GUY'S & ST THOMAS' CHARITY

Bite Size:

Breaking down the challenge of **inner-city childhood obesity**

In partnership with:

THE BEHAVIOURAL INSIGHTS TEAM

About Guy's and St Thomas' Charity

We're an independent, place-based foundation. We work with Guy's and St Thomas' NHS Foundation Trust and others to improve the health of people in the London boroughs of Lambeth and Southwark.

We're about:

Place. We work in Lambeth and Southwark, supporting new approaches to health and sharing insights and learning with anyone facing similar challenges.

Focus. Our programmatic approach focuses on a few complex health issues at a time. Currently we're aiming to reduce childhood obesity and improve health for people with multiple long-term conditions.

Connecting. We bring great minds together, within and outside the NHS, to come at problems from different angles. And we collaborate, partnering with anyone - here and in other cities - to find, develop and deliver the best possible approaches to better health.

Vision. Great ideas sometimes need the space and resource to fly and to reach their potential – so we take a long-term view with a very open mind.

Impact. We're led by evidence and focussed on outcomes – always testing, evaluating, learning and adapting for greater results. By combining our resources with others, we create the kind of firepower that achieves meaningful change now and for future generations.

The Mayor and I very much welcome this report from Guy's and St Thomas' Charity – it brings intelligence, urgency and clarity to the debate on how we can collectively address childhood obesity in London.

It paints a vivid picture of what child obesity looks like in our community: right from the family home, out into nurseries and schools and the wider streets of our city. Every day in my surgery in Wandsworth, I see the impact this is having on our children's health and how it affects their future life chances.

I believe London is the greatest city in the world, but like any global city we are grappling with major challenges and, as this report so clearly highlights, one of those is child obesity.

Many Londoners enjoy some of the highest standards of living in the Western world. However, the reality is that when it comes to health and wellbeing, our city is still deeply divided. Too many Londoners are still suffering ill health because of social and economic exclusion.

Child obesity impacts on some of our most deprived communities, it limits their opportunities to get on in life and it drives health inequality across London.

Sadly, the complex factors that have entwined over the last couple of decades and have left us holding first place amongst our global peers as the city with the biggest child obesity problem.

This is not an area where we want London to be leading, quite the opposite. Tackling child obesity in London is an issue of inequality and the focus of the Mayor's action on this issue will not only be in getting a grip of the child obesity rates across the city but reducing the disproportionately high rates in London's more disadvantaged areas.

This report is an important contribution to our thinking and a call-to-action that as a city we must answer together.

Dr Tom Coffey
Mayor of London's Health Advisor

Contents

Family profiles

Essays

Foreword

In future years, when we have successfully tackled the health crisis of childhood obesity, a number of things will have occurred to us.

First, that its effects were disproportionately centred on poorer families. Second, that we spent too long seeing this as a problem of willpower, not environment. Third, that although the issue was complex, the solutions were not.

And make no mistake: this is a health crisis. In the UK, one in 10 children start school obese. That's enough to fill London's Olympic Stadium four times over. And entirely unacceptable.

Indeed, the problem is most pronounced in deprived, diverse, inner-city areas – areas like the London boroughs of Lambeth and Southwark, where we work.

The impacts of childhood obesity last all too predictably through life. A child who is obese aged five and aged 10 is more likely than not to be obese as an adult, with consequent reduction in healthy life expectancy and increase in cost to the economy.

But it is within our collective power to address this.

This report draws from the very latest thinking in behavioural science, lived experience, our work at Guy's and St Thomas' Charity, and insights from some of the world's leading practitioners. Rather than present an insurmountable problem, it suggests the issue of childhood obesity can be addressed – with care, conviction and coordination.

And this is critical. The way that we will win is to first believe that we can.

We hope that future generations will look back and see this time as a significant turning point, when society finally did what was needed to fully respond to the challenge of childhood obesity.

Because in so doing, everyone needs to play a role. The places our children grow up – our homes, schools and streets – are influenced by many different people. We will succeed by bringing them together and creating environments that make the healthy thing to do, the easy thing to do.

Kieron Boyle
Chief Executive
Guy's and St Thomas' Charity

Introduction

The scale and implications of childhood obesity have been repeated many times. There is wide spread recognition that it's one of the biggest health issues of the twenty-first century, and one that requires solutions at many different levels. There is also broad consensus that the largest direct cause of obesity are behaviours that result in an imbalance in energy: consuming more energy than is released. However, there isn't agreement about the drivers behind these behaviours, and consequently what the solutions are. This, combined with knowledge that a complex mix of factors affect eating behaviours, can sometimes lead to exasperation and paralysis in action.

All over the world, you are more likely to be obese living in an urban environment than a rural one. In many developed countries, you are also now more likely to be obese if you are poor. In the UK, children aged five years and from the poorest income groups, are twice as likely to be obese compared to their most well-off counterparts. By age 11, they are three times more likely.[1]

London has more overweight and obese children than any other major global city,[2] and the boroughs of Lambeth and Southwark, where we focus our work, encapsulate many of the reasons why. These boroughs are densely populated, have high population churn, high rates of income inequality and a complex ethnic and social mix. One in four local children aged four to five are obese or overweight. The number rises to two in five by the time they reach secondary school. The differences in rates between our most deprived and least deprived wards are more than double.

Why is this? Obesity and eating behaviour have often been framed as issues of individual knowledge, motivation and choice. Consequently, there are many calls for information campaigns and increased parent education to address the issue.

Individual motivation has an important role to play, but the overwhelming evidence points to childhood obesity as 'a normal response to an abnormal environment.'[3] People do not exist in a vacuum. Both adult and children's health are significantly influenced by the environments that they move through every day. These spaces have many, often competing, messages. More choices than would ever be possible to consider carefully in turn, and make conscious decisions around.

In this ground-breaking report, we explore the issue of childhood obesity through the lens of urban, diverse and deprived environments. We take a detailed look at the evidence on behaviour change, which reinforces the need to consider the role our surroundings play in driving unconscious decision-making. We draw on the experiences of families living in inner-city London as well as gather insights from data and learnings from interventions on the ground. And finally, we hear from a wide range of experts, who offer their perspectives from working with children and their families at a local, national and international level.

Executive Summary

This report explores how the characteristics of an inner-city setting contribute to the behavioural drivers of childhood obesity. We focus on three key characteristics of these settings: deprivation, diversity and urbanisation.

We consider how these factors affect behaviour and how interventions to tackle childhood obesity in inner-city areas should be informed by them.

This work is framed by a behavioural approach to understanding childhood obesity, and draws on studies and theory from psychology and behavioural economics, ethnography and expert insights.

Obesity has traditionally been classified as an issue of information and willpower, with repeated education initiatives aiming to reduce levels through improving knowledge. Rates have continued to rise, suggesting that knowledge alone does not translate into behaviour change.

Findings from the behavioural sciences have consistently shown that what people eat, and how much they eat, is strongly influenced by simple cues in their surroundings. We now have easier access to a wider variety of highly palatable, energy dense food than ever before. This food is cheap and widely promoted, both in the media and in stores.

If we don't even realise we're eating more, it becomes incredibly difficult for us to actively reduce our consumption. This effect is particularly strong when we are under pressure, including the stressful situations people living in deprived areas and on low incomes find themselves in every day.

Nowhere is this more apparent than in deprived urban areas, which have a higher density of fast-food outlets and corner stores. We need to have a more realistic and sympathetic view of people's eating behaviour, and design our schools, shops and cities with this in mind. We believe that leveraging findings from behavioural science will provide a much-needed boost in the fight against childhood obesity, and we look forward to putting these into practice working closely with others.

Key findings

Deprivation

There is a strong but complex relationship between socioeconomic status (“SES”) and childhood obesity. Low incomes directly constrain the diet and exercise choices families can make. Education levels, along with the cognitive burden of living under financial strain, are also associated with and contribute to the behaviours that lead to higher rates of childhood obesity. Interventions should make positive behavioural change as easy possible. That is, minimising the time, effort and costs of improving the diet and exercise of children is not only more likely to be effective, it is also less likely to lead to health inequalities than interventions which require greater effort. This would, for example, favour in-store interventions discouraging bulk purchases of high-energy food over dietary advice and meal planning.

Diversity

Inner-city areas are often ethnically diverse. There is some research into ethnic differences in childhood obesity and cultural differences in diet and exercise behaviour. Evidence suggests that whilst there are cultural differences in behaviours that contribute to childhood obesity, far more is common across groups than is different. Therefore, although interventions should take account of cultural or language differences, these differences do not require wholly distinct approaches. Rather cultural differences might best be seen as offering protective factors – for example, opportunities to increase the scope of interventions by making use of networks and focal points in the community.

Urban environments

Some aspects of the built environment encourage behaviours that lead to childhood obesity. Research struggles to unravel the precise relationship between the characteristics of an area, the people who live there and their health outcomes. However physical aspects of the environment - along with people’s perceptions of it - clearly have an impact on behaviour. Changing the physical environment is important but also likely to take a long time and be costly. A more pragmatic approach would be to change how people think about the environment they live in. This could be for example reframing the school run as an opportunity for exercise or encouraging people to consider shopping in healthier stores that might only be an extra few minutes’ walk from home.

Complexity of the problem

The relationship between deprivation, diversity and the urban context is often unpredictable and nonlinear. Despite this, the complexity of what drives childhood obesity does not mean that interventions must be equally complex. Indeed, a broad range of relatively simple interventions - applied consistently at both the individual and community levels has the most potential to tackle childhood obesity when aggregated at the population level.[4]

Principles for tackling childhood obesity

These practical principles draw together ways to develop a programme in line with the latest behavioural evidence around the drivers of obesity, paying particular attention to the interaction between the urban environment and our psychology.

They can be used to guide both overall strategy for a suite of interventions as well as more specific projects.

Design for maximum impact

Universal and preventative interventions

- Where possible, seek to make interventions universal across the population but more intense for those most disadvantaged.
- Universal and preventative interventions have the greatest potential for impact.
- Interventions focussed exclusively on those that volunteer are likely to only target those that are motivated.

Recognise the value of a harm reduction approach

- Adopt a strategy of harm reduction and substitution rather than expecting step changes in behaviours.
- Beware of “health halos” when encouraging a behaviour. Explicitly healthy choices may be less effective. Interventions may only be taken up by those that identify with a healthy lifestyle. Also, interventions may be less effective if people compensate, for example eating more of a ‘low fat’ food or treating themselves to dessert if they order a salad.

Physical activity is secondary to calorie consumption

- Physical activity should be promoted among children for a host of health and social reasons; but no one can outrun a bad diet.
- To combat childhood obesity an 80-20 split in the focus on diet over exercise is a good rule of thumb for a portfolio of interventions.

Make healthy choices easier

Make uptake and participation easy

- Ensure any intervention is as easy as possible to take part in and remain engaged with.
- Have realistic expectations of the amount of spare time and cognitive effort people have, particularly amongst people living in deprived areas for whom scarcity will have a disproportionate impact.
- Good intentions can quickly wane and interventions requiring time and effort are much less likely to be effective.

Look for marginal gains

- Any and all progress should be encouraged.
- We should not necessarily demand that people switch to conventionally healthy choices, as long as they’re improving on their previous behaviour.

Don’t only focus on education

- Purely educational interventions are less likely to be effective and have the potential to widen health inequalities.
- When information is provided it should be as easy to comprehend as possible and as close to the point of action as feasible. For example, simple signage at the point of purchase rather than a detailed nutritional information booklet in the post.

Change the environment

Reduce total food exposure

- Aim to reduce the availability and prominence of energy dense food in the entire food environment.
- There is now an abundance of affordable energy dense foods in an ever-wider range of retail outlets.
- Therefore, for example, a narrow focus on fast food outlets is likely to only tackle part of the problem.

Prioritise reducing unhealthy choices

- Promoting healthier foods may encourage substitution away from less healthy options and encourage good habits.
- However, simply increasing consumption of healthier foods without a reduction of less healthy foods will not reduce or prevent childhood obesity.
- Focusing on reducing the consumption of unhealthy foods will have the most meaningful impact.

Promote incidental physical activity

- Incidental physical activity interventions such as active travel are easy to begin and to incorporate into daily life.
- An added benefit is that the risk of compensatory behaviour (having an extra portion because you exercised) is reduced compared to more intense, organised exercise.

Combine multiple interventions

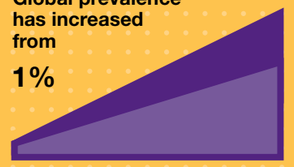
- There is no single solution to the childhood obesity problem but combining multiple, modest but meaningful interventions has the greatest potential.
- Get started on individual components rather than waiting for a single comprehensive programme, which can be built up over time.
- Not only is this a more feasible approach to generating impact, allowing for testing and learning, it is also more sustainable.

Childhood obesity in numbers

The big picture

Childhood obesity has been a growing problem worldwide for the past 40 years.

Global prevalence has increased from 1% to close to **8%** in boys[5] and over **5%** in girls



1975 2016

Rates in England are considerably higher than the global rates.

1 in 10 are overweight and **2 in 10 are obese**[6]**.** More boys than girls are obese and prevalence is highest amongst black children.[7]

Obese children are more likely to be obese adults, leading to even more serious consequences.[8]

Losing weight and keeping it off is hard to achieve, and gaining excess weight in childhood and adolescence is likely to lead to a lifelong problem.[9]

Deprivation

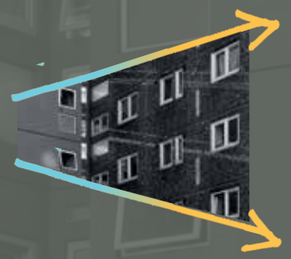
There is a strong relationship between deprivation and obesity.

In England, nearly 3 in 10 children living in the **most deprived** areas are obese

compared to around 1 in 10 in the **least deprived**.[10]

And the deprivation gap is growing.

8.5% in 2006/7



13.4% in 2017[11]

The difference between obesity rates among the least and most deprived children has increased by over 50% in the past decade.

Inner-city

Rates of childhood obesity are higher in urban areas[12]

Rural Areas 15%

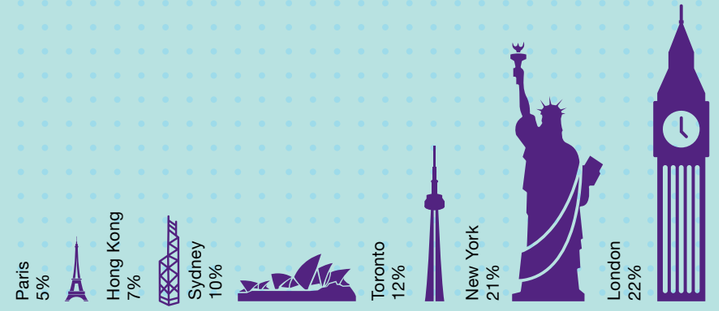
Urban Areas 20%

Children living in disadvantaged urban areas are hit particularly hard.[13]

Rates in disadvantaged urban communities and multicultural city life areas rise to:

In the capital

London has the highest rate of childhood obesity of any peer global city.[14]



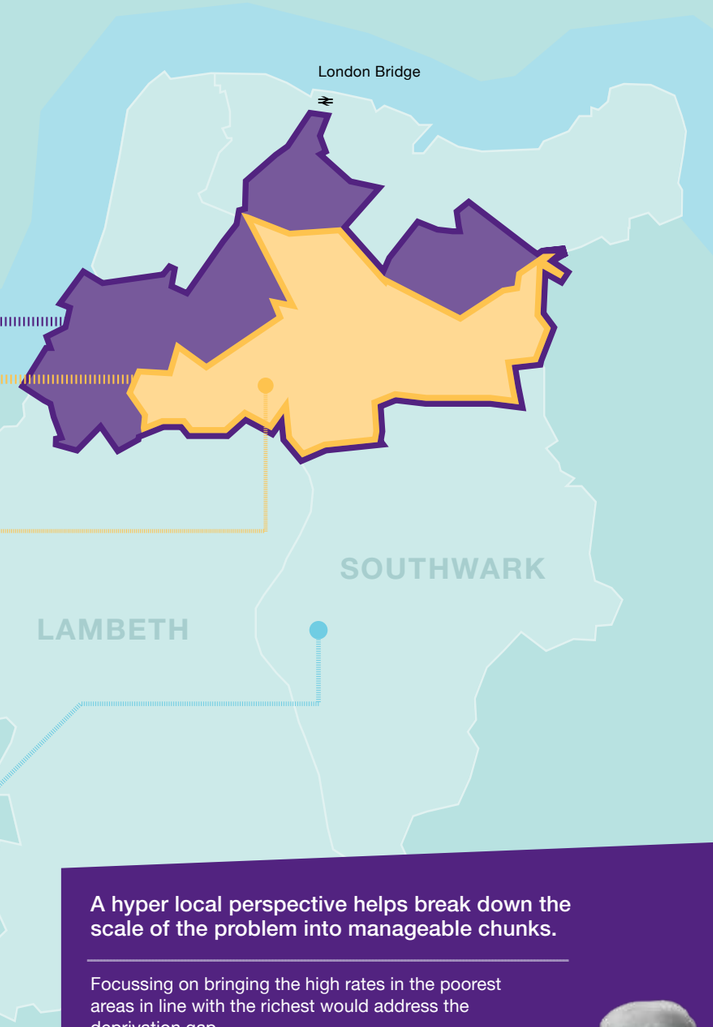
In the boroughs of Lambeth and Southwark in South London, there are exceptionally high pockets of obesity.

Rates are particularly severe in Southwark. The worst area is Camberwell Green, which has the highest prevalence in London and second highest in England.[15]

The variation in obesity is not random.[16]

The areas with the highest rates are concentrated along a corridor that runs across both boroughs.

12 local wards within this area also have the lowest median incomes and highest proportion of BAME population.



Comparison between areas within the boroughs

	Camberwell Green	Dulwich Village
Child obesity prevalence	1 in 3	1 in 10
avg household income	£31,840	£58,400
residents from BAME background	6 in 10	2 in 10

A hyper local perspective helps break down the scale of the problem into manageable chunks.

Focussing on bringing the high rates in the poorest areas in line with the richest would address the deprivation gap.

At a ward level, this could mean preventing around 20 children per year group from becoming obese.

All rates apart from global figures are quoted for Year 6 (10 to 11 year olds).

Lela is a 24-year-old single mum with two sons, aged two and five years old. They live in a one bedroom flat on an estate in Kennington. The flat is small and the kitchen is dark, contributing to a home environment that often feels stressful to Lela. This is exacerbated by her constant worrying about money and bills.

Lela is currently training to be a delivery driver for a supermarket, but her main source of income for the last few months has been benefits. Her household income is currently under £15,000.

Lela's family

Lela and her sons sleep on a bunk bed, with her oldest son on the top bunk and Lela with her youngest son on the bottom one. The father of her youngest son lives in Croydon with his mother, but helps her look after the children when he can. However, lack of space in her flat makes it difficult for him to stay over.

Lela goes food shopping at the Tesco superstore once a week, a 10-minute walk from home. She usually goes after she has dropped her youngest son off at nursery as she prefers to go shopping alone. This is because if she goes shopping with the children, she will usually end up spending more money because they will pester her to buy them sweets.

With money being tight, grocery shopping is often a stressful and embarrassing experience. Lela tries not to spend more than £20 a week on food. At the checkout, she'll put through her items in order of priority, when she reaches £20 she'll leave whatever else is in her basket. She gets embarrassed when this happens because she thinks the cashiers are annoyed with her for taking up their time. Putting items back is frustrating for her too as it disrupts the meals she's planned during the shop. To help avoid this embarrassment at the checkout, she has started using the mobile app while she's doing her shopping in-store. She adds items into both her actual and online shopping basket so that she can calculate the total price before she reaches the cashier.

Lela's usual routine is to cook her children's evening meal during the day, so it is ready for them when they come back from school. They usually have a couple of packets of crisps as an after-school snack. A typical meal is chicken with peppers and rice, which the children eat around 6pm.

While Lela always makes sure the children are fed, she sometimes does not eat herself. During the day, she'll drink tea and snack on biscuits, mainly to save money. Takeaways are a rare treat. She would love to have a family tradition of a takeaway on a Friday night, but because she knows how to cook she sees takeaways as wasting money. Instead, every penny she can spare is being saved to take her children on a holiday to Spain.

Dealing with complexity

Harry Rutter
London School of Hygiene and Tropical Medicine

Obesity is, on the face of it, a straightforward problem of energy balance: if people eat less, and exercise more, it will start to recede. But despite extensive efforts over many years the prevalence remains high, accompanied by deeply entrenched social inequalities. Why is this seemingly simple problem so hard to address?

Tackling Obesities: Future Choices, the 2007 report from the Government Office for Science, introduced the notion of obesity as a complex system problem.[17] Over the decade since then, the rhetoric of complexity has become commonplace when describing obesity, but true systems responses remain rare. Public, political, and media discourse are dominated by a persistent skew toward a conception of obesity not as a complex societal problem driven by the social, cultural, political, economic and physical environments in which we live, but instead as being driven primarily by personal choices. This is reflected in policies and actions biased towards short-term interventions acting at an individual, group, or community level, rather than tackling the structural drivers of weight-related ill-health over the medium and long-term.

One of the reasons progress has been so slow is that truly engaging with complexity requires a fundamental set of shifts in the ways we understand not only the nature of the problem, but also the ways in which we should respond to it.[18] All too often we think about upstream, population level actions as if they work in similar ways to individual level treatments. But human physiology is broadly consistent between different individuals, while interventions that act at a larger, population scale need to take account of what may be very different social, cultural, economic and political systems within which those people live.

