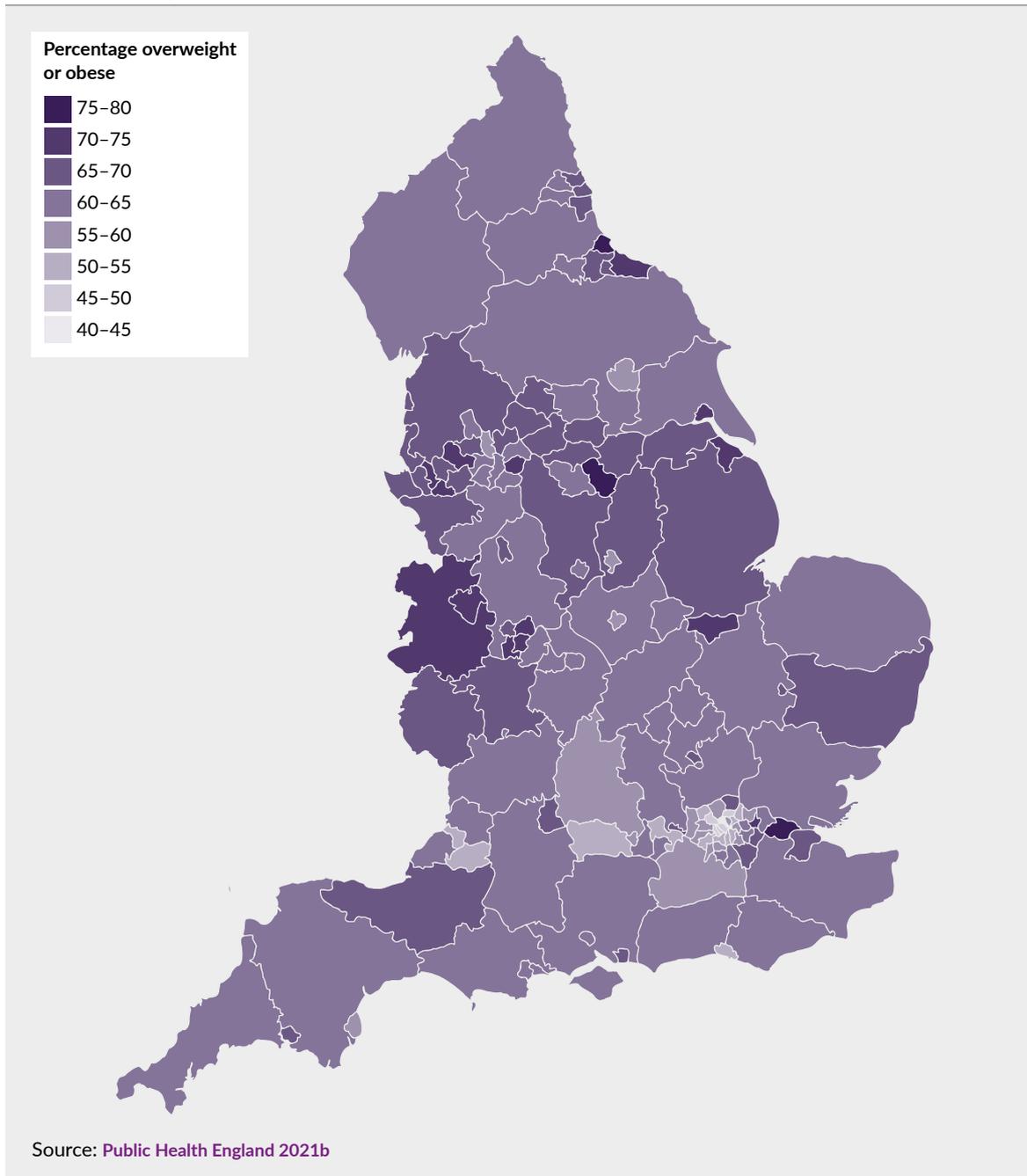
A lack of available data prevents a detailed analysis of how this has changed over time, but the gap does seem to have grown significantly over recent years; compared to the 2019 figures above, in 2014 the gap was 2 percentage points for men and 11 percentage points for women. Figure 2 shows how this trend has been driven by increases in prevalence in the most deprived areas, while rates of obesity have remained constant in the least deprived areas (NHS Digital 2015).

Figure 2 Percentage of adults classified as obese by gender and local authority deprivation quintile (England, 2014 and 2019) **K**



Separate data from Public Health England shows how obesity prevalence is geographically distributed across England ([Public Health England 2021b](#)) (see Figure 3). Some areas with the highest rates of obesity are clustered around urban areas in the North East and North West of England as well as parts of the East and West Midlands. The lowest rates, though there are some notable exceptions, are grouped around London and the South of England.

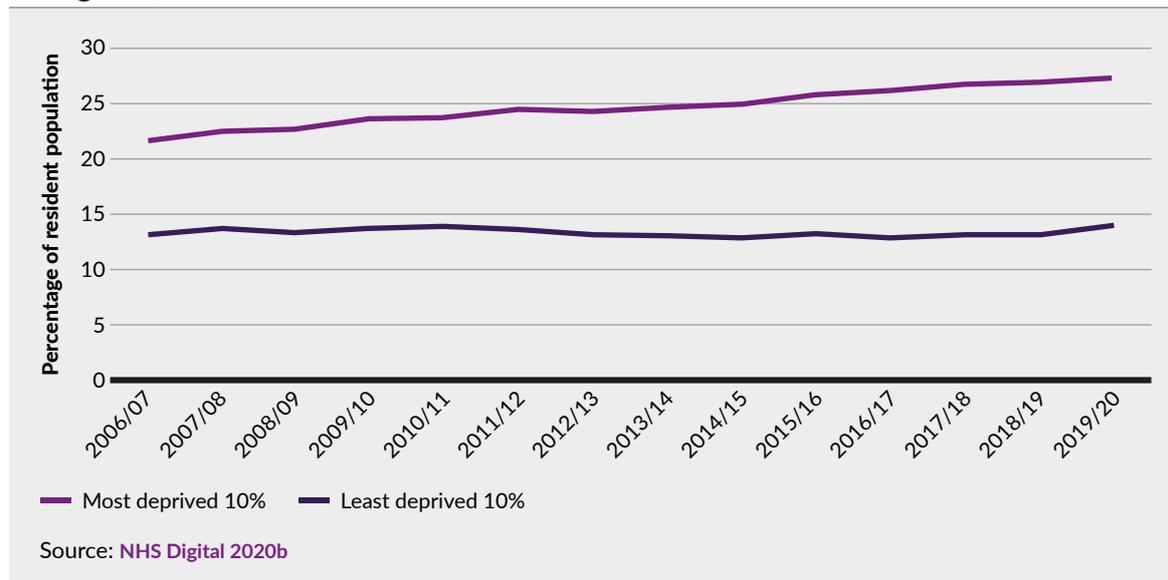
Figure 3 Percentage of adults classified as overweight or obese by upper-tier local authority, 2018/19



Data on childhood obesity paints a similar picture. For children in Year 6, the gap in obesity prevalence between those from the most and least deprived areas grew by 4.8 percentage points between 2006/7 and 2019/20, from 8.5 to 13.3 percentage points. As with adults, the gap has widened as a result of increases in obesity among the most deprived children while rates among the least deprived have remained steady (NHS Digital 2020a).

This trend is a significant concern, as childhood obesity is a strong predictor of adult obesity and associated morbidities (Llewellyn et al 2016). These disparities are likely to indicate worse health outcomes and entrenched health inequalities for children from more deprived areas later in their lives and as they become adults (see Figure 4).

Figure 4 Percentage of children classified as ‘obese’ or ‘severely obese’ in Year 6 in England, 2006/07 to 2019/20 K



These disparities in childhood obesity are much starker in the UK compared to other high-income countries. Separate data from the Organisation for Economic Co-operation and Development, which uses the measure of family affluence rather than overall socio-economic deprivation, reports that the gap in overweight and obesity prevalence between children from the most and least affluent families in the UK was 26 percentage points in 2018. This was the largest gap recorded in any EU country; the EU average gap was 8 percentage points (Organisation for Economic Co-operation and Development 2020).³

³ Gap measured for obesity and overweight prevalence in 11, 13 and 15 year-olds by family affluence (income) quintile in 2018 across the EU27.

Understanding the causes of obesity

The four pillars of population health

The factors affecting people's health are complex, multi-factorial and often closely related (Dahlgren and Whitehead 1993). The King's Fund's population health framework sets out four overarching factors that interact to shape health (Buck *et al* 2018).