A 'system' in this context, is a set of interacting elements that link together within an overarching whole. The specifics of a system depend on how one defines its characteristics and its boundaries: in the context of tackling obesity in an inner-city area like London's Lambeth and Southwark, one might choose to focus on the local food retail system within the borough. This might include supermarkets, corner shops, restaurants, takeaways and so on – alongside institutional provision within schools, hospitals, and workplaces. From a national policy perspective however, one might choose to extend well beyond this to include agriculture, trade, food security, food safety, sustainable development, and climate change. The characteristics of these systems differ, but they are both equally valid ways of conceptualising the factors that affect what people eat.

A common feature of systems such as these is that they are adaptive as a result of feedback within the system, which reconfigures itself in response to intervention. A ban on TV advertising of unhealthy foods to children might, for example, lead to increased investment in online and other forms of advertising.

Adaptation is one of a number of characteristics of complexity, along with other factors such as emergence (at its simplest the concept that the whole is more than the sum of its parts), interdependence (changes in one part of the system will have ramifications elsewhere), and non-linearity (the potential for unpredictable effects in response to changes within the system).

Our failure to grapple successfully with the true challenges brought by complexity is among the most important reasons for our lack of progress on obesity. We may understand very well what needs to be done, but we have a much less clear understanding of how to achieve the political and practical change that is required for it to happen, or how to sustain that change over time and across systems.

There are many things that can be done to reshape the local food system in South London, or the physical activity system within which schoolchildren move, play, and train. But the changes we introduce shouldn't be thought of as 'fixing' or 'solving' such a system, instead we should see them as influencing and altering it to achieve a different, ideally healthier, set of outcomes. All too often we design our interventions with a tight focus on achieving measurable results over the short term. But in the context of childhood obesity we need to consider much longer periods – impacts during childhood matter, but outcomes that lead to a healthier lifespan over decades are often far more important.

Complexity thus creates a major challenge for policymakers who are asked to commit funds, regulate markets, and introduce legislation to bring about changes that may lack robust evidence of direct effects within the political cycle. When contrasted with the kinds of evidence that are used to judge the cost-effectiveness of medical treatment one can see why this is difficult. But if we think differently about the ways in which public health interventions work, and use evidence that is grounded in an approach that gives due consideration to complex systems contexts, the challenge diminishes. Tackling obesity requires a large number of actions, at multiple levels of multiple systems.[19] None of them on its own reverses the problem, but collectively they can reshape the diets we eat and the activities we engage in.

We need to define our endgame for obesity – specify what level and distribution in the population we are aiming for as a trade-off between cost and benefit, freedom and constraint – and then set ourselves a vision of achieving that goal over perhaps 20 years. A framework that takes full account of the complexity of the relevant systems to identify short-term actions contributing to a five-year strategy, sitting coherently within a 20-year vision, would bring huge added value to our response to obesity.

Existing approaches to obesity prevention have plenty to commend them, and we should not pretend that complex systems approaches are the only type of response required.[20] But if we are to break the impasse we now face, we need to go beyond the ways in which we have traditionally worked to develop and adopt new tools, methods, and conceptual models. Understanding complexity and how it applies to obesity can, paradoxically, help us to cut through the confusion and identify more clearly how, and when, to respond.

We need to define our endgame for obesity – specify what level and distribution in the population we are aiming for as a trade-off between cost and benefit, freedom and constraint – and then set ourselves a vision for achieving that goal.

Public attitudes to obesity: awareness is not enough

Nicky Hawkins
UK Communications Strategist, FrameWorks Institute

When it comes to obesity, there are an awful lot of alarming statistics. Big numbers that should instil big concern, percentages that should convey perspective, formidable forecasts that should galvanise urgent action.

Words like epidemic, crisis and time-bomb abound. These words are not hyperbole, they're an objective and accurate assessment of an untenable situation with appalling human costs. But while these statements and statistics are accurate, they don't have the intended effect when it comes to public attitudes.

For those working in this space, the need to raise awareness is all consuming – a feeling that we need to show how serious and urgent this problem is to catalyse action to tackle it. A sense that if only people truly understood the crisis that we are staring down, engagement would ensue and change would result.

The FrameWorks Institute is researching public attitudes to obesity for Guy's and St Thomas' Charity. Our research suggests there is no lack of awareness that obesity exists or that it is problematic. Members of the public in Southwark and Lambeth, where Guy's and St Thomas' Charity focuses its work, have taken up two key elements of the obesity story being told by public health experts: firstly that obesity is rising and secondly that it is straining an already struggling NHS.

While there is public awareness of a significant and growing problem, there are key differences between health experts' views and the public's thinking. And these differences are critical to our ability to make the changes necessary to address this issue robustly and equitably. When it comes to obesity's causes and solutions, the public has both a simple diagnosis (insufficient willpower) and a clear prescription (more willpower). Where health experts identify that contexts and environments shape lives, members of the public see obesity as the result of poor individual choices and loss of control over one's body and self.

Working from the perspective of the absoluteness of control, people tend to assume that it is always possible for people, if they choose to exert willpower and decide to be disciplined, to make healthier choices. The public reason that, armed with more information and equipped with better education about the issue, people might be able to make better decisions. But the rest of the work needed lies in overweight people's own hands. And thinking about education as the solution only feeds this highly individualist and anti-contextual way of understanding the issue and seeing the world.

This very narrow assessment of what underlies the issue of obesity and, importantly, of how we as a society can tackle it presents challenges. Unfortunately, the understanding that shapes this perspective is consistent with public thinking on other social issues.

FrameWorks' research in the UK and US over the last two decades highlights a strong pattern: people very often attribute success in life to hard work and grit – they see outcomes as being the narrow and frequently exclusive result of discipline and determination. From this perspective, failure or problems in life indicate the absence of these character traits – an inability to pull yourself up by your bootstraps or the decision to take the easy way out.

The myth of the self-making person is as widespread as it is incomplete – including amongst those with lived experience of adversity. For health experts, campaigners and communicators, telling a story that engenders a different understanding is one of the toughest and most important jobs we have. If the public fails to recognise the role of systems and the need for changes to our environments, delivering those changes will be forever without momentum or the pull of public will.

Bite Size is packed with innovative and workable ideas that can help create a new normal when it comes to Londoners, our food and our communities. There is a wealth of vibrant initiatives and structural changes on the table that can transform our cities and the choices available to us all. This focus on solutions is vital in the quest for change as we need public will and support to bring these ideas to life.

Part of our problem with obesity is rooted in the stories we tell. Too often our story starts and ends with big scary numbers. One in five children will leave primary school obese. Two thirds of UK adults are overweight or obese. Obesity costs the NHS £27 billion per year. These numbers may be powerful for those who study this issue, but they do not advance a different way of thinking about obesity for those who don't. We must realise that when it comes to communicating about obesity we are not our audience. We need to find stories that move thinking and action broadly, rather than relying on what we, as issue insiders, find arresting and compelling.

In fact, in using those numbers that seem to so clearly depict obesity as a crisis, we are shooting ourselves in the foot. Across a wide range of different issues, communicating using the language of crisis tends to backfire – it closes minds to the idea of change, and activates fatalism and hopelessness.

We need to tell a different story. One where solutions exist, where change is possible, and where communities are empowered to achieve it. This is a story about changing our neighbourhoods, not just what we put on our plates. This is a story that pays attention to what people think, why issues matter, and what motivates us to engage and change.

Part of our problem with obesity is rooted in the stories we tell. Too often our story starts and ends with big scary numbers. One in five children will leave primary school obese. Two thirds of UK adults are overweight or obese. Obesity costs the NHS £27 billion per year. These numbers may be powerful for those who study this issue, but they do not advance a different way of thinking about obesity for those who don't.

Insights from behavioural science

Obesity has traditionally been classified as an issue of information and willpower. If parents and children knew what was healthy for them, and could stick to healthy choices, then obesity wouldn't be a problem. However, obesity levels have continued to rise in the face of repeated education initiatives. Whilst education can improve knowledge, knowledge alone does not translate into behaviour change. Furthermore, this approach can lead to some unhelpful thinking: if people have been given the relevant information and continue to gain weight then perhaps that's a decision they have consciously made, and reflects their true preferences? Perhaps. But in our view, this does not account for the complexities of what influences our behaviour.

Many of our decisions about the food we eat aren't taken as active, deliberative choices but rather as instinctive responses to our environment. Although we might not like to admit it, our eating behaviour is heavily influenced by our environment, and our urban environment is currently designed to encourage eating at many opportunities.

Here we take environment in a broadest sense, meaning not just the physical but also an individual's social and informational environment. Findings from the behavioural sciences have consistently shown that what people eat, and how much they eat, is strongly influenced by simple cues in their surroundings. This effect is particularly strong when we are in stressful situations – the sorts of situations those living in deprived areas and on low incomes often find themselves in every day.

We now have easier access to a wider variety of highly palatable, energy dense food than ever before. This food is cheap and widely promoted, both in the media and in stores. If we don't even realise we're eating more, then it becomes incredibly difficult for us to actively, consciously reduce our consumption. People consistently underestimate the amount of food they consume[21] which is a likely reason why dieters are rarely successful.[22] Instead of weak willpower being to blame, it is this interaction between our psychology and our food environment that is responsible for the dramatic weight gain seen in recent decades.

Families who live in urban, diverse and deprived areas are exposed more often, and more intensely, to many behavioural drivers of childhood obesity in their physical, financial and social environment. Moreover, many of these factors interact with each other. For example, living with financial pressure may lead to lower cognitive resources for planning healthier meals, which may be exacerbated by the higher prevalence of convenient, unhealthy food outlets.

In short, we need to have a more realistic and sympathetic view of people's eating behaviour, and design our schools, shops and cities with this in mind.

The behavioural approach

There are many drivers of childhood obesity but, fundamentally, obesity occurs when we take in more energy than we expend. Changes in our environment over the last 30 years, from our homes to our streets, have made it increasingly easy to consume too many calories and move too little. Every day we are exposed to far more prompts to eat than we used to be. This increase matters, because research in behavioural sciences has shown that consuming food is often not a conscious decision, but rather an automatic response to cues in our environment. These cues are increasingly frequent and salient – particularly in urban areas with high levels of diversity and deprivation.[23]

When children are very young, their eating is mainly driven by hunger, satiety cues and parental feeding.[24] [25] However, evidence suggests that once children get older, their eating is substantially driven by wider environmental factors. For example, studies have shown that five-year-olds eat more when presented with larger portions, while this was not the case for younger pre-schoolers.[26] As we grow up, our food intake is determined less by our biological needs and more by our mental heuristics and environmental cues.

We see this pattern in local data. Across the London boroughs of Lambeth and Southwark, for example, the percentage of children who are obese or overweight increases by around 15 percentage points between reception (aged five to six) and year six (age 10 to 11).[27]

Numerous studies have documented the various ways in which our food consumption is often an automatic response to our environment. For example, studies conducted both in laboratory settings and in the real world have documented that people eat more when they are served more.[28] Doubling someone's portion size means that people will eat a third more on average – this effect is found across many different food types.[29] Even the way in which food is presented can affect how much we eat: simply using larger plates can make us eat more.[30]

Every day we are confronted with a huge number of tasks and choices competing for our attention.[31] In an urban environment, the high prevalence of advertising and density of food outlets mean that we are frequently confronted with food cues and choices during the day. We can only focus on a small number of these, so with much of our behaviour we are operating as if we are on "auto-pilot."[32]

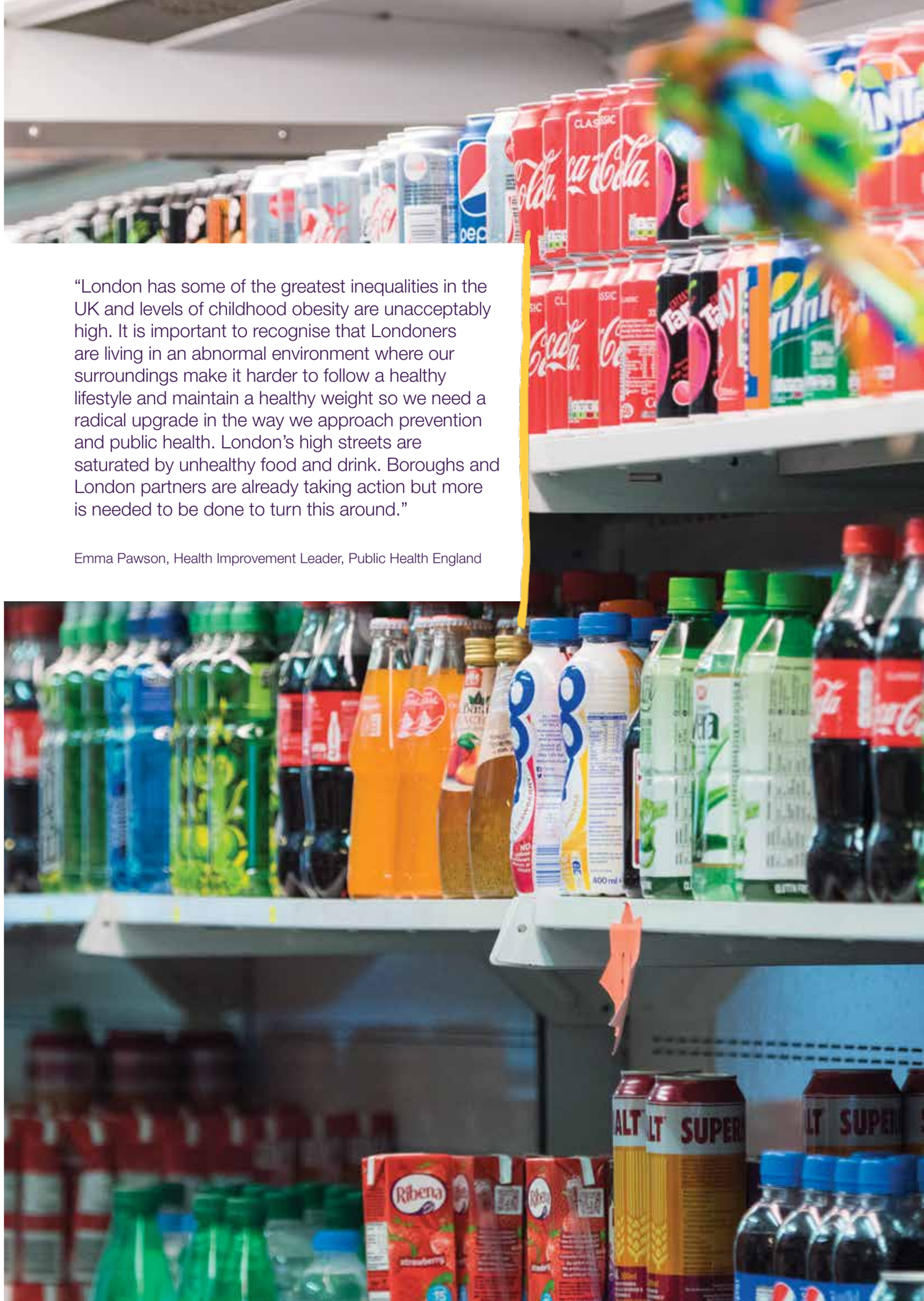
Even in the cases when we are aware of making a food-related decision, simply exerting more self-control may not be the solution. Part of the reason is that self-control requires a certain amount of mental effort. However, many people in urban environments – particularly those on lower incomes – may be experiencing high 'cognitive load', which means that they have little scope to expend mental effort on eating healthily. Having little available time, attention or money leads to a greater focus on immediate issues and therefore affects our decision-making.[33] [34] The context in which low-income families live, means that they often have fewer chances to replenish their cognitive resources than those who are better off.

Deprivation often means having to make many critical decisions in a day, such as coordinating irregular work schedules and childcare, without being able to rely on financial and time buffers.[35] Interventions to address childhood obesity need to have a sympathetic and realistic model of human behaviour; they should be designed with the cognitive and financial burden of the less well-off in mind.

Insights into our eating psychology have shown how relatively small changes to the immediate food environment can influence eating behaviour. A recent meta-analysis reviewed 78 experiments conducted in real-life settings such as cafes, restaurants and stores. Interventions directly influencing purchasing decisions or eating behaviour, often without people being aware of it – for example, reducing portion or plate sizes – were most effective. Interestingly these interventions were also more effective in reducing unhealthy choices, as opposed to increasing healthier choices.[36] This compared to interventions which aimed to influence more conscious decision processes such as nutritional labelling, which although useful were less effective.

The energy imbalance which leads to the development of obesity can be caused by diet or physical activity. Insights from behavioural psychology would suggest paying particular attention to the evidence around diet. This is for two main reasons. Firstly, evidence suggests that energy intake is a more important cause of childhood obesity than low energy expenditure.[37] Secondly, a relatively low number of calories are burned during exercise and there is a risk of compensatory behaviour (eating more after being active) cancelling out increased physical activity.[38] [39]

The following sections describe in more detail how features of diverse urban areas with pockets of high deprivation – areas like Lambeth and Southwark, where we work – can inform understanding of, and approach to, combatting childhood obesity.



"London has some of the greatest inequalities in the UK and levels of childhood obesity are unacceptably high. It is important to recognise that Londoners are living in an abnormal environment where our surroundings make it harder to follow a healthy lifestyle and maintain a healthy weight so we need a radical upgrade in the way we approach prevention and public health. London's high streets are saturated by unhealthy food and drink. Boroughs and London partners are already taking action but more is needed to be done to turn this around."

Emma Pawson, Health Improvement Leader, Public Health England

Deprivation and childhood obesity

"The worst thing about going grocery shopping is the money. As I'm going around the shop I try to calculate the cost of everything in my basket. It's embarrassing when I'm at the till and I don't have enough money for everything so I have to put things back. The cashier gets annoyed with me."

Mother of two children aged two and five, Vauxhall, Lambeth

Public health research into health inequalities has grown over the past decade. The findings are consistent:

- there is a strong social gradient in health outcomes but the reasons for this are complex
- interventions should be universal across the population but more intense for those most disadvantaged
- giving children the best start in life is crucial to reducing health inequalities [40]

Economic deprivation is concentrated geographically. The most deprived tenth of local authorities are home to 25% of the children in poverty.[41] Children in families from more deprived areas are less likely to eat five or more portions of fruit and vegetables per day and more likely to have low physical activity levels.[42] [43] Most importantly, children from deprived areas are much more likely to be overweight or obese. Data from the National Child Measurement Programme (NCMP) show that children in schools in the most deprived areas are over twice as likely to be obese, compared to those from the least deprived (see figure 1).[44]

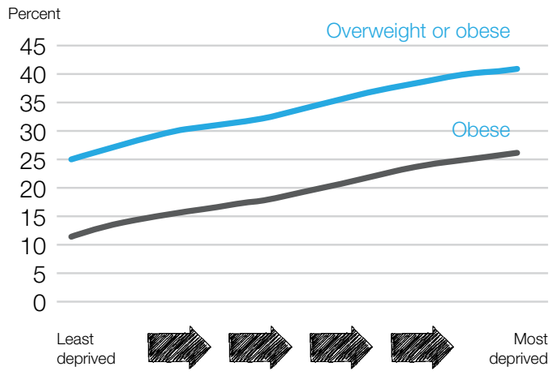


Figure 1: Childhood overweight and obesity rates at year 6 by deprivation

Not only is the prevalence of childhood obesity greater in lower income areas but the risk of developing obesity later in life is linked with growing up in disadvantaged circumstances.[45] We should therefore target low income areas, where the prevalence is higher and the burden of obesity is most pronounced. The overall gain from reducing excess weight is greater for those most overweight – the marginal benefit of weight loss for an obese person (in terms of reducing the need for hospital treatment) is far greater than for someone who is overweight.[46]

The most direct explanation for the link between poverty and obesity is that constraints on household income lead to less healthy diets.[47] However this relationship is likely to be more complex. Education (parental educational attainment rather than nutritional knowledge),[48] [49] [50] time constraints [51] and psychological strain[52] have all been shown to be important.

Starting with income itself, the following sections explore the role played by these factors. No single explanation or approach is conclusive. Rather, evidence is that all of these factors are important and that efforts to tackle childhood obesity in low-income areas should take account of each.

Direct link between household income and diet and exercise

"It's good the area has improved in safety a lot. But this then meant that rent prices have gone up a lot. There's more shops and restaurants that are healthier but they're also extremely expensive."