- **The wider determinants of health:** these are the socio-economic factors – such as income, employment, education and housing – that influence people's health. Evidence suggests that these factors are the most important and decisive in shaping overall health, and, as described above, deprivation is a strong predictor of obesity (Buck *et al* 2018; Booske *et al* 2010).
- **Health behaviours:** people's behaviours also shape their health, for example, falling smoking rates have led to significant improvements in life expectancy. These are seen to be the second most influential factor for health and while unhealthy behaviours are the primary drivers of obesity they are fundamentally shaped by the social and economic factors that fall under the wider determinants (Public Health England 2017).
- **Places and communities:** the places people live in – their physical environment and social relationships – play a key role in their health, affecting the choices they make and their health behaviours. For example, the physical infrastructure of a place can encourage, or dissuade people from, being physically active.
- **Integrated health and care systems:** the treatment and support provided by the health and care system also plays a role in health. There is widespread recognition that services should be integrated to meet the increasing complexity of people's health and care needs, with a stronger focus on prevention and tackling inequalities in health.

The key risk factors for obesity and who they affect most

Excess weight gain occurs when energy intake (food eaten) regularly exceeds energy burnt. As such the scientific consensus is that eating fewer calories is key for weight loss, while physical activity also plays a role (Westerterp 2019; Cox 2017; Swift *et al* 2014).

Food environment and diet

Everyone experiences multiple barriers and challenges to maintaining a healthy diet, though these are experienced most acutely by people living in the most deprived parts of England (Marmot *et al* 2020).

The environment people live in can be one of the greatest challenges to eating healthily. For example, if people are surrounded by foods that are high in sugar, salt or fat, these can become the default choice. Unhealthy food environments are more prevalent in more deprived areas; for example, there is a strong relationship between deprivation and density of fast-food outlets (Ministry of Housing, Communities and Local Government 2019; Public Health England 2018b) (see Figure 5).

Figure 5 Density of fast-food outlets per 100,000 population in England by local authority



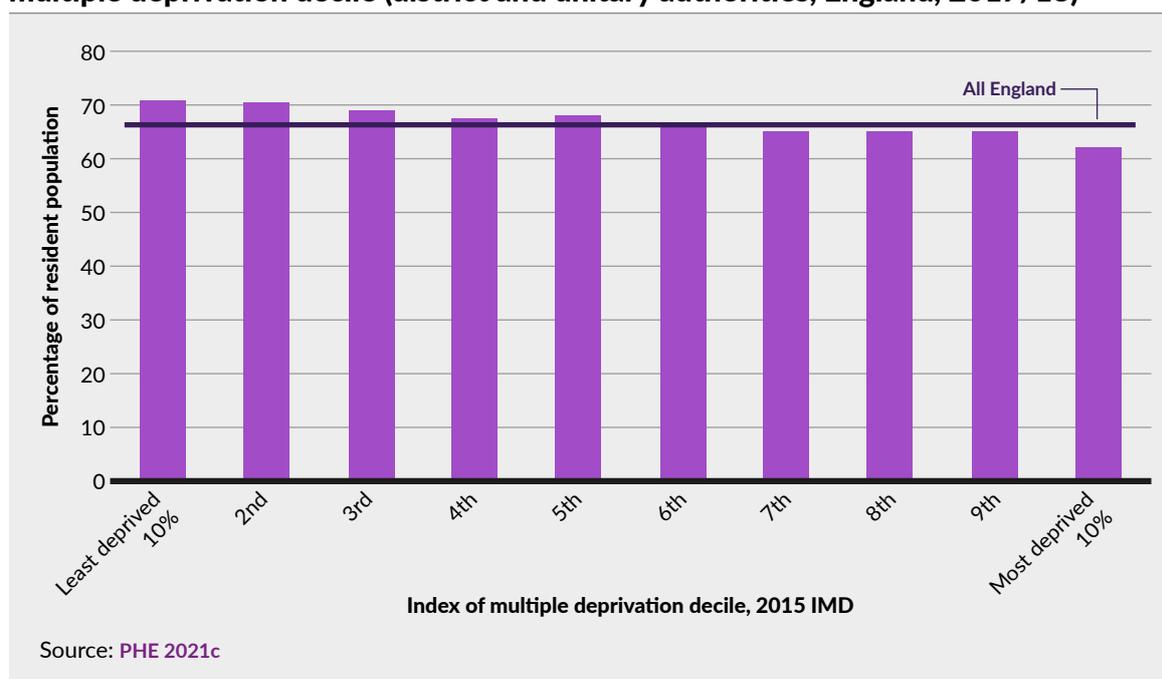
As well as the environmental factors that shape people’s diet, relative price of food is also a key component. Research shows that following healthy eating guidelines is prohibitively expensive for many; following the government’s Eatwell Guide costs nearly three times the current average spend per person per week on food and non-alcoholic drinks (Public Health England 2018a; Scott et al 2018). Approximately half of UK households have a food budget that can meet the costs of the guidelines.

The barriers to eating healthily are not just about income and choice; there are other psychosocial factors associated with deprivation and poverty that make eating healthily harder. Living in poverty or ongoing food insecurity is associated with high levels of stress, meaning that people may not have the mental energy to make choices or dedicate time and effort to cooking and preparing food that is nutritionally balanced (Select Committee on Food, Poverty, Health and the Environment 2020).

Physical activity

While physical activity is secondary to diet in terms of causes of obesity, it can support weight loss and improve health. People in more deprived parts of England report lower levels of physical activity than average (see Figure 6). 62 per cent of adults in the most deprived areas report that they are physically active compared to a national average of 66 per cent (Public Health England 2021c).

Figure 6 Percentage of adults who self-report as ‘physically active’ by index of multiple deprivation decile (district and unitary authorities, England, 2017/18) 



The reasons for lower levels of physical activity in more deprived areas are multi-factorial, cutting across economic, social, geographic and cultural factors. For example, levels of income will affect the relative affordability of accessing sports facilities or exercise classes, while a lack of access to green space or safe green space, can be a significant deterrent to physical exercise (Rawal et al 2019).

As is the case with diet, some of the psychosocial factors associated with living in poverty will make finding time to exercise or prioritising physical activity difficult (Rawal et al 2019, Marmot et al 2020).

Deprivation is not the only factor associated with physical inactivity, lower rates of physical activity are reported by women as well as by some ethnic minority groups (NHS Digital 2020c). Women from Asian groups report the very lowest rates of physical activity of any group, followed closely by Black women (Raleigh and Holmes 2021).

Andy Knox – challenges of maintaining a healthy diet in a deprived community

Andy Knox is a GP in Carnforth, Lancashire and Director of Population Health for the Morecambe Bay Health and Care System.

This part of Lancashire is made up of small towns and coastal communities, it is home to some sights of great natural beauty. The district is also one of the most deprived in England and faces a range of social and economic challenges (Lancashire County Council 2020). Here, Andy explains how the deprivation and poverty many of his patients live with can make healthy choices harder to make.

Cameron and his Mum, Julie, sat down together and I asked them how I could help.

'It's a bit embarrassing, really,' started his mum, 'but we've been told to come and see you because we got a letter from school about his weight.' The school nurses had been into year 6 in all the local primary schools to weigh and measure all the children. This happens twice in primary schools in England – once when the children join their school, aged 4 or 5 and once when they are soon to leave at 10 or 11 years. The child's weight status and any concerns are noted in a letter to the parents/carers and sometimes a visit to the GP will ensue.

'The thing is,' Julie continued, 'people judge you, like you don't care. But I'm a single Mum. I work two jobs. I never know when the work will be coming in. By the time I've paid the bills and tried to sort out some of the debts I owe, I can't afford all these

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Andy Knox – challenges of maintaining a healthy diet in a deprived community *continued*

things the government tell us will lead to a balanced diet. You know what it's been like since his dad left (and thank God he did, cos you know what he was like). To top it off, I have to care for my mum who's got dementia as well. He doesn't like exercising, cos he just gets laughed at and called all kinds of names, and I guess we've just got a bit stuck.'

What was I supposed to do? Wag my finger and heap shame onto this mother? Put them forward for some cookery classes and try and find a sports activity that Cameron might enjoy? There were layers of complexity to Cameron's weight issues, most of which could not be fixed by simply offering guidance or signposting for some help. It's not as simple as 'you are what you eat'. Cameron and his Mum live on an estate with no easy access to healthy food and poor transport links to any supermarkets. They are surrounded by junk-food cafes (five times more than you would find in any more 'well-to-do' area). What are they supposed to eat? Cheap and easily available food sources are now more sugar-filled and calorific than they used to be.

The families I work with in Morecambe Bay are often not just facing poverty, but are sometimes on the brink of destitution. This comes with layers of complexity associated with crippling debt, precarious or limited employment, poor and unaffordable housing, over-crowded hostels, and the associated increase in psychological strain.

In environments like this, we can't just say that diet and exercise are about individual choices. Poverty and deprivation shape the choices we make, and in this case make healthier choices harder. While information, advice and support to change behaviours is a vital part of the puzzle, up against the forces of socio-economic deprivation we'll struggle to cut through.

Impact of obesity on health outcomes and demand for health and care services

Living with obesity increases the risk of diabetes, cardiovascular diseases, musculoskeletal conditions and some cancers (NHS 2019). This section looks at the effect of obesity on health outcomes and what this means for demand for health and care services.

Health outcomes and mortality associated with obesity

People who are obese have a lower life expectancy than those who are not and the prevalence of diseases such as diabetes, cardiovascular disease and some cancers is higher among people who are overweight or obese (Tobias and Hu 2018).

Before the Covid-19 pandemic, life expectancy improvements in the UK had slowed down, and the life expectancy gap between the most and least deprived communities had widened over the previous decade (Raleigh 2021). Evidence shows that rising obesity rates and morbidities associated with a high body mass index (BMI) are now offsetting life-expectancy improvements associated with a decline in smoking (Ho *et al* 2021; Organisation for Economic Co-operation and Development and The King's Fund 2020).

Obesity does not just affect life expectancy, it also reduces healthy life expectancy and has an impact on people's quality of life, as people who are obese are more likely to develop co-morbidities, including musculoskeletal conditions, at an earlier age (Donini *et al* 2020).

As well as people's physical health, living with obesity can also have an impact on mental wellbeing and has been associated with anxiety and depression (Nigatu *et al* 2016). Overall, the relationship between obesity and mental health conditions is very complex, when they co-occur each condition can aggravate the other and the nature of the relationship will vary significantly between people (Avila *et al* 2015).

Hospitalisations

In 2019/20, there were 10,780 hospital admissions of people with a primary diagnosis of obesity. This is a decrease of 3 per cent on 2018/19, but an increase of 18 per cent compared to 2014/15 (NHS Digital 2021).

There has been a rapid rise in recent years of admissions of people where obesity was either a primary or secondary factor (where obesity was relevant to a patient’s episode of care but not necessarily a contributing factor for the admission). In 2019/20, there were 1 million hospital admissions of people with a primary or secondary diagnosis of obesity, an increase of 17 per cent on 2018/19. This figure has nearly doubled over the past five years (NHS Digital 2021).

Obesity-related illness is a major cost to the NHS. In 2014/15 the NHS spent £6.1 billion on treating obesity-related ill health. This is set to rise to £9.7 billion per year by 2050 (Public Health England 2017).

As with overall prevalence of obesity, rates of hospitalisation attributable to obesity increase in line with deprivation (NHS Digital 2021) (see Figure 7).

Figure 7 Admissions with a primary or secondary diagnosis of obesity, per 100,000 population (England, 2019/20)



Deprivation is not the only predictor; women are almost twice as likely as men to have an obesity-related hospital admission (see Figures 8a and 8b). The rate of obesity-related hospital admissions for women from the most deprived areas is nearly twice as high as for women from the least deprived areas. While there are significant disparities between men from the most and least deprived

communities, deprivation is not such a strong of a predictor of obesity-related hospital admissions among men (NHS Digital 2021; Ministry of Housing, Communities and Local Government 2020).⁴

Figure 8a Admissions with a primary or secondary diagnosis of obesity among women by deprivation decile, England, 2019/20

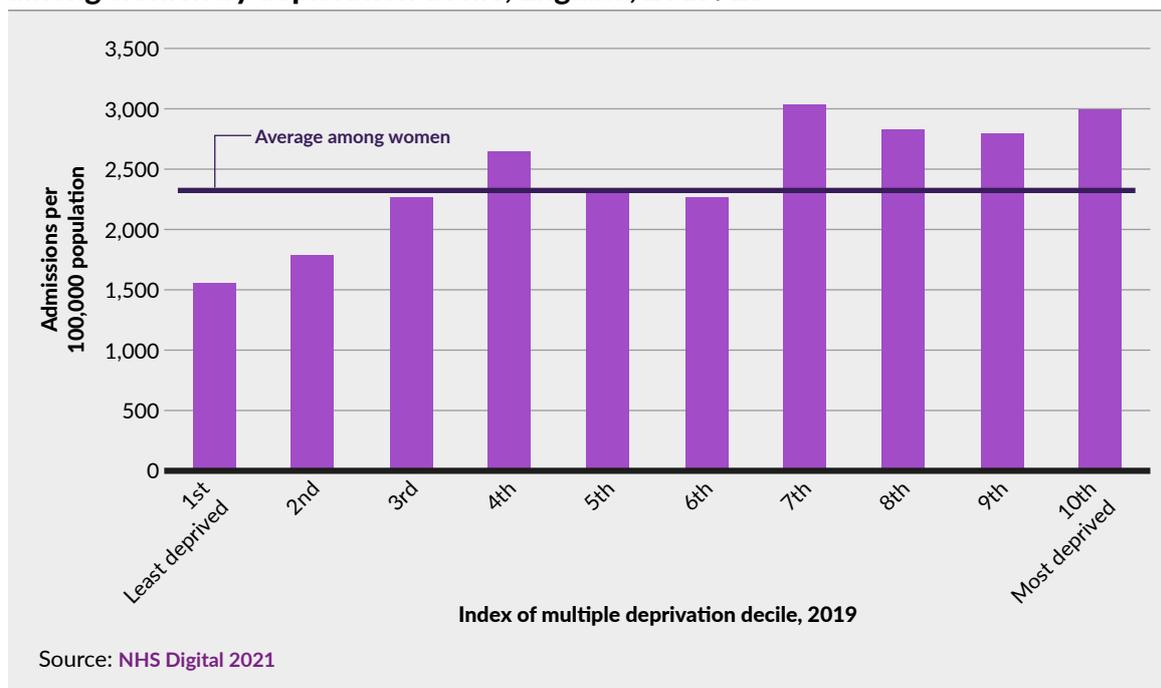
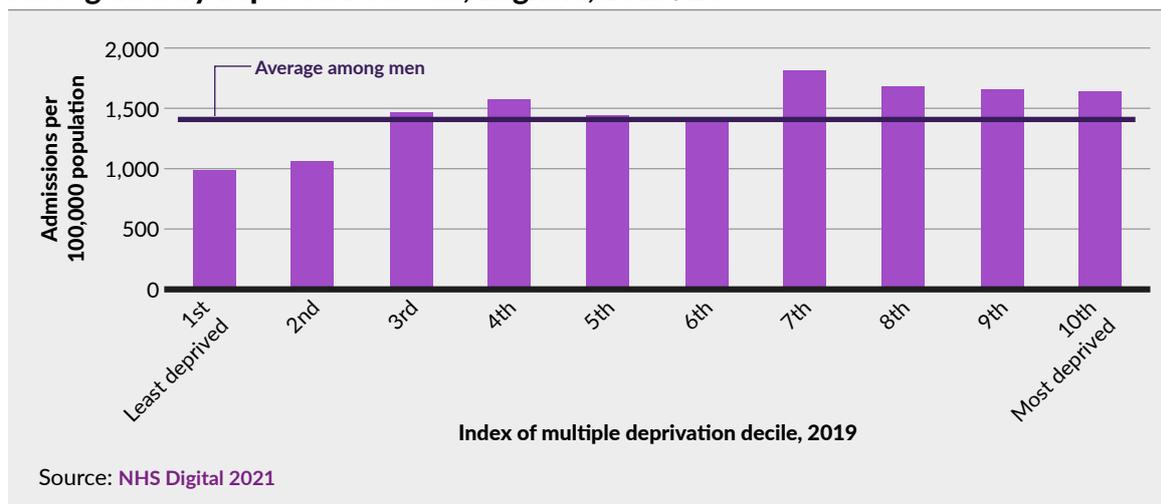


Figure 8b Admissions with a primary or secondary diagnosis of obesity among men by deprivation decile, England, 2019/20



4 NB Figure 7 and Figures 8a and 8b are not directly comparable as they use different geographies to measure deprivation. Figure 7 uses Office for National Statistics Lower Super Output Area (LSOA) and Figures 8a and 8b use clinical commissioning group boundaries. This is a result of how the public data sets are presented.

Current obesity policy and strategy

In response to rising obesity rates, recent governments have developed multiple strategies and policy plans to stop the increase (Theis and White 2021). These plans are spread across multiple documents and responsibility for delivering them sits across different government agencies and departments.

Recent government obesity policies and strategies

Since 2015, and the beginning of the current majority Conservative government, there have been six policy documents that set out plans to reduce obesity or embed prevention in health and care systems, with one more planned in the form of a national food strategy.