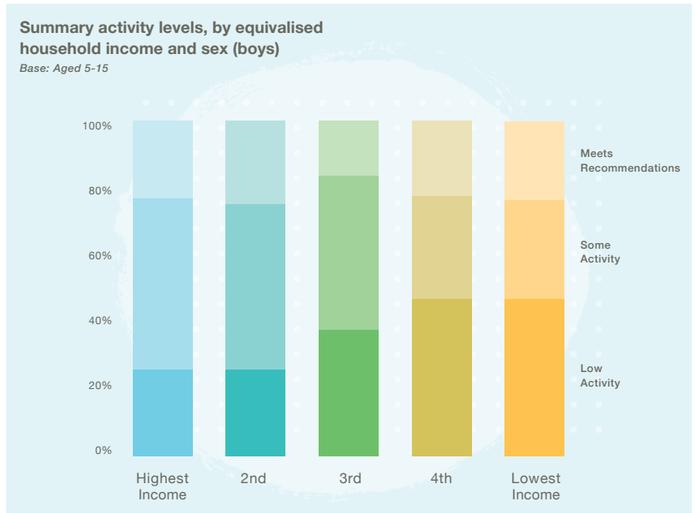
Father of two children aged three months and two, Elephant & Castle, Southwark

The amount of money in our pocket limits what we can and cannot buy. It can also force us to compromise on the quality or quantity of our purchases. The influence of low income on food purchases is one explanation for the link between deprivation and obesity. An inverse relationship between the cost of food and its energy density provides a direct economic explanation for the relationship between income and diet.[53] UK data from 2002-12 on the nutritional value and price of foods finds an increasing price gap between healthy and less healthy foods.[54]

A contributory factor in this relationship is the pricing of food and drinks by retailers. Food and drink high in sugar or with added sugar is more likely to be price promoted and promotions are more aggressive.[55] The equivalent of this in food outlets is "upselling", the practice of prompting a customer to increase the volume of their purchase for a relatively small added cost. A recent report found that 78% of consumers experienced upselling at least once a week and that an upsell was typically 55% more calories for a 17% increase in price.[56]

Importantly, energy dense food is less satiating per calorie, it doesn't fill you up as much.[57] Therefore parents can be placed in a difficult position where their children may be consuming more calories than they need to sustain a healthy weight, but are still feeling hungry. This is compounded by appetite increasing in line with longer term increases in body weight, which makes it harder to only eat the appropriate number of calories to maintain a healthy weight.[58]

While the link between income and the food we buy and eat is direct, the link between income and physical activity levels is less tangible. However, this relationship does exist: recent data from the UK shows a link between household income and a child's physical activity level. While overall, girls are less likely to meet physical activity guidelines than boys, the relative difference between physical activity levels of high and low-income children is greater for boys. Boys from households in the bottom 40% of income distribution are almost twice as likely to have low activity levels than those in the highest 40% (47% vs 26%, see figure 2 below). [59]



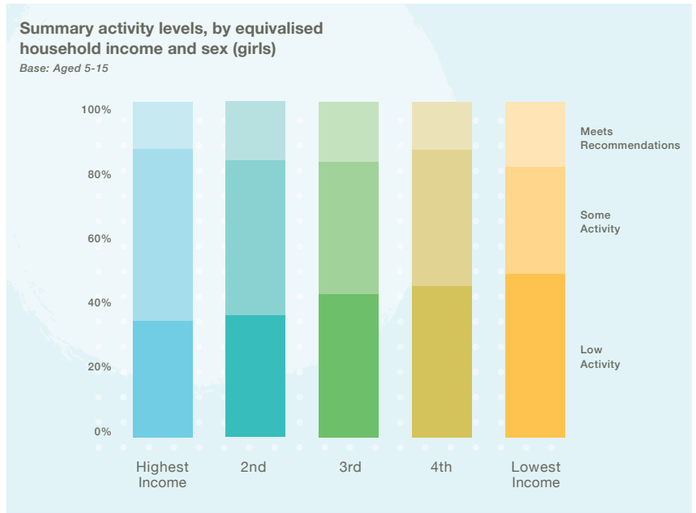


Figure 2: Physical activity levels in boys and girls by household income

This dataset also shows that the number of hours spent watching television is higher in lower income households. Money likely limits the amount of organised sports activity low-income parents can afford. However, this relationship could also be explained by limits on the quantity and quality of free time that parents on lower incomes may have or the urban environment of low-income areas.

Potential importance of educational attainment

Income is clearly important, but it is only part of the story. Educational attainment and income are strongly linked and research has found that education itself is likely to contribute to the social gradient in obesity levels. A study from the US looked at the relationship between health and three measures of lower socioeconomic status: income, education and occupation.[60] The study found that the relationship was strongest and most consistent for educational attainment. In the UK, the Low Income and Dietary and Nutrition Survey found that men and women with lower educational attainment tended to have lower intakes of some nutrients.[61]

The relationship between education and diet may explain a lack of awareness and knowledge about nutrition and a healthy diet, although it is difficult to entirely disentangle the impact of educational attainment, income and type of work.[62] This evidence suggests that lower levels of education among parents are associated with lower nutritional knowledge or concerns, which could in turn lead to a less healthy food environment. Indeed, low income, along with low literacy and numeracy, have been found to be associated with lower comprehension of nutritional labelling.[63] [64]

These findings have prompted efforts to improve nutritional education among parents and children. However, there is only mixed evidence that these interventions can have long-term effects, and they seem to be less effective in lower income households.[65] In other words, while low nutritional knowledge may contribute to obesity, it does not follow that education interventions provide an effective way of preventing or reducing obesity.

Scarcity and decision-making

In recent years, researchers have been examining how the day-to-day strain of living under financial pressure affects decision-making. Studies have found that those who are on low incomes can make choices that reinforce their circumstances: less use of preventative health care, poor financial management and less attentive parenting.[66] [67] [68] [69] Traditional explanations for this have focussed on the environment in low-income areas or on lower educational attainment. For example, predatory lenders may target low-income areas and lower education may lead to ill-informed health decisions. However, over the past decade an alternative approach has emerged, which focuses on the day-to-day cognitive strain of deprivation.[70]

Tasks and decisions become more difficult when we cannot devote our full attention to them. For example, trying to remember a seven-digit number while doing a simple maths test impedes performance.[71] Recent research has explored the link between poverty, financial strain and decision-making. For example, asking participants to consider how they would overcome a financial problem, such as a costly car repair, led to lower performance in a cognitive reasoning task - but only among those that were on lower incomes.[72] A lack of time and money or increased stress owing to feeling isolated or marginalised can lead to reduced cognitive bandwidth.[73] Since people may view their wealth in relative as well as absolute terms, this feeling may be exacerbated in a city with large and obvious income disparities.[74]

The development of preventable obesity is the result of consistent energy imbalance over a long period of time, resulting from many meals and purchasing decisions. If cognitive scarcity leads to a focus on the immediate problem at hand, thereby sacrificing long-term issues, it could be an important contributor to this process.[75] People may choose a quick, convenient and high-energy meal over the complexity of a freshly-prepared alternative. Scarcity may also have an intergenerational component: psychological stress models suggest that hardship resulting in cognitive scarcity may impede parenting and increase the likelihood of emotional or behavioural difficulties for children[76] [77]. In turn, affecting future responses to stressors and abilities to self-regulate.

Relationship between scarcity and eating

The direct link between scarcity and obesity has mostly been explored in the individual eating behaviour of adults, rather than the link between a parent's cognitive strain and their child's weight. This said, not only are the eating and exercise habits of parents likely to pass onto children, but less well-off children may be subject to similar cognitive strains as their parents.

Evidence suggests that high cognitive strain can lead to less healthy food choices[78] and impede efforts to be physically active.[79] Other observational studies have found that students who were more exposed to stress risk factors such as financial strain, time pressure or minority ethnic status were more likely to eat in response to external cues.[80] Interestingly the link may also be physiological; the reward from eating highly-palatable foods may also be a neurological response to being under stress.[81] [82]

> "Some parents don't have an equal chance to raise their children healthily. Parents with lower literacy skills, little money or other problems on their minds, all living in this big city where there are so many unhealthy environmental circumstances and temptations. That is why making the healthy choice is often very difficult."

Eric van der Burg, deputy Mayor of Amsterdam

Scarcity of time

Time is also important. Feeling rushed or not having quality free time to plan ahead has been found to have effects on happiness, as well as physical and mental health.[83] These findings may be particularly relevant to how parents plan meals and activities.

Analysis of the UK Time Use Survey finds that lower income families have less free time on the weekends than higher occupational groups.[84] Perhaps unsurprisingly, single parents with more and/or younger children are particularly likely to be time poor.[85] A report by the Joseph Rowntree Foundation on time poverty finds 19% of children in low-income households have at least one parent who is time-poor. The report concludes that these children are unlikely to be getting the parental input required to thrive.

Time scarcity may also impede the usefulness of public healthy eating campaigns. For example, the Thrifty Food Plan in the US, which showed how freshly prepared meals could be cooked for $27 per person per week, would require 16 hours of food preparation time per week. This contrasts with the 2.5 hours and 6 hours per week that the typical American man and woman respectively spend preparing food.[86] [87]

Implications

The relationship between income and childhood obesity is complex, and influenced by factors beyond money itself. This complexity has implications for tackling the problem. For example, financial constraints may limit the effectiveness of promoting healthier but costlier foods.[88] Likewise, encouraging parents to plan meals in advance and take the time to prepare fresh meals could be hampered by a lack of time and cognitive bandwidth.[89]

Interventions that do not require individual action but are rather applied across the board, or are easy to take up, are likely to reduce health inequalities.[90] [91] This means prioritising "upstream" interventions, such as price promotion in shops at the point of purchase over "downstream" interventions like in-person dietary advice.

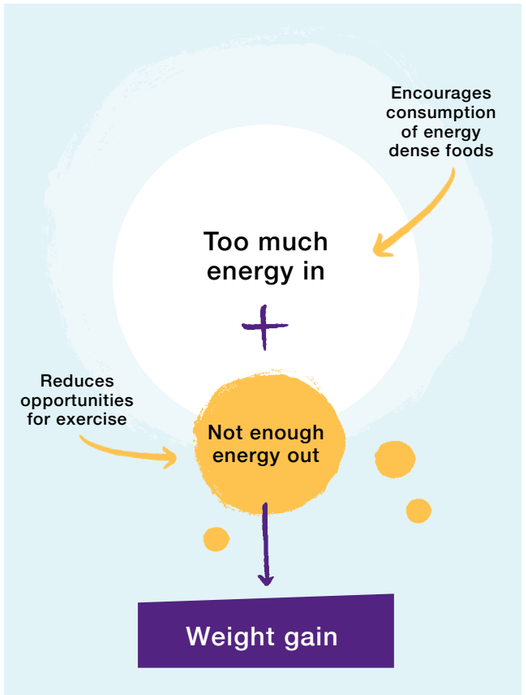
In short, it's critical that policies do not rely heavily on resources that people may not have. That is, minimising the time, effort and costs of improving the diet and exercise of children is not only more likely to be effective, it is also less likely to increase health inequalities.

Urban environments and childhood obesity

Modern day society has been described as "obesogenic". That is, the environments in which children and adolescents spend their time bias conscious and unconscious decisions towards unhealthier choices that promote overweight and obesity. Part of this environment is formed of the built environment: physical structures that have been man-made or adapted, how the space is used, and the infrastructure that enables movement across the space. [92] [93] **We are exposed to a large number of food-related prompts in urban built environments – from advertising and packaging, to seeing others eat. Being exposed to these prompts triggers our desire to eat, regardless of how hungry we actually are.**[94]

In basic terms, weight gain is caused by an imbalance between our energy intake versus expenditure. The physical environment often affects both sides of this equation, for example by reducing the opportunity for physical activity and encouraging the consumption of energy-dense, nutritionally poor diets.[95]

The impact of environment on weight gain



"We currently exist in an alien environment: spending most of our time indoors, under artificial lights and not moving. As a result, we are seeing an unprecedented epidemic of obesity and inactivity across the globe.

"Despite living in an urban setting, we are usually never too far from a green space. Even spending a few minutes in nature can result in major improvements to someone's health. By developing innovative projects and solutions that help connect people to environments that their bodies are built for we can have a lasting and meaningful impact on the health and wellbeing of communities across the UK."

Dr William Bird, Intelligent Health

Some of the causes include: increased access to, and marketing of, nutritionally poor food to children and caregivers; the increasingly sedentary nature of recreation; and changing modes of transportation.[96] Watching food advertisements, for example, increases how many snacks we consume without being aware (even if the advertisements are for a different food product).[97] For children, there is a known association between exposure to food advertising and greater food intake.[98] Marketing linked to well-known and salient images or concepts can be particularly powerful in this respect. Research has shown that children are not only more likely to choose a snack when its packaging features a licensed cartoon character – they also prefer its taste.[99]

"We are all up against the constant and tiring drip, drip effect of promotions and marketing for sugary food and drink, coupled with handily situated chicken shops and various tricks of the trade designed to tempt us to choose less healthy items.

When the marketing spend of just one chocolate brand exceeds Public Health England's annual budget for its Sugar Smart public health awareness initiatives, then you know the scales are firmly tipped against you."

Ben Reynolds, Deputy Chief Executive, Sustain

These trends are exacerbated in urban centres where populations are often densely located and services are highly centralised.[100] [101] [102] This importance of urban centres in the childhood obesity epidemic has been recognised by such initiatives as WHO's healthy cities[103] and the UK Department of Health's 'Healthy New Towns,'[104] which acknowledge the need for urban planning and public health to work collaboratively. The high levels of obesity in urban environments may also produce self-sustaining social norms about what a healthy weight is. We tend to judge our performance relative to those around us, and if the majority of the people you see are overweight your sense of what a 'normal weight' is can be shifted upwards.[105]

How we perceive our environment may be as important as the physical characteristics of the environment itself. Individuals are influenced by the perceptions they hold about their built environment, which may over or under-exaggerate reality, for example the levels of traffic or walkability of the neighbourhood.[106] [107] These perceptions may affect an individual's motivations or choices affecting their health. Addressing perception presents a significant opportunity for community-based organisations to design and implement feasible interventions without the expense of physically re-designing the urban space, or requiring the legislative power to do so. Where larger planning initiatives are taking place, addressing perception is important for ensuring changes are understood by the public and translate into action.

The urban environment and food consumption

The complexity of decision-making goes beyond simple availability; people make choices based on the relative salience and attractiveness of alternatives – and unhealthier options may still be more convenient or trusted than other choices.

This said, one of the most well researched areas relating the built environment to dietary behaviours looks at access to fast food outlets. Fast food outlet access is important because, typically, fast food is energy-dense and nutritionally poor, as well as highly accessible both in terms of time and money. That kind of food promotes weight gain as humans have limited innate ability to recognise how energy dense the food they are eating is, and down-regulate consumption appropriately to compensate and maintain energy balance.[108]

Studies report that higher availability of fast food is consistently associated with lower dietary quality in children and adolescents.[109] The availability of fast food close to schools is of particular concern with estimates that snacks bought close to school can account for a quarter of young people's energy intake.[110]

"We have a proactive policy in Lambeth which focussed on promoting healthy eating, not vilifying businesses. While we have restrictions around fast food outlets near schools, we also recognise that as local employers they are an important part of the community. It's critical that we work with them to be part of the solution."

Bimpe Oki, a consultant in Public Health for the London borough of Lambeth

This research has a direct relation to socioeconomic deprivation; as fast food outlets reliably cluster in areas of deprivation.[111] It also explains at least a small element of the relationship between obesity and socioeconomic deprivation in children.[112] The co-occurrence of deprivation with high fast food availability and access is thought to be due to a phenomenon termed 'food deserts': areas that have poor availability of healthy foods at an affordable price.[113]

However, it is not just access to fast food that may be problematic for childhood weight gain. Convenience stores and corner shops have also been found to be associated with higher BMI scores and may prompt increased food consumption.[114] [115] Some research has also suggested that supermarkets, instead of increasing access to fruits and vegetables and reducing the impact of food deserts, play a role in making unhealthy food more readily available and actually have a negative impact on weight control in children.[116]

"We must empower and support local authorities to take radical action in addressing our obesity promoting environments. Locally elected councils need to have the ability to say enough is enough and have significant powers to block licensing applications for businesses that are having a negative impact on children's health.

Shirley Cramer CBE, Chief Executive at the Royal Society for Public Health

Physical activity and the urban environment

"The parks on the estate are rubbish, there's nothing in them and everything is broken or covered in spider webs. There's a little park near here by the supermarket but it's out in the open and it feels exposed, there are towers overlooking it and the road is right by with buses going past. I don't like to feel watched, like people might be watching my children play. It feels uncomfortable."

Mother of two children aged two and five, Vauxhall, Lambeth

While physical activity may not solve the obesity crisis, even modest increases can lead to large health gains, particularly for those who are least active. Too little attention has been paid to the social and physical environments that enable us to be physically active. The environmental factors commonly associated with increased childhood physical activity[117] are walkability, the availability of non-residential destinations in the community, residential density, and access or proximity to recreation facilities (including green spaces). Traffic speed and volume are also associated with lower physical activity. Social factors are also important, support from friends and family is a determinant of physical activity in adolescents, while parental social support is especially important for younger children.[118]

Redesigning our towns and cities to better support health is an important consideration for policy-makers. However, such ventures can be costly, time-consuming and may not be feasible in inner-city environments where space is at a premium. With this in mind, it is important to note that the way physical environments affect our behaviour is mediated by the feelings and perceptions we associate with these environments. Where this is the case, interventions could reframe choices rather than the object of the perception itself.

Introducing healthy cues within existing environments has been shown to encourage physical activity and healthy eating. For example, informational or motivational signs acting as 'point of decision prompts' near escalators have been shown to increase the rate of stair climbing in adults[119] and brief telephone prompts have been found to be as effective as substantial telephone counselling in encouraging walking behaviour.[120] These kinds of interventions may be more practical for community-based organisations looking to tackle childhood obesity than substantial changes to infrastructure.

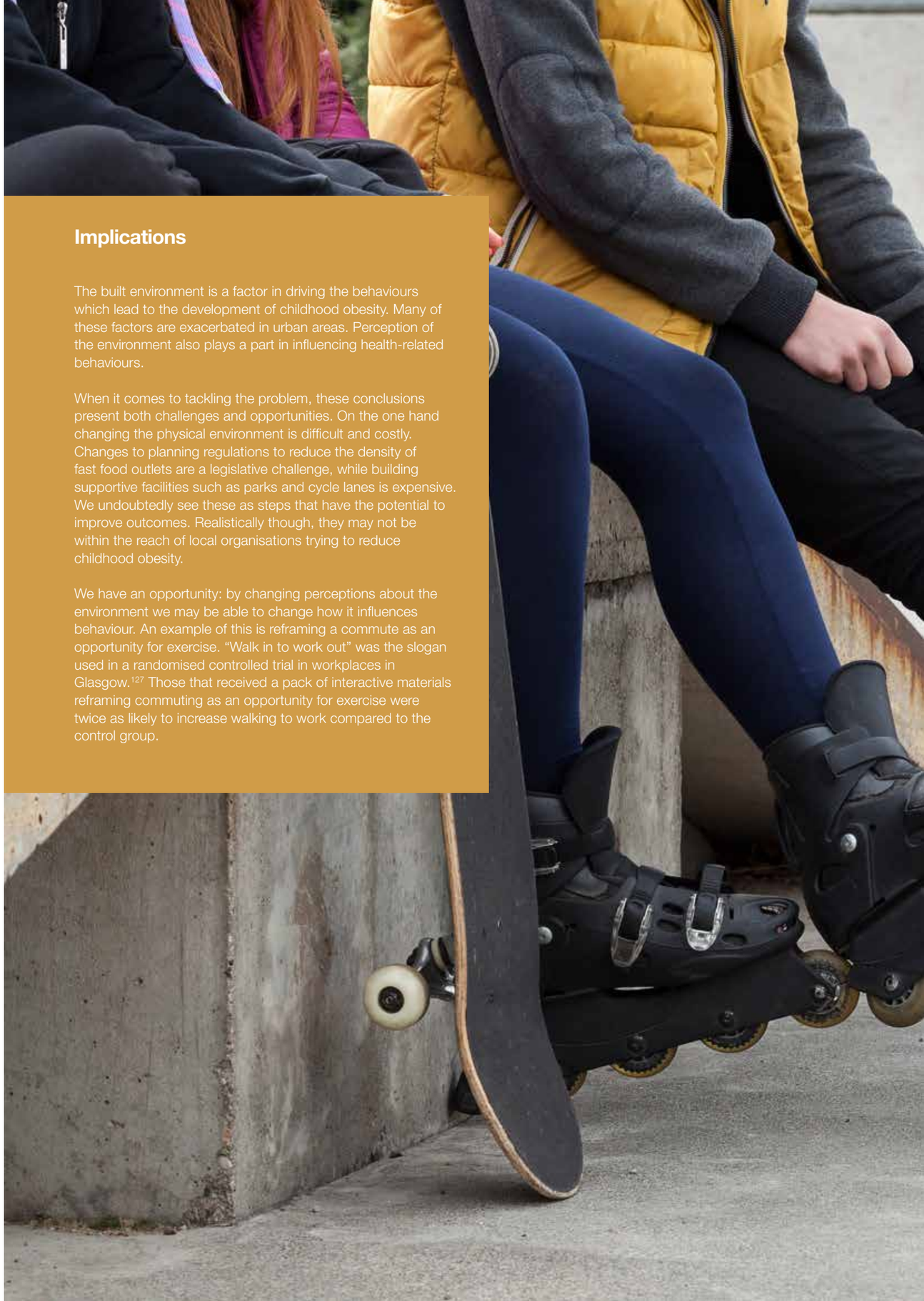
Introducing healthy cues within existing environments have been shown to encourage physical activity and healthy eating. Parents' perceptions of their built environment have been shown to be important in influencing the restrictions placed on their children. For example, studies have shown a preoccupation with safety in determining whether or not parents would let their children outside to play.[121] It is possible that perceptions of the outside environment do not reflect the reality and explain why some studies that have attempted to associate objective crime levels with childhood obesity[122] have failed to show an association.

Perceptions may also affect food purchasing behaviour. Variation in retail provision has been unable to fully explain geographical variations in diet[123] and qualitative work indicates that economic access may only be a limited part of why low-income groups consume lower quantities of fruits and vegetables. [124] Shopping at discount supermarkets has been independently associated with having lower dietary knowledge and individuals of lower socio-economic status were less aware of current healthy eating messages. [125]

How a choice is presented or "framed" for us can influence our decisions.[126] Reframing offers a means of influencing how children and parents feel or perceive aspects of their food environment. This contrasts with educational interventions which aim to provide information which an individual reflects on and as a result changes their behaviour. For example, an intervention could try to reframe how children perceive eating in fast food outlets – as an occasional treat rather than a regular meal. This would be an alternative to an educational approach of changing behaviour by providing children with information about the low nutritional content of fast food.

"Improvements to emotional and mental wellbeing can underpin and sustain behaviour change; and the physical activity brings encouraging and immediate 'feel good' benefits even when weight loss may take more time. In the longer term (even if weight is not lost) a lifelong habit of physical activity will protect to some degree against a range of diseases associated with obesity."

Rosie Dalton-Lucas, Head of Programmes for 'Place' at Southwark Council



Implications

The built environment is a factor in driving the behaviours which lead to the development of childhood obesity. Many of these factors are exacerbated in urban areas. Perception of the environment also plays a part in influencing health-related behaviours.