- **2016** *Childhood obesity: a plan for action*: the first part of the childhood obesity plan (Cabinet Office et al 2016) included the commitment to 'significantly reduce rates of childhood obesity' within the next decade. It also included proposals for the Soft Drinks Industry Levy, which came into force in 2018 and has been successful in reducing sugar content of soft drinks by incentivising manufacturers to reformulate their products (Pell et al 2021).
- **2018** *Childhood obesity: a plan for action, chapter 2* (Department of Health and Social Care 2018): committed to halving childhood obesity and reducing the gap in obesity prevalence between the most and least deprived children by 2030. Specific actions focused on calorie labelling, improving access to information on nutrition to support people to make healthier choices and regulating pre-watershed advertisement of food high in sugar, salt or fat.
- **2019** *Childhood obesity: a plan for action, chapter 3* part of *Advancing our health: prevention in the 2020s* (Cabinet Office and Department of Health and Social Care 2019) this plan reiterated the commitment to halve childhood obesity rates, as well as commitment to consult on food labelling options and to consider extending the Soft Drinks Industry Levy to include milky drinks.

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Recent government obesity policies and strategies *continued*

- **2020** *Tackling obesity: empowering adults and children to live healthier lives* (Department of Health and Social Care 2020): this includes a call to action for individuals to lose weight, as well as plans to improve the quality of food labelling by requiring restaurants to put calorie labels on menus and plans to regulate how food is marketed including a ban on television advertising of junk food before 9pm. In March 2021, the Department of Health and Social Care confirmed £100 million funding to support implementation of the Obesity Strategy (Department for Health and Social Care 2021b).
- **2021** *Integration and innovation: working together to improve health and social care for all*: sets out legislative proposals to put the Obesity Strategy proposals around calorie labelling and advertising restrictions into law. It also sets out how the NHS will focus more on prevention, including of obesity-related ill health, in the years ahead (Department for Health and Social Care 2021a).
- **2021** a national food strategy: commissioned by the Department for Environment, Food and Rural Affairs, this independent review will result in a comprehensive plan for the UK's food system (Department for Environment, Food and Rural Affairs 2020). An interim report published in July 2020 focused on two key themes – ensuring that disadvantaged children eat well in childhood and that trade deals protect food standards – underlining that children from poor backgrounds are more likely to experience both hunger and obesity (National Food Strategy 2020).

Overall, the government's approach to obesity has been fragmented and has focused on improving access to information to change individual behaviours. While this is important, a much broader approach is needed to address the environmental risk factors for obesity. This should include bolder use of taxation and regulation to shape food markets and make healthy choices easier (Pell *et al* 2021; Theis and White 2021; Beech *et al* 2020).

The health and care system's role in tackling obesity

Alongside the wider determinants of health, behavioural factors and the places we live in, an integrated health and care system is one of the four pillars of population health and has an important role to play in tackling obesity (Buck *et al* 2018). This section first considers the role of the NHS as part of the whole health and care system. We go on to look at how integrated care systems (ICSs) and place-based partnerships provide a way to develop the role of the NHS as part of a whole-system approach to tackling obesity.

The role of the NHS

This section considers how health services can tackle obesity by supporting behaviour change, shaping wider determinants of health and reducing health inequalities.

Supporting behaviour change

Diet and physical inactivity are the principal behavioural risk factors contributing to obesity. These can be addressed by working with individuals to change behaviours, though an individual's environment and socio-economic conditions have a strong influence on the choices they make and can be a significant barrier to lasting behaviour change, particularly in deprived areas.

The NHS has a key role to play in supporting behaviour change via information provision, clinical interventions and service design, by using, for example, opportunistic interventions, targeted weight management services, social prescribing and surgical interventions.

Opportunistic interventions

Evidence shows that people are usually receptive to health advice from a trusted health professional (Albury *et al* 2018; Maciosek *et al* 2017; Aveyard *et al* 2016). The Making Every Contact Count programme aims to capitalise on this by informing and training staff so they can confidently provide health information and advice to patients (Health Education England undated).

However, there is evidence that many health professionals are deeply uncomfortable or unwilling to have conversations about obesity and that for some unconscious biases affect how they work with obese patients ([Tanneberger et al 2018](#); [Wynn et al 2018](#); [Foster and Hirst 2014](#)).

The NHS Long Term Plan ([NHS England 2019](#)) also highlights the need to improve understanding and confidence in talking about nutrition among health care professionals and calls for nutrition awareness to be a more prominent core module within medical education. This is an important and necessary step towards improving the confidence of clinicians in having conversations about weight and diet with their patients, though it will take some time for this change to have impact in practice.

Research has shown that common unhealthy behaviours such as physical inactivity, excessive alcohol consumption, unhealthy diet and smoking, tend to cluster in the same individuals ([Birch et al 2018](#); [Buck and Frosini 2012](#)). People in lower socio-economic groups are also more at risk. For example, people from more deprived areas who report being unable to work, are three times more likely to report a higher number of these behaviours than those from the same communities who are in full-time employment ([Watts et al 2016](#)). This indicates that behaviour change services need to address the problem of multiple unhealthy behaviours rather than simply focusing on individual behaviours ([Buck and Evans 2018](#)).

There are examples from across England of NHS organisations working in partnership with local authorities to improve health promotion approaches by better identifying multiple behavioural risk factors during incidental contacts or appointments, then having conversations about health improvement including referral to behaviour change services ([Buck and Evans 2018](#)). These types of conversation can be an effective health promotion tool, allowing clinicians to give constructive health advice and make referrals to weight management services, or even to clinical interventions.

Health improvement assessments at the Royal Bolton Hospital

Bolton Council and the Royal Bolton Hospital have worked in partnership to create a health promotion assessment form. The form is used by nurses to have brief conversations with patients about health behaviours, including weight management, smoking, alcohol consumption and sexual health.

The form is designed make the most of these conversations and, in a non-judgemental way, encourage people to think about how their behaviours affect their health and direct them to support services like tier-two weight management.

The health improvement team, which before 2013 was based in the hospital and is now in the council's public health team, has trained staff to use the form and actively encourage its use.

This simple intervention helps the hospital to make the most of contacts it has with patients, at a time when people are likely to be more receptive to health advice. While this is a universal rather than a targeted intervention, it has proved to be an effective way of reaching people from more deprived communities who are most likely to live with multiple unhealthy behaviours, as the local health improvement team had observed that people in these groups were less likely to access behaviour change support via self-referral or primary care.

An added benefit is that it encourages hospital staff to evaluate their own health behaviours, leading to improvements in the health and wellbeing of hospital staff (Bickerstaffe and Williams 2014).

Targeted weight management services

Weight management services are a broad range of health advice, information and behaviour change support commissioned and provided by local authorities and NHS clinical commissioning groups. Research shows that they can be an effective intervention to support lasting health improvement (Valabhji *et al* 2020; McCombie *et al* 2012). However, data on the availability and use of NHS and local authority-commissioned behaviour change weight management services is not routinely collected, meaning there is not a complete picture of service provision at a local or national level (Public Health England and the Royal College of Physicians 2015).

Existing evidence suggests that the availability of free-at-the-point-of-use weight-management services varies across England, and services are rarely targeted to meet the needs of population groups with the greatest prevalence of obesity (NHS England and NHS Improvement 2019b).

The NHS Long Term Plan sets out plans to better target NHS weight management services, both for individuals with the greatest need but also for population groups where obesity, and associated morbidities, are on average higher (NHS England 2019). The government has already committed £70 million to improve access to NHS and local authority run weight management services, while NHS England and NHS Improvement have added £20 million worth of financial incentives to GP contracts to encourage referrals to weight management services in 2021/22 (Department of Health and Social Care 2021b; NHS England and NHS Improvement 2021).

Separately, the NHS Long Term Plan commits to doubling the levels of investment in the national Diabetes Prevention programme between 2019/20 and 2024/25, specifically to increase uptake among ethnic minority communities who are more at risk of developing diabetes. Early evidence from service evaluations of this programme is very positive, showing it can lead to weight loss at a population level (Valbhji *et al* 2020).

Different communities and individuals will benefit from different types of weight management interventions (NHS England and NHS Improvement 2019b). As such, targeting and tailoring services and working with partners in local authorities, community groups and the public should be key to how these services are designed and commissioned, and should include a focus on cultural competency (NHS England and NHS Improvement 2019b; Public Health England 2019b).

Social prescribing

Social prescribing is a means of enabling health professionals to refer people to a range of non-clinical interventions. The referrals generally, but not exclusively, come from professionals working in primary care settings, for example, GPs or practice nurses (Buck and Ewbank 2020).

Social prescribing involves a range of activities, typically provided by voluntary and community sector organisations. This could include behaviour change support, such as healthy eating advice, cookery classes or physical activities like walking groups or sports, though as a model social prescribing takes a holistic approach to physical and mental wellbeing.

Overall, the evidence base, while in need of development, suggests that social prescribing can deliver significant benefits in terms of improvements in wellbeing, health and reductions in use of health services – though there is not yet evidence of any direct benefits around weight loss (Polley *et al* 2020; Public Health England 2019a; Dayson *et al* 2017; Kimberlee 2013). Social prescribing should not be seen as a

route to treat any specific condition or address any particular risk factor, but it can form a key part of a personalised, preventive support offer to people with long-term conditions. This could include increased levels of physical activity and greater engagement with health advice on diet, as well as benefits to people's self-esteem, confidence and self-efficiency which will support efforts to make lasting health behaviour changes (Buck and Ewbank 2020).

The NHS Five Year Forward View (NHS *et al* 2014), the General Practice Forward View (NHS England *et al* 2016) and the NHS Long Term Plan all highlight the value of social prescribing and of the NHS building effective networks with local voluntary and community sector partners. This work is being led by primary care networks (PCNs) and the current GP framework contract provides funding for one social prescribing link worker per PCN (Baird and Beech 2020).

Surgical interventions

Weight-loss surgery, often referred to as bariatric surgery, can lead to significant weight loss and help improve weight-related conditions.

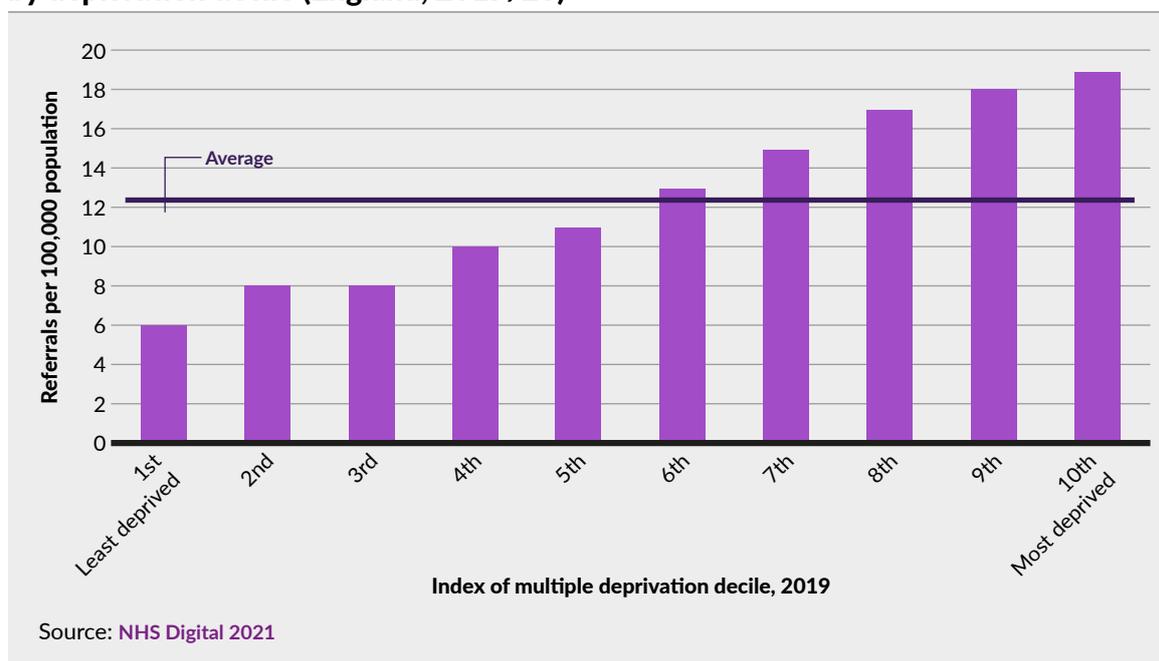
To be eligible for weight-loss surgery a person must be morbidly or severely obese, with a BMI of more than 40, or have a BMI between 35 and 40 along with two or more obesity-related long-term conditions. An additional requirement for NHS-funded weight-loss surgery is that attempts at losing weight through diet and physical activity have been unsuccessful or unsustainable (NHS undated).

While surgery can be highly effective, it is also highly invasive and to be effective in the long-term needs to be accompanied by behaviour change or else risk regaining the initial weight lost (NHS undated).

In 2018/19, 7,011 people were referred for weight-loss surgery in 2018/19, a rate of 12.9 per 100,000 adults. Rates of referral are significantly higher in more deprived areas (see Figure 9), though this is approximately proportional to actual rates of severe obesity (NHS Digital 2020a).

As with all obesity-related hospital admissions, data suggests that in more deprived areas more women than men are referred to weight-loss surgery. Nationally, women are referred to weight-loss surgery at a rate four times that of men. Women from the most deprived communities have the very highest referral rates at 20 per 100,000 which is five times the rate at which men are referred (NHS Digital 2021; Ministry of Housing, Communities and Local Government 2019).

Figure 9 Referrals for weight-loss surgery per 100,000 of population by deprivation decile (England, 2019/20)



Guidance is clear that behaviour change support is needed to ensure surgery is effective and leads to long-term weight loss ([National Institute for Health and Care Excellence 2016](#); [NHS undated](#)). A lack of data means it is not possible to compare availability of weight management services to rates of referral for weight-loss surgery in a local area. However, as set out above, access to these services is variable, including for people more deprived communities ([NHS England and NHS Improvement 2019b](#)).

This raises concerns about availability of follow-up care to support long-term behaviour change after surgery. If access to surgery is to be expanded, it will be vital that intensive behaviour-change support services are proportionately scaled up and current gaps in provision are filled.

As an anchor institution

An anchor institution is a large organisation that, because of social, economic and environmental factors, is integral to the wellbeing of its local population.

There is growing awareness that the NHS has the potential to be an effective anchor institution; this is primarily about leveraging its economic power to tackle wider determinants of health, but also about recognising the influence it has as a large employer ([Maguire 2020](#), [Reed et al 2019](#)).

One example of where this influence as an employer has been used to target obesity is in recent changes made to the NHS Standard Contract, which puts in place measures to limit the sale of food and drink that is high in sugar, salt or fat on NHS estates (NHS England 2021). This has a direct impact on the food environment that NHS staff are surrounded by at their place of work and encourages healthier choices among staff. It also projects an important message to patients and visitors.

The other social, economic and environmental powers that the NHS has to improve health are indirect but have the potential to be very effective in addressing wider determinants of health (Public Health England 2021a, Reed *et al* 2019). This includes addressing noted risk factors for obesity, for example, by using the NHS estate, which includes 6,500 hectares of land, to encourage physical activity or by procuring food in a way that supports local supply chains and production of healthier foods (Fenney and Buck 2021; Reed *et al* 2019; Naylor 2017).

Reducing health inequalities

We have set out the link between obesity rates and associated morbidities and health inequalities. The NHS has a vital role to play in tackling health inequalities, with ICSs and local place-based partnerships key in doing so. Effectively tackling obesity should be a core part of the agenda for partnership work at place and system level to reduce inequalities.

The NHS Long Term Plan commits to targeting funding to areas with the worst levels of inequalities, in expectation that local NHS organisations, working closely with local government, would develop plans to reduce inequalities. The Covid-19 pandemic exposed these inequalities, taking a disproportionate toll on groups already facing the worst health outcomes, including some ethnic minority communities and people living in the most deprived areas (Public Health England 2020).

The 2021/22 planning guidance for the NHS (NHS England and NHS Improvement 2021a) re-commits to tackling health inequalities. It returns to priorities set in the NHS Long Term Plan and requires systems to appoint a senior responsible officer to develop plans to improve primary and secondary prevention of ill-health and to reduce health inequalities.

The guidance is clear that these plans should include strategies to prevent and treat obesity, targeted at those groups most affected by obesity and that experience some of the worst health outcomes as a result. This includes the most deprived communities, particularly women in the those communities as well as some ethnic minority groups (NHS England and NHS Improvement 2019b).

Whole-system approaches to population health improvement

This section explores how the whole health and care system, via ICSs and place-based partnerships, can work collaboratively to use a wider range of interventions and levers to improve the health of the populations they serve.

ICSs are intended to encourage closer partnership-working between local NHS organisations, local authorities, voluntary sector organisations and others. At a more local level, place-based partnerships have been developed in many parts of England, and these partnerships should provide the foundation for effective ICSs (Charles *et al* 2021). A whole-system approach to obesity will require the active involvement of partners at both these levels, with most of the work being implemented at place level or even more locally, at 'neighbourhood' level.

Definitions

- **Systems** (covering populations of about 1 million to 3 million people): in which the whole area's health and care partners in different sectors come together to set strategic direction and to develop economies of scale.
- **Places** (covering populations of about 250,000 to 500,000 people): served by a set of health and care providers in a town or district, connecting PCNs to broader services, including those provided by local councils, community hospitals or voluntary organisations.
- **Neighbourhoods** (covering populations of about 30,000 to 50,000 people): served by groups of GP practices working with NHS community services, social care and other providers to deliver more co-ordinated and proactive services, including through PCNs.