When it comes to tackling the problem, these conclusions present both challenges and opportunities. On the one hand changing the physical environment is difficult and costly. Changes to planning regulations to reduce the density of fast food outlets are a legislative challenge, while building supportive facilities such as parks and cycle lanes is expensive. We undoubtedly see these as steps that have the potential to improve outcomes. Realistically though, they may not be within the reach of local organisations trying to reduce childhood obesity.

We have an opportunity: by changing perceptions about the environment we may be able to change how it influences behaviour. An example of this is reframing a commute as an opportunity for exercise. "Walk in to work out" was the slogan used in a randomised controlled trial in workplaces in Glasgow.[127] Those that received a pack of interactive materials reframing commuting as an opportunity for exercise were twice as likely to increase walking to work compared to the control group.

Diverse environments and childhood obesity

Urban populations in the UK are not only characterised by a wide range of economic backgrounds, they are also home to diverse communities. The proportion of the UK population that is from a minority ethnic background is growing,[128] with implications for health. There is evidence of health inequalities across ethnic groups [129] [130] and we need to take account of ethnic and cultural differences in order to ensure that these are not increased.

Ethnic differences in childhood obesity risk and physiology

Environment is the key driver of childhood obesity. For example, higher rates of obesity among West African diaspora communities suggest that environmental rather than physiological factors are at play.[131] Nevertheless, childhood obesity rates do differ across ethnicities. Exploring this variance helps understand the behaviours contributing to the problem, as well as how culturally specific behaviours may act as opportunities for intervention.

The National Child Measurement Programme (NCMP) is the most robust source of data on childhood obesity risk across ethnicity groups in England.[132] Black or Black British children are most likely to be obese. At year six the increased risk relative to White children (28.6% compared with 18.1%) is almost as large as the difference in prevalence in the most to the least deprived areas (26% compared with 11.7%).[133] Among South Asians, Bangladeshi boys and girls are more likely to be classified as obese children, while among Pakistanis and Indians only boys are significantly more likely to be classified as obese at year six than their White British counterparts.

It should be noted that an analysis of the 2007/08 data found that when area deprivation, gender and year group are controlled for, these differences are reduced and only Black Africans and Caribbeans are more likely to be obese than the White British reference group.[134]

Beyond deprivation, physiological differences also explain some of this disparity. Among South Asian children, measurement using weight-for-height metrics such as BMI (used in the NCMP) tends to underestimate obesity rates.[135] This is due to the tendency for South Asians to have higher body fat levels in general and to carry more weight around the abdomen. Weight-for-height metrics may have the opposite bias for Black Africans and Caribbeans who tend to carry less weight around the abdomen. Therefore, obesity rates among Black children are more likely to be overestimated by BMI compared to a body fat measurement.[136] Using ethnicity specific adjusted BMI scores can improve our accuracy when looking for any trends in obesity levels by ethnicity.[137]

Cultural beliefs about diet and exercise

Cultural or ethnic differences in preferences for foods, and beliefs and practices around diet and exercise, have complex origins.[138] For many drivers of obesity, much more is common across ethnic groups than is different. For example, across ethnicities, all children's views of what constitutes a healthy balanced diet are at odds with guidelines.[139] Similarly a lack of interest in physical activity among girls is common across ethnic groups.

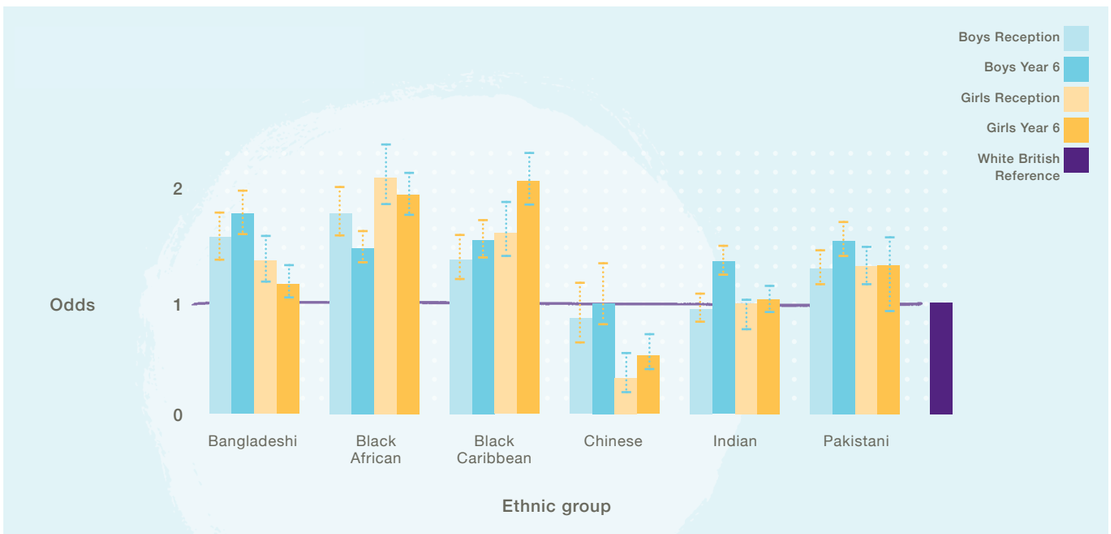
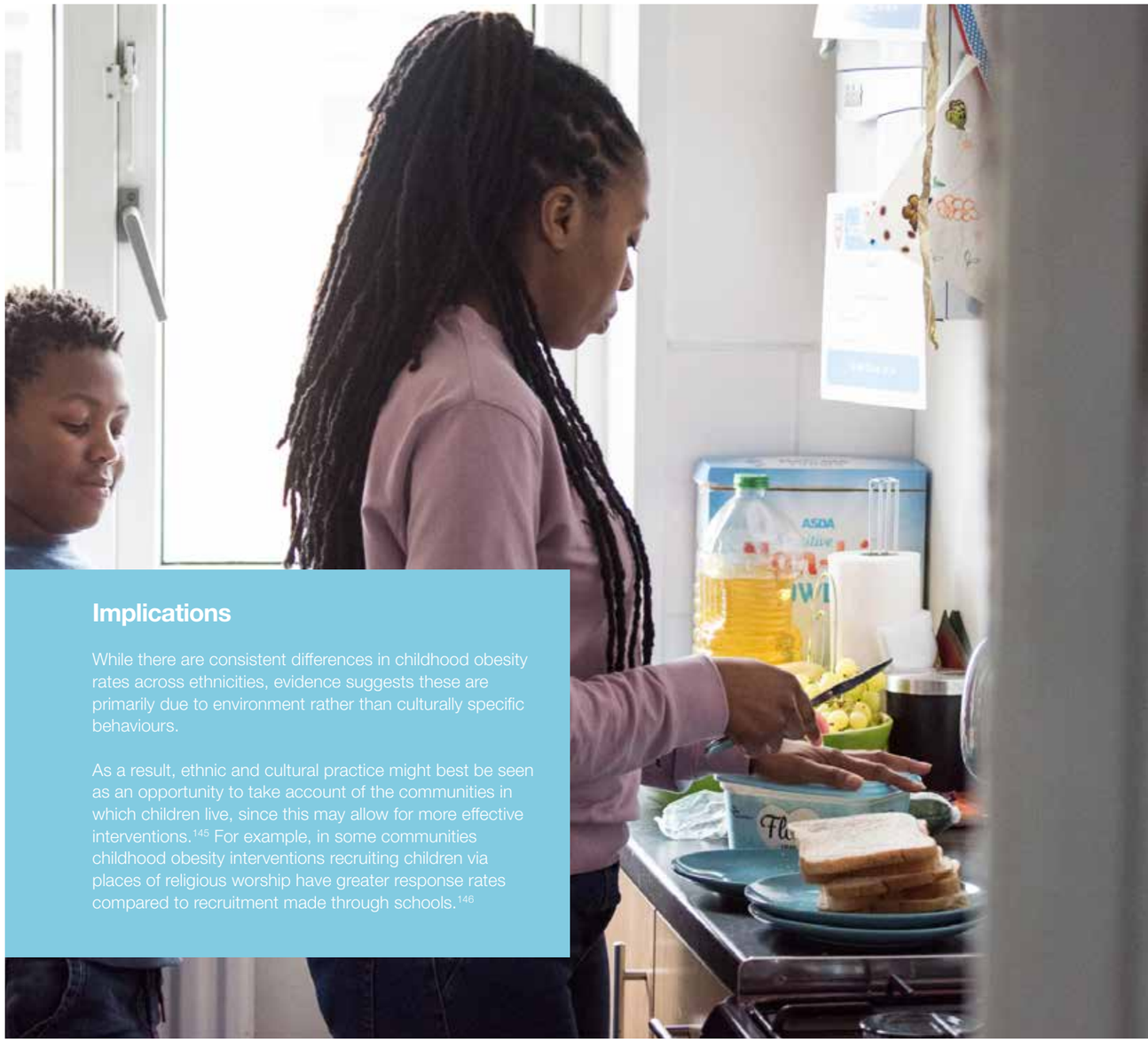


Figure 3: Odds of being classified as obese by ethnicity and gender

However, there are relevant differences. One example is outside of the home food purchasing. While South Asians generally report that traditional foods are available in high street stores, Black African and Black Caribbean groups tend to rely more on independent traditional stores. Interventions can therefore exacerbate ethnic inequalities if they do not take account of different behavioural patterns. For example, minority groups who shop in independent food stores may not be exposed to an intervention run via a larger chain of retail stores.

Variations in the effectiveness of policy in different ethnic groups could also create or exacerbate inequalities. Uptake and receipt of benefits is low among Bangladeshi and Irish Traveller communities relative to eligibility.[140] Health inequalities in particular may emerge from a lack of engagement with health messages or uptake of preventative health services.[141] Research into comprehension and use of nutritional labelling in the UK found that those from non-white groups were less likely to correctly interpret the information, with the caveat that the sample size was low.[142] Studies from abroad reinforce this finding, although the differences may be driven by income or educational differences.[143] [144]



Implications

While there are consistent differences in childhood obesity rates across ethnicities, evidence suggests these are primarily due to environment rather than culturally specific behaviours.

As a result, ethnic and cultural practice might best be seen as an opportunity to take account of the communities in which children live, since this may allow for more effective interventions.[145] For example, in some communities childhood obesity interventions recruiting children via places of religious worship have greater response rates compared to recruitment made through schools.[146]

Donna is a 24-year-old single mum with a five-year-old son. She lives on an estate just off the Old Kent Road and has lived in the area all her life. Donna works two days a week for a local charity. Her total household income is around £17,000 a year, including benefits.

Donna's family

Since becoming a mother, Donna has been learning how to cook and is more confident in the kitchen. This is a big change for her, and is connected to her desire to give her child a different start in life to her own. Donna grew up eating convenience foods and did not know how to cook when she left home. When she was living in temporary accommodation, she never used the shared kitchens because she was embarrassed to cook in front of other people.

Nowadays Donna and her son's diet consists of food prepared at home and weekly takeaways. The meals she makes are a mixture of dishes she has learnt to cook from scratch and convenience food bought from supermarkets and assembled at home such as pizza, tortellini, cereal and sandwiches. She likes looking at food on Instagram and gets inspiration from there, especially from videos that show how to cook different meals. She is proud of the meals she cooks from scratch and shares photos of the food she has made with her friends.

Donna goes to the Tesco superstore for fresh produce and Aldi for store cupboard goods because it's cheaper there. She tries to stick to a budget of £40 a week for grocery shopping, but this can be hard as she buys a lot of pre-prepared food that is more expensive. However, buying pre-prepared foods makes it easier to mentally tick off meals as she is going around the shop. She has started doing her grocery shopping online, to avoid having to carry heavy shopping bags a long way.

She also takes her son out for a takeaway at least once a week. Their favourite places to go are the chicken shop near her home as well as the McDonald's and KFC on Old Kent Road - places she has been going to for years. Twice a month, Donna orders takeaway food online. She'll order from McDonald's for her and her son, from her local outlet a 10-minute walk away. Donna feels this allows her to spend more time with her son at home.

Augmenting the urban environment for healthier children

Tom Doust
Director, Pop Up Parks

Amongst the many emerging technologies in 2017 was augmented reality, a tool that uses a smart device to layer and augment information or images over the top of the environment in front of you. Children see the world very differently from adults: their imaginations often augment their surroundings through play.

It was this understanding that led to the formation of a Pop up Parks, a project that was seed funded by Guy's and St Thomas' Charity to explore innovative approaches to improving the health and wellbeing of children under five in the London boroughs of Lambeth and Southwark.

The project was set up to facilitate a shift in thinking about interactive play and the use of space, particularly in densely populated areas. By rapidly creating colourful outdoor environments that encourage energetic activity, where parents play more with their children and children play with other children, Pop up Parks acts a 'disrupter'.

Working in areas typically where families live and spend time, near to or within housing estates and community streets, we offer a range of activities for children under five, from sensory experiences such as park sounds, listening posts and moss dens, to more physical activities including a running track and ramps. Other activities such as den building and street games encourage child-initiated play. Because problems tend to be easiest to tackle in children's early stages (before they become established), Guy's and St Thomas' Charity focussed their funding of this project on under-fives.

Through our projects-based approach, we work with communities for a sustained period of time. In each project area, a number of parks are delivered over a period of several months, inviting families and children to come and play and engage in the park and explore how the space can be transformed more permanently. Unlike a traditional playground, the pop up can be reconfigured by children and parents leading to experimentation and invention of new games. Following the initial pop up events, our aim is to develop a legacy plan with each community to ensure that new and enriching environments are made to last.

One example of change was in Brixton in Lambeth, where over a period of eight weeks, we ran a series of pop up events that rapidly transformed the urban landscape, taking over part of the road and blocking off the cul-de-sac to traffic and parked cars. Using colourful props including bright street tiles, small ramps, a musical fence and a planting wall, children and their families were invited to stop and play on their busy journeys through Brixton. Promoting physical activity as well as individual wellbeing, participants engaged in a colourful tapestry that invited them to think differently about the streetscape. Some felt the dominance of the A23 road could never make the space a playful environment while many paused and reimagined the space without cars and traffic. Through play, a dialogue opened up with those participating, resulting in a number of ideas.

Working with Lambeth Council, Pop up Parks helped to design a new permanent space installed in summer 2016. Alongside the new pedestrian layout, seating areas and the introduction of new trees (led by Lambeth Council), Pop up Parks proposed a playful streetscape intervention: the subtle installation of large boulders and tree stumps fixed into the ground. Children were keen to see more colour in the urban landscape so each boulder retained a streak of the colours they interacted with in the pop up park. In addition, small mirrors were inserted into the tree stumps to bring reflection and the 'unexpected'. The streetscape is a permanent invitation, giving children the permission to play in a new space free from traffic.

Through Pop up Parks, we set out wanting to create playful environments that would:

- encourage more young children to play in outdoor spaces
- raise the overall physical activity levels of children and their families
- bring families together to build stronger social networks in their area
- encourage families to be more actively involved in their local environments

We've found that 73% of children tried a new playful outdoor activity and that a fifth of children increased playtime outdoors, with an average increase of energetic physical activity of 33 minutes and light activity of 53 minutes per week.

Recognising that childhood obesity and its relationship with physical activity is a global issue, we've turned our focus to supporting a wider global movement of pop up and pocket park spaces that are helping cities and their populations rethink the way we see the urban environment.

While continuing to develop projects (Pop up Parks has been commissioned by cultural institutions like the Barbican and Southbank Centre and is currently working with City of London Corporation) the organisation is also contributing to the wider debate about the need for improved spaces for children and families.

The urban environment must transform but people's behaviours and attitudes must drive the change. And we must all play our part. Change must begin in our homes and outside the front door on our streets, in our schools and urban spaces that we occupy as families including shopping centres and health centres.

Pop up Parks is part of the solution but also part of a vehicle that can bring about change. Through provocations, approaches like those from Pop up Parks can invite people to look at the urban environment through a different lens. When we augment our surroundings, and see the true potential of cities being a playful space, we can once again hope to see children outdoors being physically active not just in designated playgrounds but in all safe street environments.

The urban environment must transform but people's behaviours and attitudes must drive the change. And we must all play our part. Change must begin in our homes and outside the front door on our streets, in our schools and urban spaces that we occupy as families including shopping centres and health centres.

Towards the tipping point – no more permissiveness

Eric van der Burg
deputy Mayor of Amsterdam

If in Amsterdam 27,000 children were suffering from a contagious disease, the Director of Public Health would immediately take the Deputy Mayor, the vice Secretary of State for Health and experts from several disciplines into the emergency centre underneath City Hall. They would work together to ensure all the necessary actions would be taken on containing the epidemic (short and long-term), taking measures to prevent more children from falling ill and curing the children who are already ill.

In 2012, as deputy Mayor and Alderman of Health & Sports, I realised that in Amsterdam 27,000 children were suffering from a disease that would have a severe impact on their future. And although we were doing several projects and activities to counter it, they didn't have the strategic cohesion as was, in my opinion, needed for dealing with this epidemic. For this reason, we started building the Amsterdam Healthy Weight Programme (AHWP), designed to provide our children with health protection, health promotion and appropriate care. A programme that has unanimous support from the City Council.

An essential element of our programme is the fact that we don't tolerate permissiveness anymore, regarding an unhealthy environment for our youngest citizens. Although we have assigned many levers, some essential changes can never be realised at a city level alone. Take for instance introducing a sugar tax, clearer food labelling – like the traffic light system – and lower or no taxes on healthy products like fruit and vegetables. By now, we've seen in many countries that policy changes like these are highly effective. But still most governments are hesitant to truly protect their future generations. This is the reason why we wish to share our Amsterdam experiences and insights on both a national level and internationally. We hope to inspire other political and societal leaders to take a stand against all the 'upstream' sources of our unhealthy public environment. If enough of us take responsibility and start the change, the oil stain will spread further and further and we'll reach a tipping point together. We need the healthy choice to be the default, the normal choice.

For us, the essence of political leadership towards an epidemic is not looking for the silver bullet but embracing the complexity of the issue and commissioning an approach that is an appropriate answer to that complexity.

Amsterdam has a long history in public health. Inspiration can also be found in the efforts to stop the HIV/AIDS epidemic. Amsterdam was one of the first European cities to call a halt to HIV and AIDS. According to the latest report published by UNAIDS (2017), Amsterdam has already reached the international UN targets for 2020 and is on the right track for 2030. The foundation of this success was laid in the eighties and nineties. Important factors are the strong collaboration and the commitment of all organizations and parties; working around the stigma connected to HIV; and treating the target group with dignity and respect. It's an important lesson for everyone battling the obesity issue; prejudice and stigma sadly still being present, even among care professionals.

As a liberal democrat, I'm for freedom and equal chances. But in our obesogenic environment, some parents don't have an equal chance to raise their children healthily. We're talking about parents with lower literacy skills, or a migration background, or little money, or other problems on their minds. And all of them living in this big city where there are so many unhealthy environmental circumstances and temptations. Some of them apparent, but a lot of them hidden. That is why making the healthy choice of food but also in physical activity is often very difficult. So, by providing families with an environment that's full of easy, attractive healthy choices, and by supporting families that are struggling with other problems, we are helping them to make room in their minds to think about a healthy lifestyle. We firmly believe this is the only way to prevent children from becoming overweight or obese (or help them obtain a healthier weight) and at the same time to prevent a lot of other very challenging, high impact problems. And have our youngest generation growing up healthy and happy.

Childhood obesity is an epidemic. A slow epidemic, but equally disastrous. From the start, I felt very strongly that we, as government, should take leadership in this programme. First of all because every child has the right to grow up healthy. It is a government's responsibility to support parents in keeping their children healthy. And secondly because there is a lot that we, as city government, can do to make the city healthier. Within our own policies, but also by setting a norm and holding ourselves and others accountable. Accountable for doing everything in their own power to make the change, from unhealthy to healthy.

In our view, a healthy weight for children is a collective responsibility and the healthy option should be the normal option, the default option. That's why our efforts are focused on a healthier behaviour for children in a healthier environment.

Childhood obesity is a complex problem in that it is the outcome of a multitude of interdependent elements within a connected whole. These elements affect each other in sometimes subtle ways, with changes potentially reverberating throughout the system.[147] Only a complex, adaptive systems approach can help develop, implement, monitor and manage a programme of interventions for changing these systems to improve the lifestyle and health of children.

Both the International Panel of Experts on Sustainable Food Systems[148] and the Centre of Social Justice (CSJ)[149] state that two of the main factors that have made the AHWP work are transferable and replicable to other

countries: political leadership and the actual, practical adoption of a whole-systems, collective approach. The CSJ continues: 'There are numerous whole-systems programmes and effective childhood obesity projects being delivered across England [and elsewhere in the world], but unlike in Amsterdam where efforts are joined up and politically led, the current system in England [and elsewhere,] remains fragmented. The lessons to be learned are therefore not in what specific interventions were introduced, since they were based on what was appropriate and feasible in Amsterdam and its target neighbourhoods. Rather, the key lessons are in how the programme was introduced, how it was politically led and how a whole-systems approach was successfully implemented.'

For the adoption and implementation of the programme, the setting of an ultimate aim (the 'WHY') has been essential. It took time to convince the hundreds of partners in the city that the city's interest and support for this subject wouldn't be over in one electoral cycle. Our ideal, our dream, is to have the generation of children born in 2013 to become a healthy generation. The programme runs – at least – until 2033. We are in it for the long haul.

What we do, essentially, is trying to make the healthy choice, the normal choice. We're trying to go as far 'upstream', into the system, as we can and change all the domains in the everyday life of a child. And we believe every other municipality in the world can do this too.

Therefore, one main focus of the programme is on health protection. Very important for this is setting the norm, both by the work we can and need to do within our own city policies and towards other partners.

We recently started changing all the policies of the municipality in order to make sure they are helping us reach our health goals. We believe it's very important to build an environment that promotes healthy and active behaviour. So, project developers in Amsterdam now have to meet new regulations concerning broader sidewalks, even more cycling lanes and nudging inside buildings (stairs instead of the elevators). We set steps in creating a healthier food city by changing the retail policy, subsidy regulations and the commissioning of catering in municipal buildings. Our efforts of banning marketing aimed at children for unhealthy food products out of our city are steadily successful. So far, we've banned it from sports events that are subsidised by the municipality, from municipal sports locations and from subway station billboards.