Source: NHS England and NHS Improvement 2019a

There are examples from across England of local authorities working closely with their communities to improve health outcomes, including addressing the lifestyle risk factors associated with obesity (Local Government Association 2019). While many local areas have implemented systemic obesity strategies via health and wellbeing boards, the development of ICSs and place-based partnerships gives the NHS new opportunities to focus on improving population health and tackling obesity by leveraging the resource and leadership of multiple partner organisations.

Place-based approaches to tackling obesity in South Yorkshire and Bassetlaw

South Yorkshire and Bassetlaw is noted as an ICS that has focused on being prevention led, including developing plans at a system level to support place-based plans to address wider determinants and behavioural risk factors of ill health (Charles *et al* 2018; South Yorkshire and Bassetlaw ICS 2020). Its plan sets out some clear steps to reduce obesity and incentivise physical activity at a system level. The ICS intends to:

- work with local authority partners to promote physical activity and embed physical activity as a treatment in clinical care
- increase referrals to the diabetes prevention programme and review provision of clinical weight management services
- encourage NHS staff to travel sustainably and actively
- leverage power as an anchor institution to procure for social value
- use NHS estates to support socio-economic and environmental aims.

The ICS is made up of five places (Barnsley, Bassetlaw, Doncaster, Rotherham and Sheffield) all of which have developed their own health and wellbeing plans. Each of these local, or place-based plans, reflects the communities it is designed to support and focuses on building on the assets available.

Whole-system approaches could see the NHS use a range of the interventions describe above, around supporting behaviour change, acting as an anchor institution and providing system leadership, but in partnership with local authorities and community groups, to ensure these interventions form part of a holistic health improvement offer that cuts across all four pillars of population health.

Conclusion

Obesity prevalence, the incidence of obesity-related morbidities and associated hospital admissions have risen over recent years. This translates to worse population health and increased costs for the NHS. The causes of these trends are social, economic, behavioural and environmental. Addressing them will require a cross-cutting, population health approach that focuses on prevention as well as the treatment of obesity-related conditions.

This is best done at a local, or place-based, level, where the health and care system can work together with partners to target services most effectively at groups with the greatest need, including more deprived communities. This should also include supporting efforts to tackle the wider determinants of health. Working in this way should be a key part of strategies to reduce health inequalities. The development of ICS and place-based partnerships presents the opportunity for the NHS and local partners to embed this and achieve lasting improvements to population health.

References

Albury C, Stokoe E, Ziebland S, Webb H, Aveyard P (2018). 'GP-delivered brief weight loss interventions: a cohort study of patient responses and subsequent actions, using conversation analysis in UK primary care'. *British Journal of General Practice*, vol 68, no 674, pp 646–53. Available at: <https://bjgp.org/content/68/674/e646.short> (accessed on 27 May 2021).

Aveyard P, Lewis A, Tearne S, Hood K, Christian-Brown A, Adab P, Begh R, Jolly K, Daley A, Farley A, Lycett D, Nickloess A, Yu L, Retat L, Webber L, Pimpin L, Jebb A (2016). 'Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomised'. *The Lancet*, vol 388, pp 2492–500. Available at: <https://pubmed.ncbi.nlm.nih.gov/27789061> (accessed on 27 May 2021).

Avila C, Holloway A, Hahn M, Morrison K, Restivo M, Anglin R, Taylor V (2015). 'An overview of links between obesity and mental health'. *Current Obesity Reports*, vol 4, pp 303–10. Available at: <https://link.springer.com/article/10.1007/s13679-015-0164-9> (accessed on 27 May 2021).

Baird B, Beech J (2020). 'The 2020/21 update to the GP contract explained'. The King's Fund website. Available at: www.kingsfund.org.uk/publications/202021-update-gp-contract-explained (accessed on 27 May 2021).

Beech J, Holmes J, McKenna H, Cooper E (2020). *What role do taxes and regulation play in promoting better health?* London: The King's Fund. Available at: www.kingsfund.org.uk/publications/taxes-regulation-better-health (accessed on 27 May 2021).

Bickerstaffe G, Williams D (2014). 'Advising on lifestyle can improve nurses' health'. *Nursing Times*, vol 110, no 51, pp 17–9. Available at: <https://pubmed.ncbi.nlm.nih.gov/26012068/> (accessed on 27 May 2021).

Birch J, Petty R, Hooper L, Bauld L, Rosenberg G, Vohra J (2019). 'Clustering of behavioural risk factors for health in UK adults in 2016: a cross-sectional survey'. *Journal of Public Health*, vol 41, no 3, pp 226–36. Available at: <https://pubmed.ncbi.nlm.nih.gov/30192965> (accessed on 27 May 2021).

Booske B, Athens J, Kindig D, Remington P (2010). *Different perspectives for assigning weights to wider determinants of health* [online]. Madison, US: Population Health Institute, University of Wisconsin. Available at: www.countyhealthrankings.org/sites/default/files/differentPerspectivesForAssigningWeightsToDeterminantsOfHealth.pdf (accessed on 27 May 2021).

Buck D, Frosini F (2012). *Clustering of unhealthy behaviours over time: implications for policy and practice*. London: The King's Fund. Available at: www.kingsfund.org.uk/publications/clustering-unhealthy-behaviours-over-time (accessed on 27 May 2021).

Buck D, Baylis A, Dougall D, Robertson R (2018). *A vision for population health: towards a healthier future*. London: The King's Fund. Available at: www.kingsfund.org.uk/publications/vision-population-health (accessed on 27 May 2021).

Buck D, Evans H (2018). *Tackling multiple unhealthy risk factors: emerging lessons from practice*. London: The King's Fund. Available at: www.kingsfund.org.uk/publications/tackling-multiple-unhealthy-risk-factors (accessed on 27 May 2021).

Buck D, Ewbank L (2020). 'What is social prescribing?'. The King's Fund website. Available at: www.kingsfund.org.uk/publications/social-prescribing (accessed on 27 May 2021).

Cabinet Office and Department of Health and Social Care (2019). *Advancing our health: prevention in the 2020s* [online]. CP 110. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/819766/advancing-our-health-prevention-in-the-2020s-accessible.pdf (accessed on 8 June 2021).

Cabinet Office, Department of Health and Social Care, HM Treasury, Prime Minister's Office, 10 Downing Street (2017). *Childhood obesity: a plan for action* [online]. GOV.UK website. Available at: www.gov.uk/government/publications/childhood-obesity-a-plan-for-action/childhood-obesity-a-plan-for-action (accessed on 27 May 2021).

Charles A, Wenzel L, Kershaw M, Ham C, Walsh N (2018). *A year of integrated care systems: reviewing the journey so far*. London: The King's Fund. Available at: www.kingsfund.org.uk/publications/year-integrated-care-systems (accessed on 27 May 2021).

Cox C (2017). 'Role of physical activity for weight loss and weight maintenance'. *Diabetes Spectrum*, vol 30, no 3, pp 157–60. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC5556592 (accessed on 27 May 2021).

Dahlgren G, Whitehead M (1993). 'Tackling inequalities in health: what can we learn from what has been tried?' Working paper prepared for The King's Fund international seminar on tackling inequalities in health, Ditchley Park, Oxfordshire, September 1993, in Dahlgren G, Whitehead M, editors, *European strategies for tackling social inequities in health: levelling up, part 2* (2007), pp 20–32. World Health Organization website. Available at: <https://apps.who.int/iris/handle/10665/107791> (accessed on 9 June 2021).

Dayson C, Eadson W, Gilbertson J, Bashir N, Pearson S (2017). 'Evaluation of the Rotherham social prescribing pilot', Centre for Regional Economic and Social Research, Sheffield Hallam University website. Available at: <https://www4.shu.ac.uk/research/cresr/ouexpertise/evaluation-rotherham-social-prescribing-pilot> (accessed on 7 June 2021).

Department for Environment, Food and Rural Affairs (2020). 'Developing a national food strategy: independent review 2019 – terms of reference' [online]. GOV.UK website. Available at: www.gov.uk/government/publications/developing-a-national-food-strategy-independent-review-2019/developing-a-national-food-strategy-independent-review-2019-terms-of-reference (accessed on 27 May 2021).

Department of Health and Social Care (2021a). *Integration and innovation: working together to improve health and social care for all*. GOV.UK website. Available at: www.gov.uk/government/publications/working-together-to-improve-health-and-social-care-for-all (accessed on 27 May 2021).

Department of Health and Social Care (2021b). 'New specialised support to help those living with obesity to lose weight'. Press release. GOV.UK website. Available at: www.gov.uk/government/news/new-specialised-support-to-help-those-living-with-obesity-to-lose-weight (accessed on 27 May 2021).