If you think about it, nearly all government policies can help in some way, to provide a healthier environment for our children. And we believe that we need to set the norm for others as well. It is part of our responsibility. That is why we try to influence the food industry and other larger stakeholders, at many different levels. Working with commercial partners is something we only do if they contribute in relation to their core business. So, no greenwashing with a thousand water bottles or a €10,000 gift. But actually, changing the product placement in supermarkets or changing the formulation of products.

These last two principles (setting the norm and practise what we preach) are guidelines in the way we deliver interventions aimed at health promotion and at providing the appropriate support and care. A few examples:

- We challenge schools to become a healthy school, so that kids learn healthy habits early in life. Extra PE, healthy lunches, drinking water et cetera.
- Engaging the community is also an important factor in our programme, to help and support families. We now have around 300 voluntary health ambassadors in our city. They organise many small and bigger events and together, they reach thousands of people.
- We also give extra attention to children growing up in poverty. When you have serious money issues, it's almost impossible to think about healthy choices.
- Another part of the programme is creating a good health care chain of welfare, support and cure for children that are overweight or obese. We know that, for them, more is needed than just interventions on lifestyle. They and their parents are supported in all areas in which they need support, to make it possible to work structurally on a healthier lifestyle.

We see a declining trend of childhood overweight and obesity in Amsterdam from 21% to 18.5%. Internationally the trend is rising or stabilising, so the declining trend in Amsterdam is positive. However, drawing conclusions about the effectiveness of complex adaptive systems approaches is very complicated. Conclusions about the effectiveness of the AHWP can therefore not (yet) be drawn.

However, I feel our impact is tangible when walking around in several Amsterdam neighbourhoods. One can actually feel the change. Healthier behaviour is becoming more normal, as we are working with all partners

towards a healthy environment and community. For instance: we celebrated 'Healthy Halloween' in a shopping centre. Over 400 children were all dressed up and asking for ingredients for pumpkin soup. Only happy faces there: from kids and their parents, shop owners and staff and the public. We feel in some parts of Amsterdam we're getting nearer and nearer to the tipping point and thus turning the corner on this epidemic.

We hope many other cities will follow the example and invest in health protection as well as health promotion. Because it is our responsibility to set out the beacons, keep the spirits high and the flow going, we need to present enough successes and dilemmas along the way to keep everybody mobilised and engaged in this challenge. For this is not a hype or even a trend, it's a structural societal change. We will change lifestyle for children in Amsterdam and, so we hope, inspire others to do the same in many other cities around the world. When the whole system is healthy, health will be the norm.

By providing families with an environment that's full of easy, attractive healthy choices, and by supporting families that are struggling with other problems, we are helping them to make room in their minds to think about a healthy lifestyle.

Taking a place-based approach

The international evidence base around behaviour change demonstrates that the impact of place is as important as individual choice. Both affect the strongest drivers of obesity – eating behaviour and physical activity. The Guy's and St Thomas' Charity programme provides an opportunity to explore what works locally, and how we build on local work to tackle childhood obesity in our particular inner-city context.

The success of work on childhood obesity over the last decade has been in creating a consensus that multiple things need to change in order to affect the issue. Now is the time to move on from calling for a 'whole-system approach', focus on what this means in practice, and define the decision-makers and resulting actions. We think this requires recognising that there is complexity in the sheer amount of things that need to be affected in order to change someone's environment, but that many of these individual steps need not be complicated. We admire organisations and projects that have 'dreamt big but started small' with immediate tangible goals, and linked up with other changemakers as they went go along.

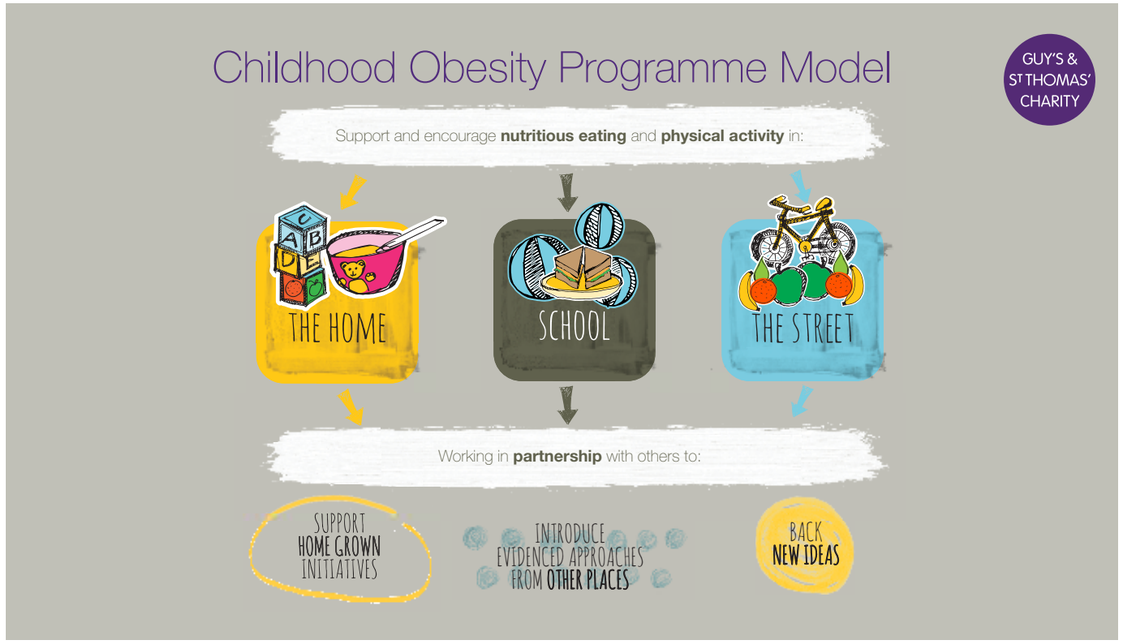
As a place-based charitable foundation, we believe we have a number of unique assets that can contribute to this collective work. We aren't constrained by time in the same way that those working within fixed political cycles. Making systemic change takes time, and it's useful to be able to plan ten years ahead. Our view is that local interventions should work alongside national policies to create healthier environments.

Local action should inform and not be seen as a replacement for strong and consistent national action.

Being place-based sets a useful boundary to our work, allowing us to create more intensive activity, and use the impact to influence change elsewhere. There are gaps in knowledge around how to apply a whole-systems approach effectively in particular community contexts.

There is an opportunity for us to test and assess the value of layering up cumulative activity in urban, diverse and deprived environments to tackle childhood obesity. We plan to work intensively in a handful of neighbourhoods, with some work at a borough wide and London level.

As well as working with our partner Guy's and St Thomas' NHS Foundation Trust, we'll also be working across the statutory sector and with commercial partners and other foundations. A particular emphasis of our approach is working with communities to address the local issues relating to childhood obesity. There is a strong relationship between social capital and positive health outcomes[150] and we believe encouraging community collaboration in the design of interventions may engage more people, increase uptake and have the added benefit of promoting a community's sense of resilience.



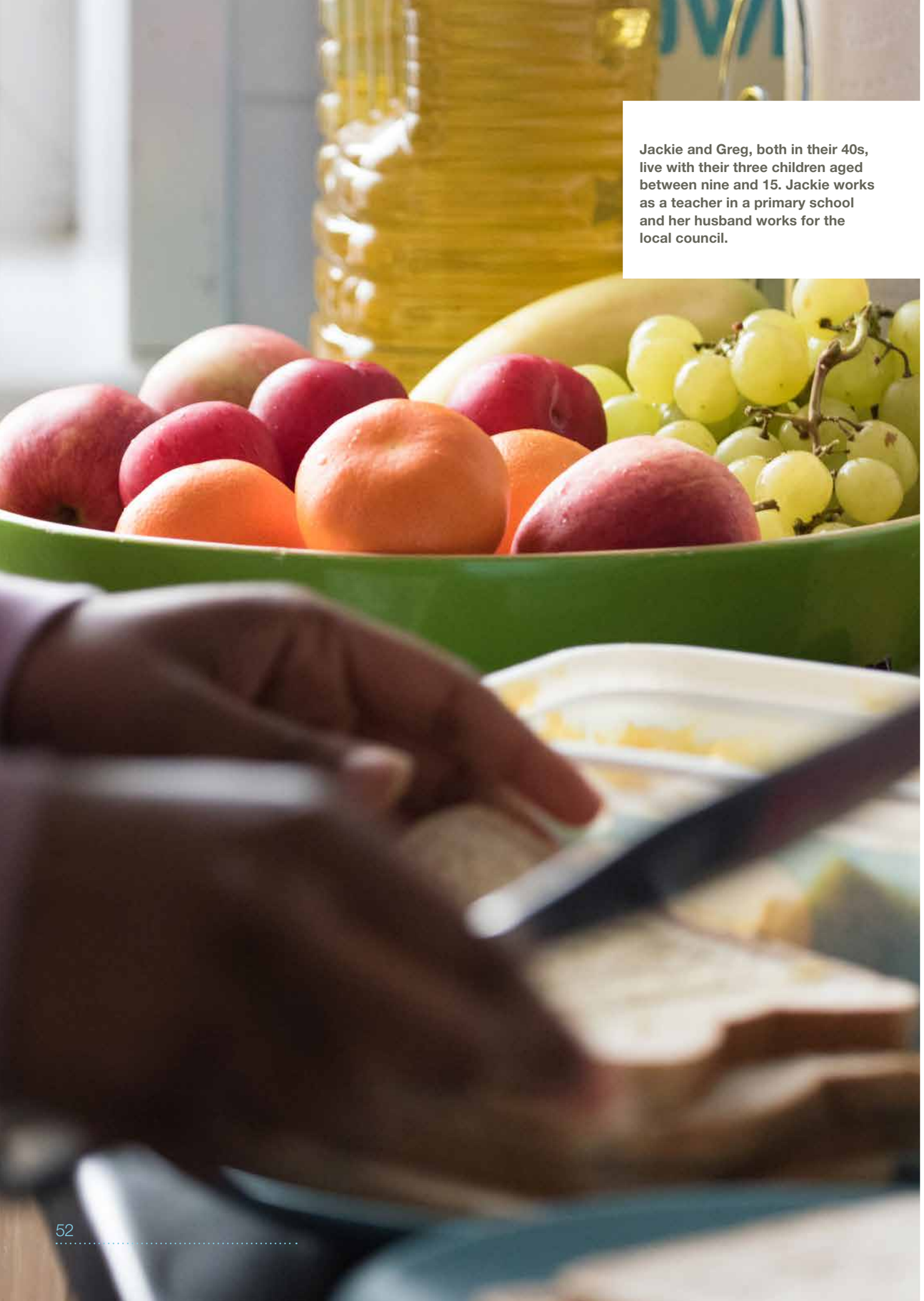
Our approach

Through our programme, we aim to work in partnership with others to reduce the obesity deprivation gap in Lambeth and Southwark. We also want to demonstrate the value of a whole-systems, cross-sector approach to tackling childhood obesity in urban, diverse and deprived areas.

Over the next 10 years, we plan to:

- Focus on particular neighbourhoods so we can better understand the drivers and context in which effective action needs to take place
- Layer up initiatives to create a concentration of actives around the children and families who live there
- Enable great ideas and replicate successful initiatives to grow impact
- Join forces with others, across London, nationally and internationally to share and build evidence and expertise

Our programme will focus on environments where children and families spend their time, and on the incentives and disincentives around nutritious diets, everyday activity and active play. We've structured this into home, school and street environments, trying to cover the spaces that children move throughout their day, and that have impact across childhood and adolescence.



Jackie and Greg, both in their 40s, live with their three children aged between nine and 15. Jackie works as a teacher in a primary school and her husband works for the local council.

Jackie and Greg's family

For the last 10 years, Jackie and Greg's family have lived in a council flat just off the Old Kent Road. Before that they were in temporary accommodation on the Heygate Estate for two years after they had to leave their private rented flat and became homeless.

A number of estates around them have been the targets of regeneration and they worry about whether their estate will be next. They have seen people being relocated a long way away or being moved into lower quality housing. Not knowing whether they will be next means they are reluctant to spend money on kitchen improvements, which means that their kitchen is in poor condition and is not a nice place to cook.

A few years ago, Jackie and Greg both took part in the Slimming World programme to lose weight. Jackie lost a lot and is still a healthy weight today. She still lives by the core principles of the programme, for example eating a lot of fruit and vegetables, is the only person in the family who eats fruit and the majority of the vegetables are for her too.

Greg, however, is still overweight and suffers from several health problems as a result. Earlier this year he decided to adopt a vegan diet to try to be healthier. Now Greg mostly eats vegetarian food, with the odd 'dirty kebab' thrown in. When he gets a kebab craving it will build for a few days until he indulges himself. He spends around £50 a week on meal deals, snacks and takeaways. He likes to buy cakes and chocolates to have at work – he always shares these with his colleagues so that he doesn't feel too greedy.

Jackie and Greg have not convinced their children to join them in their dietary changes and so family meals involve a number of different options being prepared that can be combined or eaten separately. Often the family all eat at different times, meaning that meal preparation can continue all evening until everyone is fed. On days when they feel too tired or no one can agree on what they want, a safe and easy option is to get a pizza from their local takeaway.

A local focus on a national problem

Bimpe Oki
Public Health Consultant,
Lambeth Council

For over seven years we have been taking a purposeful local approach to tackling childhood obesity. We set off developing a local multi-agency children's healthy weight pathway programme, positioning it within a range of work addressing the wider determinants of obesity.

The healthy weight programme was developed by taking an evidence-based and systematic approach. It was co-produced with stakeholders (including children and their families) and was underpinned by the best available evidence, ensuring that there was a clear understanding of the contribution of the preventative and management measures within the programme to the overall outcomes.

Development of the programme included the following key elements:

- Conducting a comprehensive review of the evidence
- Scoping and understanding the local demography, including obesity levels and associated risk factors
- Identifying effective interventions across the pathway with stakeholders
- Modelling different outcome scenarios and applying cost benefit analysis for each scenario

Initiatives within the Lambeth children's healthy weight programme have been innovative, highlighted as good practice and used as national and regional case studies. Within it, we have delivered bespoke capacity building of health and non-health practitioners. Over 1,000 have been trained, making promoting healthy weight for children everyone's business. Others are working with families, early years settings, schools and locally developed weight management services.

We have also implemented other supporting measures such as working to improve healthy eating and promoting physical activity. Activities have included restricting the opening of more fast food takeaways near schools, extensive review and understanding of the food environment, working with food businesses to introduce healthier measures such as the Healthier Catering Commitment and intergenerational use of open space. We were the first London borough to sign the Local Authority Declaration on Sugar Reduction and Healthier Food.

Being able to take a coordinated evidence-based approach, with clear leadership over a sustained period of time, seems to have yielded some positive results. Over five years, Lambeth was the only borough in England to have statistical reduction in childhood obesity at both reception and year six. In 2014, in recognition of our local work around promoting healthy weight and the food system, Lambeth was awarded, through a selective process, the first inner London Food Flagship borough status, by the Mayor of London.

The Food Flagship status provided further opportunity to deliver and evaluate more initiatives to address the local food system. These involved a wide range of activity, including:

- Implementing the national School Food Plan
- Focusing on improving the food environment for children
- Addressing food poverty
- Encouraging early contact of young children with nature and healthy eating
- A young people-led healthy eating social marketing campaign
- And testing a localised and resident-led approach to improving the wider food system, known as the Food Village Hub

The Food Village Hub focused on the Gipsy Hill ward, engaging and supporting residents to identify their local food issues, propose solutions and take and lead action in their ward. This approach helped harness the different community assets and connected residents with each other, with local organisations and other borough services.

In July 2017, we held a Lambeth stakeholder event, supported by Guy's and St Thomas' Charity, to share learning from the local work on childhood obesity and the Lambeth Food Flagship programme.

It was also the opportunity to obtain feedback and views from stakeholders to inform the next steps for the local work on obesity, food and physical activity issues. The event was well attended by a range of local stakeholders, senior leaders from the Clinical Commissioning Group, Council and Councillors as well as representatives from Public Health England and the Greater London Authority.

Feedback from the event showed that attendees appreciated being able to be updated on local progress and to help shape future activity within the changing local and national landscape. The principles put forward by attendees were consistent and further endorsed those identified from the other sources of local intelligence and learning. Some of the areas stakeholders highlighted on the day included:

- The importance of having strong local leadership that would facilitate and coordinate an evidence-based whole-system approach to childhood obesity.
- An awareness that significant impact interventions – particularly those being commissioned – need to be sustained. Continuing cuts to the Public Health budget poses a risk to being able to do this. Therefore, any existing mainstream and externally generated resources should be used in the most appropriate way to generate the best possible outcomes.
- Recognising that the evidence base for childhood obesity continues to grow. Endorsing and allowing for a developmental and learning culture with commissioners and providers in the implementation of the interventions remains important.
- The importance of taking a holistic approach with families as risk factors are closely linked to social, mental and economic circumstances. This also means social, environmental and economic factors must be considered in addressing the 'obesogenic' environment.

Being able to take a coordinated evidence-based approach, with clear leadership over a sustained period of time, seems to have yielded some positive results. Over five years, Lambeth was the only borough in England to have statistical reduction in childhood obesity at both Reception and Year 6.

Taking a life course perspective

Professor
Kevin Fenton
Director of Health and Wellbeing,
Southwark Council.

Southwark is a borough of great people and great places. Home to such landmarks as Shakespeare's Globe theatre, City Hall and Borough Market, Southwark is comprised of significant places of both the past and present. The richness of our landscape reflects the diversity, creativity and culture of our residents making it an amazing place to live, work and grow. Still, the borough faces several public health challenges, one of the most serious being obesity.

Over the last decade the prevalence of excess weight, which includes both overweight and obesity, has earned Southwark a place in the top three rankings, when compared to other areas within and outside London, for overweight and obese children both reception and year six. Approximately three in 10 children in Reception and four in 10 children in Year six are overweight or obese.[151] The challenge of excess weight continues throughout the life course with almost half (47%) of all Southwark adults being overweight or obese.

The 2007 Foresight Report[152] on Tackling Obesities highlighted a wide range of factors that influence the prevalence and distribution of obesity in our borough, including income, social deprivation and ethnicity. There are no easy solutions to tackling obesity. It requires a whole-systems approach, where each of the various determinants can be addressed in a multi-sectoral manner, to effectively address this complex issue.

However, a whole-systems approach won't be effective unless due consideration is given to coordinating and enhancing the most effective actions required at each stage of the life course. The reality is that the factors influencing childhood obesity and how children interact with their environment differ to those influencing adults and the elderly. Similarly, maternity may alter a woman's engagement with services or resources, as it presents a different stage of the life course. Beyond simple physiology, the ways in which a person engages with other people, other services, with an occupation, with media and with the built environment will change throughout life, yet each of these factors can play an important role in healthy weight.

A child's weight can be influenced as early as preconception depending on the mother's own weight and health behaviours. Overweight or obese mothers are more likely to give birth to an infant with high birthweight. The evidence also shows that, due to the naturally occurring essential vitamins and minerals found in breastmilk, breastfeeding has been shown to reduce the risk of childhood obesity.

Southwark has made a number of commitments to ensure resources and services are available before and during birth. As well as achieving Stage 2 accreditation for UNICEF's Baby Friendly Initiative which means our health visiting service and children's centres exclusively promote breastfeeding whenever possible; we also want to support a wider range of local businesses such as libraries, leisure centres, museums and cafes to be breastfeeding friendly.

Between the ages of 0-5, early years settings and children's centres offer a great opportunity to expose the young child and families to healthy weight messages and activities as a part of normal, everyday life. By integrating these messages into early years settings, qualifying children aged two and all children aged three and four can be universally introduced to healthy weight practices, regardless of family circumstances which helps to reduce inequalities across the borough. Through implementing the Eat Better, Start Better framework we have also established voluntary food and drink guidelines in our children's centres, and supported families to cook and eat well.

Integrating efforts and working effectively with other early years partners is key. Our children's centres provide valuable links to partner agencies offering parent-to-parent peer support, access to health visiting services, parenting courses, breastfeeding cafes and even employment support. These key services help to equip families with skills to address some of the social determinants of health connected to unhealthy weight. Taking a family-focused approach ensures parents or carers can reinforce healthy weight behaviour for our youngest residents by starting to communicate messages such as the importance of oral health and a balanced, nutritional diet. Our involvement in the Greater London Authority's Healthy Early Years Pilot will enhance the opportunity for healthy weight in this age group to further support the child's readiness for school.

Once Southwark children reach school age there are numerous levers that can influence a healthy weight. We have developed a number of school-based initiatives primarily through the Healthy Schools Programme, which has 93 schools registered across the borough. We use our NCMP data[153] at the pupil level to increase referrals by school nurses to family oriented weight and physical activity programmes.

Our Healthy Schools Programme is supported by physical activity programmes established by the London PE and School Sport Network. And there are various activities promoting active travel from home to school via School Travel Plans for the TfL STARS programme and the Build-a-Bike project in selected schools. Southwark now offers all primary school pupils a free, healthy school meal. This ensures all Southwark children regardless of their family situation will have access to a heathy, balanced meal each school day and teach the principles of healthy eating. In addition, we have developed an enhanced offer for the 10 schools with the highest levels of excess weight in the borough. This includes a menu of evidence-based and council-recommended programmes targeting physical activity, active travel, healthy eating and education.

Looking ahead, the Council has initiated a ban preventing the opening of new fast food takeaways within 400m of secondary schools in areas with high obesity levels in Southwark. Whilst the high density of existing fast food takeaways continues to contribute to the obesogenic environment, this ban demonstrates a positive, collaborative step forward in tackling unhealthy eating practices around schools. We will continue to use our NCMP data innovatively, overlaying elements such as the location of fast food takeaways, levels of deprivation and transportation routes, to inform and develop evidence-based policies.

During adulthood, parents and carers play an important role in setting an example for their children and family. Through our range of cook-and-eat programmes across the borough, parents can learn how to cook the same family-favourite dishes with healthy swaps at an affordable price and – what's key – without compromising taste. These new skills and recipes help parents demonstrate healthy eating habits from the kitchen. They also encourage only very occasionally ordering a fast food takeaway meal for the family, or choosing healthy snacks over less healthy alternatives. We want to ensure parents have resources available to them to make informed decisions about healthy eating, but also about healthy weight, and recognising that food is just one part of the puzzle.

Physical activity is another important component of healthy weight, and we have endeavoured to provide several ways for our residents to take part. Southwark's universal Free Swim and Gym offer at our leisure centres, our walking or cycling programmes for leisure or commuting, our outdoor gyms and the various exercise programmes in our parks are just a few ways our residents can participate in regular physical activity in everyday life.

It is important to recognise that in addition to setting an example for children, it is equally as beneficial for the parent to engage in family-focused approaches to weight management, whether that involves participation in school activities, or incorporating the child into the age-appropriate level of family weight management programmes.

Within the family unit, it is not uncommon for an older adult such as a grandparent to act as an additional caretaker for younger generations of working parents. This presents another opportunity to communicate healthy eating messages to children during meal preparation, and could encourage active travel or physical activity through intergenerational exercise. Conversely, it may also present opportunities for "pester power" – young people encouraging mom and grandparents to eat healthier and be more active. Whilst our physical activity programmes in Southwark for older adults are some of the most well-attended, we also recognise the importance of active design and through our regeneration and development initiatives we have strived to make environments that cater to both our oldest and youngest residents. Furthermore, as the only WHO-accredited Age Friendly London borough, Southwark is committed to continue collaborating across planning, transport and public health to further develop the built environment in such a way that enables healthy weight through walking, cycling, and other opportunities for physical activity.

In Southwark, we recognise the value of taking both a whole-systems and a life course approach and have integrated these elements into our Healthy Weight Strategy: Everybody's Business.[154] This approach enables us to develop and support initiatives that help people work toward and maintain a healthy weight throughout all stages of life. The interventions and initiatives described span across the home, the built environment and the school setting, reflecting a truly whole-systems approach.

The heart of our work, however, lies with our residents themselves. We are committed to ensuring that all our residents, at whatever stage in life, have access to the right services to maintain a healthy weight and tackle obesity. Understanding their needs is pivotal to the success of our programmes and the health of the borough. By engaging directly with our residents, we are committed to ensuring that robust insights are captured, represented and reflected in our programmes and plans. Obesity remains a top public health priority for Southwark. Let's work together to create healthier people, across the life course, in healthy places.

Contributions by Melinda Chau, Rosie Dalton-Lucas and Jin Lim

Our healthy weight strategy enables us to develop and support initiatives that help people work toward and maintain a healthy weight throughout all stages of life.

Home

Influences on our health start early in life. So, it makes sense that intervening early in a child's life course can bring large benefits. Plus, habits are easiest to affect the earlier they are addressed.

The critical foundations for virtually every aspect of human development – physical, intellectual and emotional – are laid in early childhood.[155] What happens during these early years has a significant impact on many aspects of health and well-being and is equally true of obesity.

For example, factors including mothers' weight in pregnancy or breastfeeding are linked to later weight and eating behaviour. A child's chances of becoming overweight or obese are highly influenced by having a parent/parents who are overweight or obese.[156]

> "One of the kids at the school I work at told me that his mum makes homemade lasagne and marinated chicken. It sounds lovely but I'm on my own so I just can't do that."
>
> **Mother of one child aged 13, Camberwell, Southwark**

Tracy is a 39-year-old mum and grandmother who lives with her partner, four daughters and granddaughter in a council flat in Bermondsey. Her daughters are aged 15, 16, 17 and 22 years old. Her eldest daughter has a seven-month-old baby and one of her younger daughters has a learning disability. Tracy is a full-time mother and is not currently working. Her income is just below £25,000 and consists of income support, tax credit, child benefit, disability allowance and carers allowance.

Tracy's family

Tracy grew up in Brixton and moved to Bermondsey when she was 13 years old. She has lived in the area ever since and knows it well; when she goes out shopping, she always bumps into people she knows and enjoys having a chat. However, she feels that the area around her home is unsafe and does not like going out at night.

As a result, Tracy and her family spend a lot of time at home. Evenings are a cosy time that the family spend cocooned in the living room watching TV, dressed in their onesies and dressing gowns. The exception is her 17-year-old daughter who goes to college near Waterloo to study digital art and volunteers several evenings a week at a local youth centre. She is the member of the family that spends the most time out of the home.

With a large family to feed, Tracy has developed a shopping routine that she rarely deviates from. She does a large shop at the end of the month after she receives her benefits, and she spreads this shopping out over three days. The schedule is always the same: on the last Tuesday of the month is her trip to Iceland where she spends most of her £150 food budget. On Wednesday, she goes to Superdrug and Poundland, and on Thursday she goes to Asda and a local market. She tops up on groceries throughout the month, but her big monthly shop at Iceland is an occasion that the rest of the family looks forward to.

When she goes to Iceland, Tracy will often need two trolleys. The supermarket reduced the size of their trolleys a few years ago, and now Tracy sometimes feels embarrassed with the size of her shop. Luckily however Iceland now do free deliveries, so she can do her shop in-store and get it delivered back home. Before she used to have to get a taxi back home with all her shopping bags.

The family's diet consists mainly of frozen convenience food and when she goes shopping she buys meals for specific family members: frozen Greggs steak bakes for her partner, frozen toad-in-the-hole for her 16-year-old daughter, frozen lasagne for herself etc.

Tracy and her partner take it in turns to cook a meal for the whole family about once a month; her partner will usually make a curry and Tracy will make spaghetti bolognese. These are the only times the family eats the same meal together. The rest of the time the family microwaves their meals separately but eat together on the sofa. One of the most common family arguments is who has eaten whose food!

Project Profile

Rose Vouchers for Fruit & Veg

To address the barriers that families on a low-income face around achieving a healthy diet, the Alexandra Rose Charity runs the Rose Vouchers for Fruit & Veg Project in partnership with children's centres and local market stall holders. The aim is to help parents on low incomes with young children buy fruit and vegetables locally while developing the skills and confidence to give their families the healthiest start.

Jonathan Pauling, Chief Executive explains that the initiative is a really simple but effective way of supporting young families to get more fresh fruit and veg into their diets from very early on in a child's life.

"Food poverty and health inequality are interlinked and a consequence of poverty generally. It is only by helping people escape poverty that we will genuinely tackle health conditions associated with poverty, such as obesity.

"Promoting a healthy food economy by supporting people to purchase fresh food from local healthy high streets and markets is key to improving the wellbeing of urban communities generally and ensuring poorer families enjoy fresh produce. This in turn creates local job opportunities and ensures that money goes back into the system locally. Local markets know their communities well, and central and local government need to realise the value of having healthy high streets and markets and the role they play in keeping local communities healthy and cohesive. Failure to understand and promote these local assets will see them degrade alongside the wellbeing of their local communities.

"The type and scale of transformation required within urban environments can only be achieved by taking a joined-up whole-systems approach. There are some fantastic examples of communities that are committed to retaining their local markets and have benefited from joining forces with entrepreneurs, the statutory sector and dynamic activists to make a huge difference to the supply, distribution and processing of fresh food locally, but so much more could be done."

Protecting children from junk food marketing

Caroline Cerny
Alliance Lead, Obesity Health Alliance

"With the [take-away pizza] advert like they're just so cool and they're so yum...We always have to go and get it because I can't resist not going without when I see the advert...At the end he like smashes…the pizza on the screen and you feel like you're just going to lick the screen."
Year 4 boy, participant in qualitative research report 'Ad Brake' by Cancer Research UK (2016)[157]

Advertising works. This is why brands invest over £20 billion on advertising their products to us every year, hoping to entice us to want to 'lick the screen' with desire, before rushing off to buy that product.

Little surprise then, that there is a wealth of evidence showing that watching food adverts influences children's food choices, both in terms of what they choose to eat and how much they eat. [158] [159] It can also result in children 'pestering' their parents, prompting more purchasing of unhealthy foods that would otherwise not have been bought.[160] [161]

This is why in 2007 the Government introduced regulations to limit children's exposure to junk food adverts. But these rules are currently failing our children. This is because the rules only apply to kid's TV channels or programmes made just for children and therefore cover just 26% of children's TV viewing time.[162]

The number of children watching TV peaks between 6-9pm when popular family TV shows like The X-Factor, Britain's Got Talent and I'm a Celebrity Get Me Out of Here are shown. Research from the University of Liverpool, commissioned by the Obesity Health Alliance in 2017 monitored programmes popular with children during this time and found that nearly 60% of the food and drink adverts shown were for foods that are high in fat, sugar and salt (HFSS).[163]

The research found that in the case of one programme popular with children, children were bombarded with nine junk food adverts, including burgers, pizzas, sweets and biscuits, in just a 30-minute period.

Adverts for fruit and vegetables accounted for just over 1% of food adverts. This is despite Government advice that fruit and vegetables should make up over a third of our diet. Of all the food and drink adverts shown during the OHA's prime time TV study, fast food was the most frequently advertised category with fast food adverts appearing more than twice as often as any other food advert. How can we expect parents to make healthy choices for their children when they are bombarded with marketing so heavily skewed to unhealthy options?

Junk food advertising restrictions need to be extended so that they apply to all the programmes watched by children. Extending existing regulations with a 9pm watershed on junk food adverts would protect children from being exposed to unhealthy food during the programmes they watch the most.

Reversing the devastatingly high levels of childhood obesity needs strong action on all fronts. The Government has laid a foundation with their current Childhood Obesity Plan, but now need to go further.

Efforts to create a healthier environment for our children will be undermined if children are still confronted with numerous tempting fatty and sugary foods every time they watch their favourite shows. Bringing in a 9pm watershed on junk food adverts would represent a very real watershed moment for children's health.

The rules that are meant to protect children from junk food adverts are now ten years old. They weren't strong enough ten years ago and they are still aren't now.

Yancy Jensen
Healthy Weight Specialist
Nurse for Southwark, Evelina
London Children's Hospital

Caroline Machamire
Healthy Weight Specialist
Nurse for Lambeth, Evelina
London Children's Hospital

Food choices

Eating is an everyday occurrence and an essential component to our survival. For children, the nutritional quality of what they eat is paramount for growth and development. Neglecting this may lead to nutritional deficiencies which may lead to serious health conditions. On the flipside, eating too much food, especially energy dense food, may also lead to obesity, which in itself may result in other health issues.

Children's food choices are influenced by a complex interplay of genetic, socio-cultural and environmental factors.[164] Additionally, children have behavioural predispositions that allow them to learn to like the foods made available to them.[165] This demonstrates that children learn to eat by what is around them. Therefore, if children eat unhealthy food because they are given unhealthy food by their parents, that is what they will learn to like.

Early childhood is a critical time for establishing food preferences and eating habits.[166] Weaning during early years can play a pivotal role in the food choices the child will make in the future and parents often underestimate the importance of getting it 'right' the first time. There is sometimes an assumption that the child will change. However, the child is likely to adopt the same behaviour as the parent and this will continue throughout adolescence and adulthood.[167] If the child has adopted healthy eating behaviours in early childhood this may have a positive impact in preventing lifestyle related disease.[168]

We see many families where a child has been identified as being above a healthy weight. They come to get healthy eating advice to make changes that will have an impact on their weight. One of the first things that we do with the families is to get an understanding of the family diet at home and what has led to the child's food choices. We do this by asking the children, with the assistance of the parents, to fill out a two-week food diary.

The initiation of food choices starts within the home environment. Cultural traditions play a massive role in shaping children's food choices and should be addressed throughout the child's life alongside highlighting the unhealthy food choices within the obesogenic environment. We've met families from diverse backgrounds explaining that they maintain their own cultural traditions when it comes to food choices at home. At the same time, some of the families' food choices are also shaped by the outside environment. This means children's food choices are being affected by both their cultural background and the obesogenic environment.

The challenge comes when the food choices that reflect their cultural background are unhealthy along with the unhealthy food choices that are available in the obesogenic environment. This leaves the child confused and disadvantaged, as often parents want to hold on to their traditions without realising that they are making unhealthy food choices. At the same time, they're adopting some other unhealthy choices from the obesogenic environment.

We are not trying to find blame here. Rather, we are trying to explore how we should develop effective interventions. There are important questions to ask: How does a child navigate the obesogenic environment to make informed healthy choices? Is it the child's responsibility to make those choices? What role do children have in influencing food choices in the home environment? If it is parents that have purchasing power, should they not make the decision? What role does marketing have to play, if parents buy what the child asks for after having seen the food advertised?

We started questioning food choices after having seen a few parents coming to clinic and asking us to tell their child what they should or should not be eating. We found that parents responded with very little engagement. It was as though what we would say about healthy eating would miraculously influence the child and make them change their behaviour.

In those scenarios, there is a shift whereby the parent allows the child to be the decision maker. The assumption was that by gaining knowledge about nutrition and healthy eating, this would lead the child to change their behaviour. We found that there was a belief that by having an 'authority figure' tell the child how bad unhealthy foods are, the child would stop asking for it.

This belief places the onus on a child to make the right decision. The parent wants the child to make the healthy choices but isn't taking responsibility for their role in helping the child make the healthy choice.

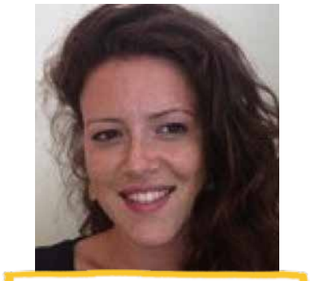
A recent talk on obesity stated that we make around 200 food choices a day. If we are making 200 food choices a day, as an adult that sounds overwhelming, how is that for a child? Factor in that these choices are being made are within an obesogenic environment and that the choices for adults might also be unhealthy. So how can a child possibly be equipped to deal with these choices?

Rather than expecting a child at school to know how to choose the healthy option, we should be designing the environment to make the healthy choice the norm. So that when they are confronted with the 200 food choices a day, there are more healthy options available than unhealthy.

It has become increasingly complex to make healthy food choices for both children and adults. We recognise the complexity of the obesogenic environment, the complexity of the aetiology of obesity and its' corresponding solutions. However, we should not forget that children are still children. We as adults, should also guide them on how to make healthy food choices, regardless of how complex the issue at hand is.

Rather than expecting a child to know how to choose the healthy option, we should be designing the environment to make the healthy choice the norm.

Co-creating solutions



Imogen Moore-Shelley
Head of Development for the Parents and Communities Together programme, Citizens UK

Five years ago, with the support of a grant from Guy's and St Thomas' Charity, I was tasked with discovering if we could apply locally, a community organising approach to bringing about social change that has its roots in 1930s Chicago. Our aim was to use this approach to build on the existing resources of our member organisations (churches, mosques, primary schools and community organisations) to create a project that would support the mental health of parents and infants' early developmental outcomes.

I spent the next year bringing together mothers living in Walworth and Camberwell in the London Borough of Southwark, asking them about their biggest issues and designing with them a project that reflected the gaps in provision. There were many issues that came up through those conversations, many of which are very relevant when we consider childhood obesity.

The overwhelming issue was that mothers felt isolated. Many of them were migrants to the area or the UK and they lacked practical and emotional support. Some did access services but the nature of the services meant that they were always the client or service user rather than a peer. In addition, the emphasis was on their babies' wellbeing. What they lacked were relationships and spaces where the emphasis was on their needs. We also knew that what we were hearing from these parents had implication for children's outcomes, because parental mental health can have a profound impact on children's developmental outcomes.

Out of these conversations we developed our MumSpace communities, where parents come together on a weekly basis and while their children play, they discuss and learn about the topics which they decide are relevant for them. Parents describe the relationships they form at MumSpace as being like family. At MumSpace they are not service users, but co-creators of their group. The project - Parents and Communities Together (PACT) has developed and expanded to be co-designed for pregnant women and new mums and includes volunteer parent champions based in community groups ready to signpost parents and activities in Spanish. Parental voice and leadership is always at the centre of how we grow.

PACT is also really committed to growing in a way that tackles the biggest issues preventing children from flourishing in our communities. Where we work, childhood obesity is one of the big factors preventing this. It has been really clear to me over the last five years that some of the issues and challenges our parents bring to our groups are closely connected to some of the primary factors influencing childhood obesity; specifically, what children eat and how much they exercise.

Firstly, housing is a big issue and many of the families we work with live in poor quality, overcrowded accommodation. These living arrangements mean that there are often poor cooking facilities which are not conducive to making healthy meals cooked from scratch. Fast food that is already prepared therefore becomes an attractive option. Their children don't have much room to play or to be able to engage in the exercise that comes with playing. This is why many come to our groups which are held in big open spaces in community buildings with lots of toys where children can run about and let off steam.

Many of our families do not have access to outdoor playing areas nearby where they can easily watch their children. There are lots of lovely parks in Southwark but often visiting them requires a planned visit. This means it's always going to be less frequent than making use of an outdoor playing facility close to where families live.

Another reason families might find fast food and processed food options attractive is that when you're juggling work around a young family it's easy to consume. We've learnt from these parents that many of them manage to juggle childcare and work only by working alternating shift patterns with their partners. For example, mum will leave at 3:30am to do a morning cleaning shift, return for the school drop off and swap with her partner, and then she will go back out to work in the evening. Cooking healthy meals that take time with a schedule like this can very difficult. Many of the families we work with also have low incomes and processed ready meals or fast food is often cheap.

The reality for many people is that one or more of these factors – poor housing, low incomes and juggling work and childcare – can be quite stressful. Eating healthily and exercise just doesn't take priority when families are just about balancing things and making ends meet.

That is not to say that families we work with are not interested in healthy eating and exercise. We have found there's a big appetite for these topics. For example, we've worked closely with our local paediatric dieticians to provide healthy cooking courses for parents. Courses that take into account factors such as money and time have been particularly popular. We recently ran a well-attended course about how to make healthy meals when you are relying on food banks and have limited cooking facilities.

We've learnt from these parents that many of them manage to juggle childcare and work only by working alternating shift patterns with their partners. Cooking healthy meals that take time with a schedule like this can very difficult.

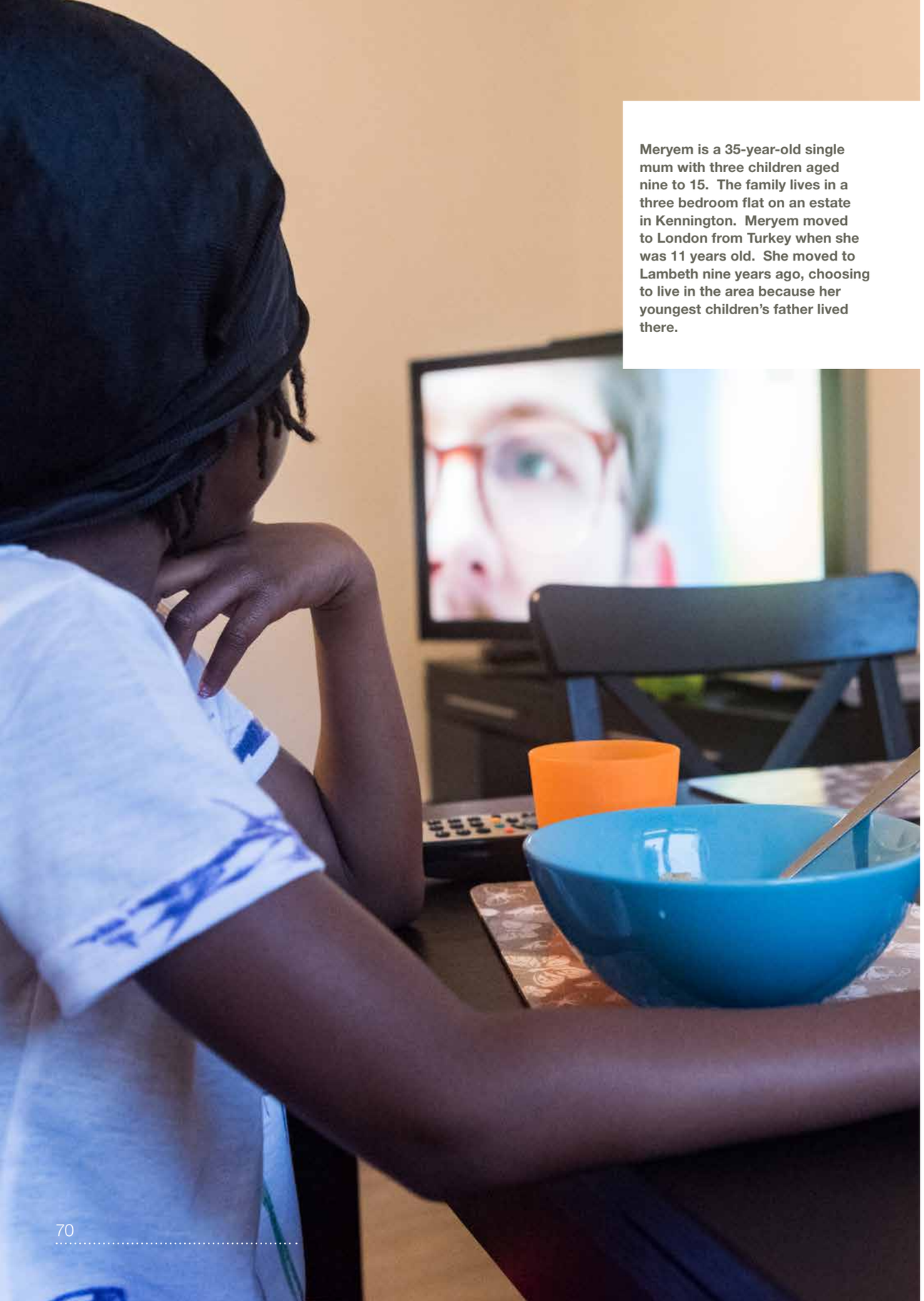
School

Schools have a captive audience. In the UK they are often in direct control over at least one meal per day for the children in their care. In our boroughs, many schools serve their pupils two meals a day. Some also use cooking and food as an engaging way in to teaching the curriculum. Schools are also mini-systems in themselves, often well connected in their community, with strong links to the families whose children they are responsible for. As such, schools are a space with huge opportunity to support children's eating and activity behaviours.