Department of Health and Social Care (2020). *Tackling obesity: empowering adults and children to live healthier lives*. GOV.UK website. Available at: www.gov.uk/government/publications/tackling-obesity-government-strategy (accessed on 27 May 2021).

Department of Health and Social Care (2018). *Childhood obesity: a plan for action, chapter 2* [online]. GOV.UK website. Available at: www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2 (accessed on 27 May 2021).

Department for Health and Social Care (2017). 'NHS property and estates: why the estate matters for patients'. GOV.UK website. Available at: www.gov.uk/government/publications/nhs-property-and-estates-naylor-review (accessed on 27 May 2021).

Donini L, Rosano A, Lazzaro L, Lubrano C, Carbonelli M, Pinto A, Giusti A, Lenzi A, Siervo M (2020). 'Impact of disability, psychological status and comorbidity on health related quality of life perceived by subjects with obesity'. *Obesity Facts*, vol 12, no 2, pp 191–200. Available at: www.karger.com/Article/FullText/506079 (accessed on 27 May 2021).

Fenney D, Buck D (2021). *The NHS's role in tackling poverty: awareness, action and advocacy* [online]. The King's Fund website. Available at: www.kingsfund.org.uk/publications/nhs-role-tackling-poverty (accessed on 27 May 2021).

Foster C, Hirst J (2014). 'Midwives' attitudes towards giving weight related advice to obese pregnant women'. *British Journal of Midwifery*, vol 22, no 4. Available at: www.magonlinelibrary.com/doi/abs/10.12968/bjom.2014.22.4.254 (accessed on 27 May 2021).

Health Education England (undated). 'Making every contact count'. Health Education England website. Available at: www.makingeverycontactcount.co.uk (accessed on 27 May 2021).

Ho F, Celis-Morales C, Petermann-Rocha F, Parra-Soto S, Lewsey J, Mackay D, Pell J (2021). 'Changes over 15 years in contribution of adiposity and smoking to deaths in England and Scotland'. *BMC Public Health*, vol 21, art no 169. Available at: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-10167-3> (accessed on 27 May 2021).

Kimberlee R (2013). 'Developing a social prescribing approach for Bristol'. University of the West of England website. Available at: <https://uwe-repository.worktribe.com/output/927254> (accessed on 27 May 2021).

Lancashire County Council (2020). '2019 deprivation analysis'. Lancashire County Council website. Available at: www.lancashire.gov.uk/lancashire-insight/deprivation/indices-of-deprivation-2019/2019-deprivation-analysis (accessed on 27 May 2021).

Llewellyn A, Simmonds M, Owen CG, Woolacott N (2015). 'Childhood obesity as a predictor of morbidity in adulthood: a systematic review and meta-analysis'. *Obesity Reviews*, vol 17, no 1, pp 56–67. Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/obr.12316> (accessed on 17 May 2021).

Local Government Association (2019). *Whole systems approach to obesity: a guide to support local approaches to achieving a healthier weight* [online]. LGA website. Available at: www.local.gov.uk/publications/whole-systems-approach-obesity-guide-support-local-approaches-achieving-healthier (accessed on 27 May 2021).

Maciosek M, LaFrance A, Dehmer S, McGree D, Xu Z, Flottemesch T and Solberg L (2017). 'Health benefits and cost effectiveness of brief clinician tobacco counselling for youth and adults'. *Annals of Family Medicine*, vol 15, no 1, pp 37–47. Available at: www.annfamned.org/content/15/1/37.short (accessed on 27 May 2021).

Maguire D (2020). 'The economic influence of the NHS at the local level'. The King's Fund website. Available at: www.kingsfund.org.uk/publications/economic-influence-nhs-local-level (accessed on 27 May 2021).

Marmot M, Allen J, Boyce T, Goldblatt P, Morrison J (2020). 'Health equity in England: the Marmot Review 10 years on' [online]. The Health Foundation website. Available at: www.health.org.uk/publications/reports/the-marmot-review-10-years-on (accessed on 27 May).

McCombie L, Lean M, Haslam D, Counterweight Research Group (2012). 'Effective UK weight management services for adults'. *Clinical Obesity*, vol 2, no 3/4, pp 96–102. Available at: <https://pubmed.ncbi.nlm.nih.gov/25586163/> (accessed on 27 May 2021).

Ministry of Housing, Communities and Local Government (2019). 'English indices of deprivation'. GOV.UK website. Available at: www.gov.uk/government/statistics/english-indices-of-deprivation-2019 (accessed on 27 May 2021).

National Food Strategy (2020). 'National food strategy: part one'. National Food Strategy website. Available at: www.nationalfoodstrategy.org/partone (accessed on 27 May 2021).

National Institute for Health and Care Excellence (2016). 'Obesity: clinical assessment and management' [online]. Quality standard QS127. NICE website. Available at: www.nice.org.uk/guidance/qs127/chapter/Quality-statement-6-Follow-up-care-after-bariatric-surgery (accessed on 27 May 2021).

Naylor R (2017). *NHS property and estates: why the estate matters for patients* [online]. GOV.UK website. Available at: www.gov.uk/government/publications/nhs-property-and-estates-naylor-review (accessed on 9 June 2021).

NHS (2019). 'Overview: obesity'. NHS website. Available at: www.nhs.uk/conditions/obesity (accessed on 27 May 2021).

NHS Digital (2021). 'Statistics on obesity, physical activity and diet, England 2021'. NHS Digital website. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/england-2021> (accessed on 27 May 2021).

NHS Digital (2020a). 'Health survey for England, 2019'. NHS Digital website. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2019/health-survey-for-england-2019-data-tables> (accessed on 27 May 2021).

NHS Digital (2020b). 'National child measurement programme'. NHS Digital website. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme> (accessed on 28 June 2021).

NHS Digital (2020c). 'Statistics on obesity, physical activity and diet, England 2020'. NHS Digital website. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet> (accessed on 28 June 2021).

NHS Digital (2015). 'Health survey for England, 2014'. NHS Digital website. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/health-survey-for-england-2014> (accessed on 27 May 2021).

NHS (undated). *Weight loss surgery* [online]. NHS website. Available at: www.nhs.uk/conditions/weight-loss-surgery (accessed on 27 May 2021).

NHS England (2021). *The NHS Standard Contract* [online]. NHS England and NHS Improvement website. Available at: www.england.nhs.uk/nhs-standard-contract (accessed on 27 May 2021).

NHS England (2019). *The NHS long term plan*. NHS England and NHS Improvement website. Available at: www.longtermplan.nhs.uk/publication/nhs-long-term-plan (accessed on 27 May 2021).

NHS England and NHS Improvement (2021a). *2021/22 priorities and operational planning guidance* [online]. NHS England and NHS Improvement website. Available at: www.england.nhs.uk/publication/2021-22-priorities-and-operational-planning-guidance (accessed on 27 May 2021).

NHS England and NHS Improvement (2021). *Update to GP contract arrangements for 2021/22* [online]. NHS England and NHS Improvement website. Available at: www.england.nhs.uk/publication/update-to-gp-contract-arrangements-for-2021-22 (accessed on 18 June 2021)

NHS England and NHS Improvement (2019a). *Designing integrated care system (ICSSs) in England* [online]. NHS England and NHS Improvement website. Available at: www.england.nhs.uk/publication/designing-integrated-care-systems-icss-in-england (accessed on 27 May 2021).

NHS England and NHS Improvement (2019b). 'Tier 2 weight management services'. NHS England and NHS Improvement website. Available at: www.england.nhs.uk/ltphimenu/prevention/tier-2-weight-management-services (accessed on 9 June 2021).

NHS England, Care Quality Commission, Health Education England, Monitor, NHS Trust Development Authority, Public Health England (2014). *NHS five year forward view* [online]. NHS England website. Available at: www.england.nhs.uk/ourwork/futurenhs (accessed on 9 June 2021).

NHS England, Royal College of General Practitioners, Health Education England (2016). *General practice forward view* [online]. NHS England website, Available at: www.england.nhs.uk/gp/gpfpv (accessed on 9 June 2021).

Nigatu Y, Reijneveld S, de Jonge P, van Rossum E, Bultmann U (2016). 'The combined effects of obesity, abdominal obesity and major depression/anxiety on health related quality of life: the lifelines cohort study'. *Plos One*, vol 11, no 2. Available at: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0148871> (accessed on 27 May 2021).

Organisation for Economic Co-operation and Development, European Union (2020). 'Health at a glance: Europe 2020'. OECD website. Available at: www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2020_82129230-en (accessed on 27 May 2021).

Organisation for Economic Co-operation and Development, The King's Fund (2020). *Is cardiovascular disease slowing improvements in life expectancy?* [online]. OECD website. Available at: www.oecd.org/health/is-cardiovascular-disease-slowing-improvements-in-life-expectancy-47a04a11-en.htm (accessed on 27 May 2021).

Pell D, Mytton O, Penney T, Briggs A, Cummins S, Penn-Jones C, Rayner M, Rutter H, Scarborough P, Sharp S, Smith R, White M, Adams J (2021). 'Changes in soft drinks purchased by British households associated with the UK soft drinks industry levy: controlled interrupted time series analysis'. *BMJ*, vol 372, art no 254. Available at: www.bmj.com/content/372/bmj.n254 (accessed on 27 May 2021).

Polley M, Whiteside J, Elnaschie S, Fixsen A (2020). *What does successful social prescribing look like? Mapping meaningful outcomes* [online]. University of Westminster website. Available at: <https://westminsterresearch.westminster.ac.uk/item/qyz67/what-does-successful-social-prescribing-look-like-mapping-meaningful-outcomes> (accessed on 27 May 2021).

Public Health England (2020). *Covid-19: review of disparities in risks and outcomes* [online]. GOV.UK website. Available at: www.gov.uk/government/publications/covid-19-review-of-disparities-in-risks-and-outcomes (accessed on 27 May 2021).

Public Health England (2019a). *Effectiveness of social prescribing: an evidence synthesis* [online]. Public Health England website. Available at: <https://phe.koha-ptfs.co.uk/cgi-bin/koha/opac-retrieve-file.pl?id=9c033e58d33d6eb6f59dae978c0f7839> (accessed on 27 May 2021).

Public Health England (2019b). 'Whole systems approach to obesity'. GOV.UK website. Available at: www.gov.uk/government/publications/whole-systems-approach-to-obesity (accessed on 27 May 2021).

Public Health England (2021a). *Inclusive and sustainable economies: leaving no-one behind*. UK Government. Available at: www.gov.uk/government/publications/inclusive-and-sustainable-economies-leaving-no-one-behind (last accessed 27th May 2021)

Public Health England (2021b). 'Obesity profile: percentage of adults (aged 18+) classified as overweight or obese, counties and UAs'. Public Health England website. Available at: https://fingertips.phe.org.uk/profile/national-child-measurement-programme/data#page/8/gid/1938133368/pat/6/par/E12000001/ati/302/are/E06000047/iid/93088/age/168/sex/4/cid/4/tbm/1/page-options/car-ao-1_car-do-1 (accessed on 27 May 2021).

Public Health England (2021c). 'Public Health Outcomes Framework dashboard – percentage of physically active adult'. Public Health England website. Available at: https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/7/gid/1000042/ati/402/iid/93014/age/298/sex/4/cid/4/tbm/1/page-options/ovw-do-0_car-ao-1_car-do-0_ine-vo-0_ine-yo-1:2017:-1:-1_ine-ct-40_ine-pt-0 (accessed on 27 May 2021).

Public Health England (2018a). *Eatwell guide* [online]. GOV.UK website. Available at: www.gov.uk/government/publications/the-eatwell-guide (accessed on 27 May 2021).

Public Health England (2018b). 'Fast food outlets: density by local authority in England'. GOV.UK website. Available at: www.gov.uk/government/publications/fast-food-outlets-density-by-local-authority-in-england (accessed on 27 May 2021).

Public Health England (2017). 'Health matters: obesity and the food environment'. Public Health England website. Available at: www.gov.uk/government/publications/health-matters-obesity-and-the-food-environment (accessed on 27 May 2021).

Public Health England, Royal College of Physicians (2015). *National mapping of weight management services: provision of tier 2 and tier 3 services in England* [online]. GOV.UK website. Available at: www.gov.uk/government/publications/weight-management-services-national-mapping (accessed on 27 May 2021).

Raleigh V (2021). 'What is happening to life expectancy in England'. The King's Fund website. Available at: www.kingsfund.org.uk/publications/whats-happening-life-expectancy-england (accessed on 27 May 2021.)

Raleigh V, Holmes J (2021). 'The health of people from ethnic minority groups in England'. The King's Fund website. Available at: www.kingsfund.org.uk/publications/health-people-ethnic-minority-groups-england (accessed on 27 May 2021).

Rawal L, Smith B, Quach H, Renzaho M (2019). 'Physical activity among adults with low socio-economic status living in industrialised countries: a meta-ethnographic approach to understanding socio-ecological complexities'. *Journal of Environmental and Public Health*, art no 4283027. Available at: www.hindawi.com/journals/jep/2020/4283027/#abstract (accessed on 27 May 2021).

Reed S, Gopfert A, Wood S, Allwood D, Warburton W (2019). *Building healthier communities: the role of the NHS as an anchor institution* [online]. London: The Health Foundation. Available at: www.health.org.uk/publications/reports/building-healthier-communities-role-of-nhs-as-anchor-institution (accessed on 27 May 2021).

Scott C, Sutherland J, Taylor A (2018). *Affordability of the UK's Eatwell guide* [online]. The Food Foundation. Available at: <https://foodfoundation.org.uk/publication/affordability-eatwell-guide> (accessed on 27 May 2021).

Select Committee on Food, Poverty, Health and the Environment (2020). *Hungry for change: fixing the failures in food* [online]. Report of Session 2019–21. HL Paper 85. parliament.uk website. Available at: <https://publications.parliament.uk/pa/ld5801/ldselect/ldfphe/85/8502.htm> (accessed on 27 May 2021).

South Yorkshire and Bassetlaw Integrated Care System (2020). *South Yorkshire and Bassetlaw ICS plan* [online]. South Yorkshire and Bassetlaw ICS website. Available at: <https://sybics.co.uk/transformation/five-year-plan> (accessed on 27 May 2021).

Swift D, Johannsen N, Lavie C, Earnest C, Church T (2015). 'The role of exercise and physical activity in weight loss and maintenance'. *Progress in Cardiovascular Diseases*, vol 56, no 4, pp 441–7. Available at: www.sciencedirect.com/science/article/abs/pii/S0033062013001655?via%3Dihub (accessed on 27 May 2021).

Tanneberger A, Ciupitu-Plath C (2017). 'Nurses weight bias in caring for obese patients: do weight controllability beliefs influence the provision of care to obese patients?' *SAGE Journals*, vol 27, no 4, pp 414–32. Available at: <https://journals.sagepub.com/doi/abs/10.1177/1054773816687443> (accessed on 27 May 2021).

Theis D, White M (2021). 'Is obesity policy in England fit for purpose? Analysis of government strategies and policies, 1992–2020'. *The Milbank Quarterly*, vol 99, no 1, pp 126–70. Available at: <https://onlinelibrary.wiley.com/doi/10.1111/1468-0009.12498> (accessed on 27 May 2021).

Tobias D, Hu F (2018). 'The association between BMI and mortality: implications for obesity prevalence'. *The Lancet Diabetes and Endocrinology*, vol 6, no 12. Available at: [www.thelancet.com/journals/landia/article/PIIS2213-8587\(18\)30309-7/fulltext](http://www.thelancet.com/journals/landia/article/PIIS2213-8587(18)30309-7/fulltext) (accessed on 27 May 2021).

Valabhji J, Barron E, Bradley D, Bakhai C, Fagg J, O'Neill S, Young B, Wareham N, Khunti K, Jebb S, Smith J (2020). 'Early outcomes from the English National Health Service Diabetes Prevention Programme'. *Diabetes Care*, vol 43, no 1, pp 152–60. Available at: <https://pubmed.ncbi.nlm.nih.gov/31719054> (accessed on 27 May 2021).

Watts P, Buck D, Netuveli G, Renton A (2016). 'Clustering of lifestyle risk behaviours among residents of forty deprived neighbourhoods in London: lessons for targeting public health interventions'. *Oxford Journal of Public Health*, vol 38, no 2, pp 308–15. Available at: <https://pubmed.ncbi.nlm.nih.gov/25762701> (accessed on 27 May 2021).

Westerterp K (2019). 'Exercise for weight loss'. *The American Journal of Clinical Nutrition*, vol 110, no 3, pp 40–1. Available at: <https://academic.oup.com/ajcn/article/110/3/540/5512192> (accessed on 27 May 2021).

Wynn T, Islam N, Thompson C, Myint K (2018). 'The effect of knowledge on healthcare professionals' perceptions of obesity'. *Obesity Medicine*, vol 11, pp 20–4. Available at: www.sciencedirect.com/science/article/abs/pii/S2451847618300083 (accessed on 27 May 2021).

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Jonathon Holmes joined The King's Fund in August 2019 as policy adviser. He works in the responsive policy team and his work at the Fund is primarily external facing, looking to understand and identify key areas of policy that the Fund's insight can help shape and influence.

Jonathon previously worked at Healthwatch England, where he led their work on social care, analysing public attitudes towards and understanding of the social care system in England. He also conducted focused policy work on hospital readmissions, dementia care, patient feedback and unpaid carers' experiences of support services. Before this he held policy roles in the voluntary sector and the care provider sector.

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