In recent years, significant progress has been made in relation to the type and quality of food that pupils are fed and the extent to which food and nutrition is integrated into the national curriculum. High profile initiatives such as Jamie Oliver's campaign to improve school dinners, have called for greater consideration to be given to the quality and approach to feeding school children and have garnered impressive support.

It's important however, to recognise that schools don't operate all year. Holidays place additional pressure on families who usually depend on the food and activities schools provide during term time.

> "All parents want the best for their children, but it seems there are many struggling to give their children the diet they need. Health services report that the BMI of poorer children increases dramatically in the school holidays. This is thought to be because these children engage in a lot less activity and eat a poor and unhealthy diet. Teachers also report malnourished children returning to school after the holidays having fallen behind compared to their peers. Many will never claw back this learning and health disadvantage to fulfil their potential."
>
> **Kim Chaplain, Director of Charitable Portfolio at the Mayor's Fund for London**



Meryem is a 35-year-old single mum with three children aged nine to 15. The family lives in a three bedroom flat on an estate in Kennington. Meryem moved to London from Turkey when she was 11 years old. She moved to Lambeth nine years ago, choosing to live in the area because her youngest children's father lived there.

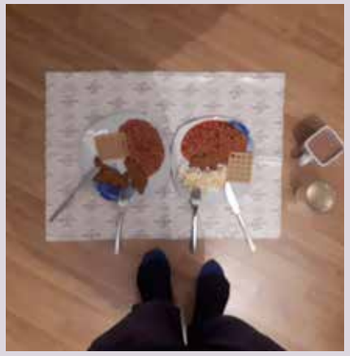
Meryem's family

Meryem's own childhood was difficult and as a result, she wants her children to have everything she did not have. She dotes on them and tries to give them whatever they want so that they are happy. This means she spends a lot of money buying the latest toys for her youngest children. To pay for everything she often uses store credit and payday loans, as well as borrowing money from her mother.

She is increasingly worried about her son's weight. A couple of years ago he stopped eating the meals she prepared at home and instead started raiding the fridge in the middle of the night. Meryem has since put a lock on the kitchen door. However, the medication she takes (she suffers from anxiety and depression) means she often falls asleep in the evening and sometimes forgets to lock the kitchen. In the morning, Mereym finds her son has eaten multiple packets of biscuits, yogurts and crisps.

However, weight is not the thing she worries about most when it comes to her son. She is more concerned about his emotional development and the fact that he is easily led by others. She worries that he'll fall into the wrong crowd at school. As a result, she encourages him to stay at home and play on his PlayStation, buying him the latest games to keep him happy and safe.

Her eldest daughter goes to a secondary school close to the family home. She doesn't like the school food and says that the portions are tiny. Because the school does not allow pupils to leave the school during lunchtime, she'll text her mum asking her to bring her food. Meryem will go to the Greggs counter at the petrol station around the corner and buy a sausage roll to drop off to her daughter at school. Her daughter often buys chicken and chips for £1.70 after school from Tennessee Fried Chicken, an outlet that is popular with school children not only because it is cheap but because it also appears in the music videos produced by the local gang/music group Harlem Spartans.



Healthy London Partnership

With a view to understanding and trialling interventions that encouraged school age children and their families to live healthier lifestyles, NHS Healthy London Partnership ran three pilots in Haringey, Hackney and Tower Hamlets in London.

Development of the pilots followed a design-led approach, building on ethnographic research which highlighted the barriers and challenges to healthy living, as well as the assets in neighbourhoods within the three boroughs. Working with the communities, three locally-led projects to tackle childhood obesity were piloted.

Snack Stop was trialled in Crowlands Primary School in Haringey to encourage parents to buy healthy snacks at the school gates for their children. Active Local Links trialled at Cubitt Town School on the Isle of Dogs in Tower Hamlets to identify and train volunteers to act as guides and facilitators for the local community to promote healthy lifestyles. Finally, we piloted a healthy recipe pack business called Make Kit in Hackney which helps families create healthy, quick, low-cost meals with fresh ingredients. The latter two award-winning initiatives are still operating today, with ambitions to scale.

Jessica Attard, Dietitian and Project Manager at Healthy London Partnership explained that sustainability was a critical consideration in the development of all three initiatives.

"We know that public sector funding for these types of services is increasingly strained. So, working with local people and organisations, we used business modelling to design pilots that, once scaled, had the potential to operate without the need for public sector funding. Engagement and buy-in from the local community was also essential to the success of these initiatives and we found that by rapidly prototyping them and giving people something they could see and feel built excitement and energy around the pilots."

Balancing priorities for a healthy school

Liz Robinson
Co-Head, Surrey Square School

The Aylesbury Estate in South East London is the largest in the country and its high-rise blocks can be a foreboding sight. It's currently undergoing a major regeneration programme that aims to deliver 3,500 new homes, half of which will be affordable; community facilities and improved open spaces. The project, which began construction in 2016, is expected to finish in 2032.

Surrey Square is one of the nine schools that serve the Estate. It was rated outstanding by Ofsted in 2016. I work alongside Nicola Noble as co-head, to serve over 400 local children. They come from a wide and diverse range of backgrounds including West Africa, Bangladesh, Somali, Algeria, Peru, Columbia, Poland, Jamaica, Lithuania and Pakistan. Around 44% of our children are eligible for pupil premium – the additional government funding available to raise attainment of disadvantaged students. This is much higher than the national average of around 24%.

We're a Flagship 'Food for Life' school and have worked hard to build a positive food culture. We know that diet is a big a problem, especially access to healthy food. Our work to develop a positive food culture has led to the flagship status, and we're very proud of that.

Still, the results of our latest weights and measurements are not great, and this is disappointing and an issue for us. We often see a correlation between excess weight and emotional and psychological problems. All combine in a complex mix and can often have an impact on attainment and learning. So, we're evaluating and looking at where else we may need to make changes.

Today, we provide healthy school meals and have a very high up-take. All meals are prepared by the school and not an outside caterer and are to a high standard. All Southwark children are entitled to free school meals which helps. We also have a policy on packed lunches and monitor these as part of our culture now. No fizzy drinks, sweets or chocolate are allowed in packed lunches.

The job of influencing parents is ongoing. We got some push back at the beginning, as in 'you can't tell us what to feed our kids' but this has slowly changed and most are on board. We also offer breakfast to all children and parents who want it through the Magic Breakfast. This comprises of high nutrient bagels, cereal and fruit juices. All Key stage 1 children are provided with fruit as a snack and we ensure that food in our after-school clubs is healthy. We're seeing an increase in parents volunteering to get involved. We also encourage sharing food in the school to celebrate and introduce home cooking and foods from different cultures.

We also know that housing issues play a big part, with many families not having access to facilities such as kitchens and there is an overreliance on takeaway and convenience food.

A large number of our families live in flats with limited access to outside space. Yes, there are spaces such as Burgess Park in the vicinity, but during dark and cold winter months there is anxiety about community safety and parents are unwilling to let their children outside to play.

We have a high density of social housing which means children are walking very short distances to school, maybe just 300 metres. This is far less than children in less urban areas who often walk for longer to get to school and therefore get more exercise as part of their daily routine.

Like many places, there's heavy use of technology in the home including phones, tablets, TV and computer games. We know that spending a lot of time on these devices has led to a more sedentary lifestyle, but for our families it means children are occupied and not bouncing off the walls as much.

So, in terms of fitness and sport, all children have access to P.E. as part of the curriculum. Additionally, we have Sports Coaches during play time who encourage children to be active in the playground. We also have 'Fit Fun' leaders where some of our pupils are trained to instigate active games. They have special orange T-shirts and are clearly visible during play times.

Ongoing cuts to school budgets mean it is a continuous challenge to provide more than the basics. We try not to take any shortcuts. We subsidise school lunches to ensure we get good quality food such as meat but of course this is more expensive and we may have to compromise in future.

It's also hard to give the time needed for physical activity. There is a focus on curriculum-based subjects such as English and Maths and so there's a pressure there to compromise.

Inevitably, what Ofsted looks for is a big driver for schools and they tend to be a stick rather than a carrot! Currently, there is a push on core literacy and numeracy. When I started 12 years ago, Ofsted was more focused on Every Child Matters agenda which was broader and 'being healthy' had more focus. But now this has changed and they are more narrowly focused on attainment in core subjects. This means less accountability in other areas.

Whilst schools are a very significant tool in driving change, I am cautious here because schools can't do everything and we certainly don't need more pressure! There is too much pressure in the system to effect change in complex areas such as mental health, parenting etc, yet the resources are diminishing.

Investing in school healthiness has to be a combined effort. School business is education and this is partly health but we are not public health specialists. We need a clear combined strategy with key health and social partners to work with us on what healthiness means to us as schools. For example, making sure that specialist professionals carry out a number of visits to schools to support a percentage of the worst affected families, help share and develop best practice and how this can work well in schools. Most services are so stretched at the moment, but schools have critical access to families and can be key in helping solve some of these problems. We need a collective strategy but this combined conversation has not happened well.

Wellbeing – both emotional and mental – can be an area in schools that is less well resourced. Schools have to be a key part but we need specialists to work with us. The team around the child (TAC) is the right model but we need to ensure the structures actually exist and are well resourced to deliver. The universal offer in schools needs additional targeted support.

We see children with complex problems which require intricate and highly effective team work. Despite the mounting pressure, we want to play our role and are committed to continuing supporting our children in the best way we can.

Investing in school healthiness has to be a combined effort. Despite the mounting pressure, we want to play our role and are committed to continuing supporting our children in the best way we can.

London's obesity lottery

Jamie Oliver MBE
Chef and campaigner

2017 marked 15 years since I opened my first restaurant, Fifteen, and I did it here in London, where else! This city has one of the most vibrant food cultures on the planet. Food is part of our beating heart, in a city that's home to 30,000 food businesses worth over £20bn, and where one in four Londoners has a job linked to food. Food brings prosperity to the city, it strengthens our communities, it lets us express our creativity and it sustains and binds our cultures. London's food is a wonderful and powerful thing.

But here's the problem – we're not consistent. Our city's food environment is also compromising our health, shortening our kids' life-expectancy, reducing productivity, costing taxpayers billions of pounds, crippling our healthcare service, and widening the gap between the least and most disadvantaged people in our society.

I really care about our city, and the impact that poor diet is having on families and communities is evident every single day, on all of our streets.

The obesity crisis affects us all, but tragically some London families and kids have less defence against unhealthy environments and junk food than others. The Office of National Statistics says boys born in Camden last year, just like my youngest son River, can expect to live for 81 years – and have 64 years of good health. But, take a tube just 45 minutes across town to Tower Hamlets and the new-borns there will on average lose their good health at the age of 54, and can only expect to live to 78.[169] Tell me – how is that possible? There's nothing physically different between these kids, it's all about what's around them. London's health and obesity lottery is a tragedy of design, caused by the unfair, unhealthy environments within our city.

The obesity lottery is at crisis point. And this isn't just an abstract way to talk about inequality – we can literally plot out maps of how your local environment affects your health. London's 'obesity corridors', identified by projects in Lambeth and Southwark, are areas where high rates of childhood obesity can be mapped against junk food-filled streets. Just as cholera used to be mapped against London's dirty water routes, obesity clings to our high streets.

Today, 50% of meals eaten out of home are in fast food restaurants.[170] Fried chicken shops are doing especially well, booming in number by 36% between 2003 and 2008 alone.[171] The unhealthier food outlets there are in a neighbourhood, the greater the rates of childhood obesity.[172] Fact.

In November 2017, the Mayor of London announced a proposal to ban the opening of new hot food takeaway restaurants within a 400m radius of schools. This is a great step in the right direction, but we need to do way more. There's now a fast food outlet for every 1,000 Londoners,[173] and a deliberate tendency for these to cluster around schools.[174] We must now expand this ban to include mobile trucks and vans, which are the main culprits in parking up right outside schools and selling masses of unhealthy foods.

The Mayor's endorsement of the Healthier Catering Commitment for businesses is also good news, but it's just the start. What about establishing 'safe zones' on bus routes and around schools: with no junk food adverts allowed? We could also block the display of junk food adverts on digital billboards within certain timeframes – the school runs for instance, between 8 – 9am and 3 – 4pm.[175]

There are so many small changes within our reach that would have extraordinary impact. It's simply a matter of putting our heads together and getting it done!

If we're going to create a level playing field (where healthy choices are as easy to make as unhealthy ones) we need a multi-pronged, ambitious plan for our whole food environment. By focusing on where we live, work, study and play, Londoners can start building the healthy homes, schools and high streets we so desperately need, across the whole capital.

I'm campaigning for a collection of simple, proven and popular policies to reset the way we think about food and health in London. Each policy works on its own. But, crucially, they come together to form a holistic strategy for our food environment.

The pillars of this plan are truth and choice. We need honest, accurate and truthful information to make good decisions. And we need the right access and support to be able to carry out our choices.

We need to see progress in five areas:

Marketing & Advertising

Transport for London has one of the world's most valuable advertising estates. We have a proper opportunity here to ensure our buses, tubes and taxis are healthy spaces. Kids' brains are impressionable and they need better protection from unhealthy ads. Just as TfL kick-started the fight against tobacco ads 30 years ago, the Mayor can do the same with junk food (which is second only to smoking as the biggest cause of preventable cancer).

Levies & Taxation

Imagine how quickly food businesses would change their ways if the tax system incentivised it – let's give financial benefits to people who offer a balanced (well labelled) menu, presenting a proper choice between healthy and unhealthy food.

Balanced High Streets

Our high streets offer a very limited choice, especially for teenagers. There are 8,622 fast food restaurants in London – one for every 1,000 residents. London could raise the bar by applying a universal definition of a healthy food outlet from labelling and portion size to cooking oils and healthy options.

Schools

Our kids eat at school 190 days of the year, there's no way they should be fed junk! Plus, learning about food in the classroom is the best way to help the next generation make responsible, healthy choices – for life.

Workplace

One of the best ways to get kids healthy is if their family network is healthy. London's businesses have the opportunity to ensure their employees have a chance to eat great food during every shift, day or night. This is especially important for those who work overnight in hospitals.

We're all tired of political platitudes. We need leadership willing to own a proper multi-pronged strategy. Westminster's current obesity plan is as flimsy as they come. With a package of policies equipped with targets, data and statistics to prove categorically what's working, what's not, and what needs to be done better, together, Londoners can show how it's done.

We all need to negotiate and monitor ambitious results and process targets for local councils and food businesses; including fruit and vegetable consumption, intake of sugar, salt and fat and coverage of interventions.

We need honest, accurate and truthful information to make good decisions. And we need the right access and support to be able to carry out our choices.

Street

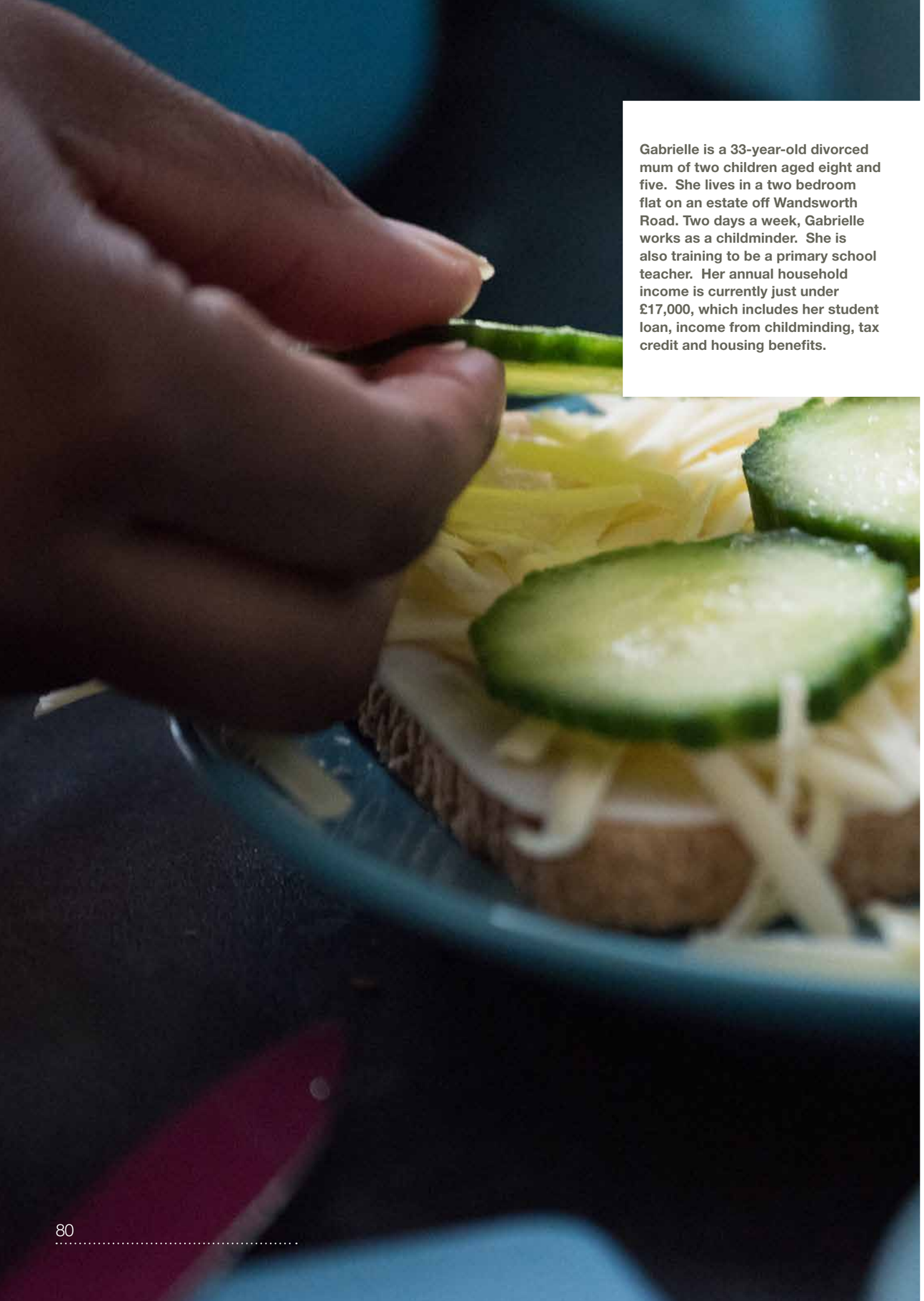
It's important to look outside the home and school at the wider high street environment that children and families in inner cities spend their time. In recent years a lot of attention has been given to fast food, but we believe we need to have a broader perspective that takes in the whole food environment.

There is simply too much calorie dense food available and residents are bombarded by invitations and incentives which encourage unhealthy choices. This bias is amplified in inner-city high streets. We need to shift high street messaging to proactively encourage positive behaviour around food and activity.

Our ability to focus on work within smaller neighbourhoods, means we have scale of space small enough to make this ambition possible, and to thoroughly demonstrate the impact on health.

> "There's not enough kids' things around here, things for 5 year olds. The children centres are boring, and it's cold in there too, you just sit around and watch them play with the same kind of toys that they have at home. The soft play places are better because parents can get in too and play. They have hot food there too - pizza, chips, nuggets, sandwiches for mums."

Mother of two children aged two and five, Vauxhall, Lambeth



Gabrielle is a 33-year-old divorced mum of two children aged eight and five. She lives in a two bedroom flat on an estate off Wandsworth Road. Two days a week, Gabrielle works as a childminder. She is also training to be a primary school teacher. Her annual household income is currently just under £17,000, which includes her student loan, income from childminding, tax credit and housing benefits.

Gabrielle's family

Having a car makes a big difference to Gabrielle. She uses it nearly every day to drop her children off at school, visit family members in Brixton, Croydon and Streatham, drive to university in Eltham and go to the big Asda superstore in Battersea. Gabrielle says that if she did not have the car, she would be more reliant on the smaller Tesco and Sainsbury's near her home, which are more expensive than Asda.

When Gabrielle left school she first worked in catering. As a result, she is a confident cook and regularly prepares meals for her children from scratch. Typical meals include pasta and sauce, or rice and chicken. Sometimes as a treat, Gabrielle will buy her children grilled peri peri chicken from the fish and chip shop nearby, which she takes back home and serves with rice. They will also occasionally go to the drive-thru McDonald's – one of her son's favourites.

However, it is important to Gabrielle that her children view takeaway food as a treat. She does this by assigning Fridays as 'treat day', so that her children learn to expect this kind of food only once a week. There are other strategies she uses to ensure her children have a balanced diet. For example, when she picks up her children from school, she brings with her little bags – one for each child – filled with grapes and a cereal bar.

She loves that the area has a mix of people from a wide range of backgrounds and ethnicities, it helps her feel like she belongs. This is most evident in the mix of shops near her home and she likes being able to pick up Afro-Caribbean ingredients from the Chinese grocers, and buy her meat from the friendly halal butchers. Even if she doesn't go in, the Turkish butchers will give her a wave as she walks past. She says her kids have helped her get to know local shopkeepers, her children are chatty and often leave shops with a free lollipop in their hands.

Lynk Up Crew

As part of its outreach work with young people, the Greater London Authority has sought opinion from a group of seven to 14-year-old Londoners to get a greater understanding of how they feel about the fast food outlets in their neighbourhood and what motivates their decisions on what meals to buy from them.

Rebecca Palmer, Senior Project Manager for Children and Young People's Participation at the Greater London Authority, comments: "Through our engagement work with the Lynk Up Crew, a group of seven to 14-year-old Londoners, we have gained great insight into the reasons why young people are attracted to fast food outlets. Contrary to popular opinion, it's not that they have an abundance of choice, rather a lack of it. Several fast food outlets are selling the same food at the same price as other outlets on the same street.

"Surprisingly, decisions about what to eat have very little to do with food. With youth clubs no longer available to most young people, they instead choose to socialise in places where their friends go, it's warm and dry, and they can access free-Wi-Fi. Fast food outlets tick all of those boxes and they are in abundance in most towns and cities. An outlet that offers the nicest smelling food or biggest serving at a reasonable price, is then likely to attract a lot of custom from young people locally.

"Some of our young people won't necessarily sit down for a family meal in the evening, so meeting friends in fast food outlets and eating together can fill the social void that exists while at the same time satiating their hunger. Rather than being seen as bad, the act of getting together with other young people could actually be a very positive activity for many young people.

"Providing better places for them to meet where healthier and more attractive alternatives to food and drink are served would make a huge difference. Involving young people in decisions about the kind of fast food outlets that are available locally and in the design and delivery of pop-up food outlets that serve different cultural foods would be a great way of providing alternatives of interest to young people and is likely to result in the breaking down of barriers between generations at the same time."

With youth clubs no longer available to most young people, they instead choose to socialise in places where their friends go, it's warm and dry, and they can access free-Wi-Fi.

Anna Taylor, OBE
Executive Director, Food Foundation

Robin Hinks
Churchill Fellow

Protecting those at greatest risk

One in ten four-year-olds is obese. When you hear it enough times it stops having an impact. And yet that amounts to over 11,000 children who start school every year already disadvantaged before they've even learned to hold a pencil and spell their name.

We know too that many people in positions of power still think it is a result of retrograde behaviour among sections of society – mothers who no longer know how to cook for their children, children who don't know where a carrot comes from and generally, a lack of discipline and common sense around eating.

So, what can be done? Are we at the mercy of the major food corporations and retailers, in the hope that some will exercise a higher level of accountability to the public good? After all, we're eating from a global food basket, relying on 60% of our calories from highly processed food, manufactured by a few major global corporations.

There is undoubtedly a role for central government (indeed there's also arguably a role for cooperation between governments at the global level). Following the publication of the Government's rather flimsy childhood obesity plan, it's fair to say that almost all of the government energy is going into the Sugar Levy and the Sugar Reformulation Plan. This work is critically important (and moreover, the UK is world leading in this), but it is missing a central vision of what good food is, and how delicious it could be with the right mix of policy and practice change.

That's why we helped to set up the Peas Please initiative, which is bringing together businesses working right along the supply chain, along with local authorities and central government to make it easier to eat veg. The central proposition is that we all know about five-a-day but our veg consumption is in decline. And there are many good reasons for this – it doesn't taste good, it's too expensive, it's hard to prepare, it's not convenient etc. Peas Please is bringing people together to solve these problems and drive up consumption. We need leadership on healthy food environments from Government first, but also from businesses and the third sector if we are going to see the scale of impact needed.

There's a job to protect those at greatest risk. If you live in a deprived area, your children have double the chances of ending up obese. Our Force-fed report showed that healthy foods are three times more expensive, calorie for calorie, than unhealthy foods. People on a low income often squeeze their food budget in order to pay for housing and utilities. If you don't have much money, you go for cheap empty calories and these are the worst foods for your children. A representative survey conducted by Ipsos-MORI in London in 2013 showed that 8% of parents reported that at some point in the last year their children had to skip meals because they could not afford to buy food. This situation is toxic for children. Data from Canada show children who experience two or more food insecure episodes during their early years are nearly five times more likely to report poor health aged 10-15 years. By the time they reach 16-21 years, they have a three times higher chance of having a chronic health condition.

All organisations concerned with health and well-being in pregnancy and the early years, and with public health, food policy and food poverty, should engage with and recognise their role in supporting Healthy Start. We need to make sure that all pregnant women and mothers of toddlers who are on a low income get access to Healthy Start vouchers (for fruit and vegetables) – a funded national programme which currently one in three of those eligible do not get.

Making connections across departments and work streams to help different elements of London's local authorities understand the role they can play in helping to take a whole-systems approach to the problem of childhood obesity will be key in enabling the approach to succeed.

We must also think very carefully about allocating resources to children already obese or living with other dietary risks. In a context where public health budgets are being cut back even further, tough choices between priorities like drug and alcohol abuse, sexual health and obesity will need to be made. But the evidence to date suggests that obese children are at the bottom of the shopping list.

For examples of what this targeted support might look like, we can look to recent innovation in the US, where fruit and vegetable incentive programmes – projects that enable cost savings for healthier foods at the point of purchase for low-income shoppers and those with diet-related health risks – are now found extensively.

One group of these, 'fruit and vegetable prescriptions', use a range of medical triggers – including adult and childhood overweight/obesity, hypertension and childhood asthma – and household food insecurity, as criteria for eligibility. Generally, programme participants are identified by primary or secondary health services, after which they will receive a weekly 'healthy food prescription' funded by a variety of federal, state and city agencies for redemption with local retailers. 'Fruit and veg prescription' programmes have spread rapidly across the USA due to the fact that they simultaneously offer multiple benefits to multiple constituencies: programme participants, fresh produce growers and retailers and the local economies in which they operate.

Pooled data from 2012-2016 participants of Washington DC's FVRx Program indicate that 50% of project participants achieve a reduction in BMI through the course of a prescription – dispensed over the course of a growing season for redemption at local farmers' markets. There is already work planned to bring such initiatives to the UK through the work of the Alexandra Rose Charity but much more political and financial support is needed to take these ideas to scale.

Finally, we must start to measure food poverty – it was last done in the UK more than ten years ago. Without knowing how big the problem is and who is worst affected it is impossible to do anything about it. There are now globally standardised methods which could be used. We just need the political will to do it. Local authorities could do more to demand this data from national survey bodies.

There is no shortage of good ideas on what needs to be done. Leadership and, where necessary funding, are in much shorter supply.

People on a low income often squeeze their food budget in order to pay for housing and utilities. If you don't have much money, you go for cheap empty calories and these are the worst foods for your children.

Environmental influences on children's weight

Shirley Cramer CBE
Chief Executive, Royal Society for Public Health (RSPH)

As a country, we are at a public health crossroads. The obesity crisis is a ticking time bomb that is already placing increasing pressure on our stretched health services, and if not addressed as a matter of urgency, may be the straw that breaks the camel's back for our NHS.

The Chief Executive of NHS England, Simon Stevens, has publicly said that obesity is going to bankrupt the NHS. Preventing obesity will benefit the individual and society so we need to address food habits and the food and drink environment as early as possible. By instilling positive, healthy behaviours in our children and creating a more health promoting environment there is a realistic chance of reversing the current trends.

There has been much written about why we find ourselves in this unhealthy situation and there is a great deal of hard evidence too. We know that children are more inactive than ever before, education on nutrition and cooking is lacking in schools, high-calorie junk food is on every street corner, and multi-national food and drink companies are bombarding children and young people with alluring advertising encouraging them to consume.

All of these factors combine to form what we call an 'obesogenic environment'. In simple terms, this means that the places in which we live, work and play have become increasingly unhealthy or obesity-promoting. The unhealthy choice has become the easy choice and in many cases, it can be the inexpensive and logical choice in busy lives.

There is a debate that often arises when talking about the issue of adult obesity. On one side of the argument, many say that individuals must take responsibility for their own weight and health. No one is forcing anyone to consume and individuals must be accountable for their own actions. On the other side, it is said that the ultimate blame lies with food and drink industry and the environment in which we live. If our environment and society is obesity-promoting, is it any wonder that this is reflected in the population?

However, when considering children and childhood obesity there really is no debate. Children's choices are made for them by their families and society and we have a collective responsibility for these choices. The environment in which we raise our children has a direct impact on what they consume. If we can create an environment that is conducive to promoting healthy eating, active travel and physical activity, this will be reflected in the health of our children and ease the burden on our struggling health services.

In March 2015, the Royal Society for Public Health (RSPH) released a report entitled, 'Health on the High Street'. The report looked at local high streets as a 'setting' for health and wellbeing. It explored both the positive and negative ways in which the businesses that we find on our high streets can have a direct influence on the health of the surrounding local population. We developed a league table of the 10 healthiest and 10 unhealthiest high streets in the UK and unsurprisingly we found that the unhealthiest high streets were all in the most deprived areas.

We also undertook a league table of the London boroughs, ranking 144 different high streets and as with the UK towns and cities table, the unhealthiest high streets were in areas with the highest deprivation.

This link would strongly support the idea that our environments and the streets we frequent really do have the potential to help us live well, or be detrimental for our health.

It is a particular failure of public policy that health inequalities continue to grow, that the poorest children can expect the worst environments. In the context of childhood obesity, this means that children from the poorest socio-economic backgrounds are twice as likely to be obese than the wealthiest. This makes the fact that more fast-food outlets are opening in deprived areas even more worrisome. There is a perpetuating cycle of deprivation and obesity that we must be bold enough to address. Until the cycle is disrupted the coming decades will see these inequalities grow and the poorest children will bear the brunt of deprivation through increasing rates of obesity.

The solution involves incorporating health and wellbeing into all policies. We need to make the default option the healthy choice. Town planners, and architects should be assessing the health impact of the public spaces in our towns and cities with specific attention paid to roads, pavements and green spaces used by children and young people. Before infrastructure is built, it should meet minimum requirements of not just not being detrimental for people's health, but to actually promote health and wellbeing. This approach will require a massive culture shift but it is something that is necessary to create an environment fit for purpose for future generations.

There is no magic bullet – it's going to take time, money and tough decisions from elected politicians and policy makers, which is why the Government's childhood obesity strategy has left many of us disappointed. The strategy did not contain nearly enough hard-hitting policy changes, particularly around advertising and promotions of food and drink full of fat, salt and sugar. It seems that many politicians still haven't grasped the extent of the problem and don't recognise their own responsibilities. Short sighted, election-cycle politics means that we do not get the critical, comprehensive, long-term strategic approach needed to tackle childhood obesity.

We are making some progress but it is too slow. A radical culture shift is needed in all areas, and health put at the heart of decisions, if we are to create the environments and streets that can support us to stay healthy and well from childhood right through our lives.

There is a perpetuating cycle of deprivation and obesity that we must be bold enough to address. Until the cycle is disrupted the coming decades will see these inequalities grow and the poorest children will bear the brunt of deprivation through increasing rates of obesity.

Conclusion

It is clear that childhood obesity rates have all the right ingredients for a massive health crisis. We can see that the burden is falling heaviest on disadvantaged neighbourhoods and by focusing on individual willpower, we're ignoring the overwhelming environmental pressures that are driving behaviour.

Tackling the problem is a daunting prospect, but we believe that progress is possible. The evidence we've looked at from behavioural science strongly suggests that we need to rethink and reframe the issue as a normal response to an abnormal environment.

So, while the issue is complex, the solutions don't have to be complicated if you focus on four things:

Childhood obesity is a problem of inequality

The data clearly show a strong relationship between childhood obesity and deprivation. A good place to start would be getting levels of childhood obesity in the poorest areas to the same as wealthier ones. And breaking down this massive challenge to a local level shows how achievable it is. Breaking the link between childhood obesity and deprivation over the next decade would bring London's total rates down to some of the lowest in the country.

Poor decisions are exacerbated by scarcity

In an ideal world, we'd all be completely rational, able to make considered, informed decisions. But the reality is none of us are. And we know families in disadvantaged areas have less defence against unhealthy environments. The huge pressures of just trying to get by also means they simply don't have headspace to make healthy decisions. We need to make the right thing to do, the easy thing to do.

Solutions don't have to be complicated, but they do take time

We're being unrealistic if we believe we can achieve total change in the short term. Rather, build a plan that creates cumulative and coordinated small steps and take the time to see what works and doesn't work. Don't take too much time to get started. Get going and look for marginal gains such as reducing unhealthy snacking or increasing incidental physical activity.

This isn't anybody's job – it's everybody's job

The environments we live in are influenced by businesses, government and our own communities. So, there is a role for everyone to play in helping children stay a healthy weight. Of course, political leadership is needed. Where it can add real firepower is bringing decision-makers together under one shared mandate: to create and sustain healthy food and activity environments for children.

References

1 HM Government Childhood Obesity: A Plan for Action, August 2016

2 https://www.healthylondon.org/wp-content/uploads/2016/05/London-Health-Commission-Global-City-Comparisons-overview.pdf

3 The Lancet: Urgently needed: a framework convention for obesity control. Available at http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2811%2961356-1/fulltext

4 Rutter, H., Savona, N., Glonti, K., Bibby, J., Cummins, S., Finegood, D. T., ... & Petticrew, M. (2017). The need for a complex systems model of evidence for public health. Lancet.

5 Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128·9 million children, adolescents, and adults. The Lancet, Vol 390 December 16, 2017 2627

6 The change from 19.8 per cent in 2015/16 is not statistically significant.

7 National Child Measurement Programme England, 2016/17 school year, available at http://digital.nhs.uk/catalogue/PUB30113

8 London Health Commission, Better Health for London, September 2014.

9 Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128·9 million children, adolescents, and adults. The Lancet, Vol 390 December 16, 2017 2627.

10 For more information: Table 6b (deprivation based on postcode of the school), National Child Measurement Programme, England, 2016/17 school year. http://digital.nhs.uk/catalogue/PUB30113

11 For more information: Table 6b (deprivation based on postcode of the school), National Child Measurement Programme, England, 2016/17 school year. http://digital.nhs.uk/catalogue/PUB30113

12 For more information: Table 5a, National Child Measurement Programme: England, 2016/17 school year. http://digital.nhs.uk/catalogue/PUB30113

13 For more information: Table 7a (based on postcode of the child), National Child Measurement Programme, England, 2016/17 school year. http://digital.nhs.uk/catalogue/PUB30113

14 London Health Commission, Global City Comparisons, Overview, September 2016

15 National Child Measurement Programme - England, 2015-16. www.content.digital.nhs.uk/catalogue/PUB22269

16 NCMP Dataset, NHS Digital. National Child Measurement Programme, England, 2016/17.

17 Butland B, Jebb SA, Kopelman P, McPherson K, Thomas S, Mardell J, et al. Tackling Obesities: Future Choices. London; 2007.

18 Rutter H, Savona N, Glonti K, Bibby J, Cummins S, Finegood DT, et al. The need for a complex systems model of evidence for public health. The Lancet. 2017;390(10112):2602-4.

19 Finegood DT, Merth TD, Rutter H. Implications of the foresight obesity system map for solutions to childhood obesity. Obesity (Silver Spring). 2010;18 Suppl 1:S13-6.

20 Marteau TM. Changing minds about changing behaviour. The Lancet. 2018;391(10116):116-7.

21 Harper, H & Hallsworth, M (2016) Counting Calories, The Behavioural Insights Team

22 Hill, A. J. (2004). Does dieting make you fat? British Journal of Nutrition, 92, S15-S18

23 Levitsky, D. A., & Pacanowski, C. R. (2011). Free will and the obesity epidemic. Public Health Nutrition, 15(1), 126-141.

24 Weingarten, H. P. (1985). Stimulus control of eating: Implications for a two-factor theory of hunger. Appetite, 6(4), 387-401.

25 Clark, H. R., Goyder, E., Bissell, P., Blank, L., & Peters, J. (2007). How do parents' child-feeding behaviours influence child weight? Implications for childhood obesity policy. Journal of public health, 29(2), 132-141.

26 Rolls, B. J., Engell, D., Birch, L. L. (2000). Serving portion size influences 5-year-old but not 3-year-old children's food intakes. Journal of American Diet Association, 100, 232–234.

27 NHS Digital (2016). National Child Measurement Programme, England 2015 to 2016 school year. https://digital.nhs.uk/catalogue/PUB22269 (Accessed October 2nd 2017).

28 NHS Digital (2016). National Child Measurement Programme, England 2015 to 2016 school year. https://digital.nhs.uk/catalogue/PUB22269 (Accessed October 2nd 2017).

29 Zlatevska, N., Dubelaar, C., & Holden, S. S. (2014). Sizing up the effect of portion size on consumption: A meta-analytic review. Journal of Marketing, 78(3), 140-154.

30 Holden, S. S., Zlatevska, N., & Dubelaar, C. (2016). Whether smaller plates reduce consumption depends on who's serving and who's looking: a meta-analysis. Journal of the Association for Consumer Research, 1(1), 134-146.; Geier, A. B., Rozin, P., & Doros, G. (2006). Unit bias a new heuristic that helps explain the effect of portion size on food intake. Psychological Science, 17(6), 521-525.

31 Marteau, T. M., Hollands, G. J., & Fletcher, P. C. (2012). Changing human behavior to prevent disease: the importance of targeting automatic processes. science, 337(6101), 1492-1495.

32 Kelly, M. P., & Barker, M. (2016). Why is changing health-related behaviour so difficult? Public health, 136, 109-116.

33 Mullainathan, S., & Shafir, E. (2013). Scarcity: Why having too little means so much. Macmillan.

34 Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). Poverty impedes cognitive function. science, 341(6149), 976-980.

35 Daminger, A., Hayes, J., Barrows, A., & Wright, J. (2015). Poverty Interrupted: Applying Behavioral Science to the Context of Chronic Scarcity. Ideas42, 1-49.

36 Cadiro, R. Chandon, P. (2017) Which Healthy Eating Nudges Work Best? A Meta-Analysis of Behavioural Interventions in Field Experiments, under review.

37 Levitsky, D. A., & Pacanowski, C. R. (2012). Free will and the obesity epidemic. Public health nutrition, 15(1), 126-141.

38 Blanken, I., van de Ven, N., & Zeelenberg, M. (2015). A Meta-Analytic Review of Moral Licensing.

39 Rabia, M., Knäuper, B., & Miquelon, P. (2006). The eternal quest for optimal balance between maximizing pleasure and minimizing harm: The compensatory health beliefs model. British journal of health psychology, 11(1), 139-153.

40 Marmot, M. G., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., & Geddes, I. (2010). Fair society, healthy lives: Strategic review of health inequalities in England post-2010.

41 Living Standards, Poverty and Inequality in the UK: 2017, Institute for Fiscal Studies, 2017

42 NHS Digital 2017, Statistics on Obesity, Physical Activity and Diet retrieved from https://www.gov.uk/government/statistics/statistics-on-obesity-physical-activity-and-diet-england-2017

43 NHS (2016) Health Survey for England, retrieved from http://digital.nhs.uk/catalogue/PUB22610

44 NHS Digital 2017, Statistics on Obesity, Physical Activity and Diet retrieved from https://www.gov.uk/government/statistics/statistics-on-obesity-physical-activity-and-diet-england-2017

45 Power, C., Manor, O., & Matthews, S. (2003). Child to adult socioeconomic conditions and obesity in a national cohort. International journal of obesity, 27(9), 1081.

46 Kent, S., Green, J., Reeves, G., Beral, V., Gray, A., Jebb, S. A., ... & Million Women Study collaborators. (2017). Hospital costs in relation to body-mass index in 1· 1 million women in England: a prospective cohort study. The Lancet Public Health, 2(5), e214-e222.

47 Drewnowski, A., & Specter, S. E. (2004). Poverty and obesity: the role of energy density and energy costs. The American journal of clinical nutrition, 79(1), 6-16.

48 Winkleby, M. A., Jatulis, D. E., Frank, E., & Fortmann, S. P. (1992). Socioeconomic status and health: how education, income, and occupation contribute to risk factors for cardiovascular disease. American journal of public health, 82(6), 816-820.

49 Bleich, S., Blendon, R., & Adams, A. (2007). Trust in scientific experts on obesity: implications for awareness and behavior change. Obesity, 15(8), 2145-2156.

50 Burgoine, T., Forouhi, N. G., Griffin, S. J., Brage, S., Wareham, N. J., & Monsivais, P. (2016). Does neighborhood fast-food outlet exposure amplify inequalities in diet and obesity? A cross-sectional study. The American journal of clinical nutrition, 103(6), 1540-1547.

51 Strazdins, L., Griffin, A. L., Broom, D. H., Banwell, C., Korda, R., Dixon, J., ... & Glover, J. (2011). Time scarcity: another health inequality? Environment and Planning A, 43(3), 545-559.

52 Byrd-Bredbenner, C., Quick, V., Koenings, M., Martin-Biggers, J., & Kattelmann, K. K. (2016). Relationships of cognitive load on eating and weight-related behaviors of young adults. Eating behaviors, 21, 89-94.

53 Drewnowski, A., & Specter, S. E. (2004). Poverty and obesity: the role of energy density and energy costs. The American journal of clinical nutrition, 79(1), 6-16.

54 Jones, N. R., Conklin, A. I., Suhrcke, M., & Monsivais, P. (2014). The growing price gap between more and less healthy foods: analysis of a novel longitudinal UK dataset. PLoS One, 9(10), e109343.

55 PHE (2015) Sugar Reduction: The evidence for action, Annexe 4: An analysis of the role of price promotions on the household purchases of food and drinks high in sugar.

56 Royal Society for Public Health and Slimming World (2017) Size Matters: The Impact of Upselling on Weight Gain.

57 Holt, S. H., Brand Miller, J. C., Petocz, P., & Farmakalidis, E. (1995). A satiety index of common foods. European journal of clinical nutrition, 49(9), 675-690.

58 Berthoud, H. R., & Morrison, C. (2008). The brain, appetite, and obesity. Annu. Rev. Psychol., 59, 55-92.

59 Health and Social Care Information Centre, (2012) Health Survey for England report retrieved from http://content.digital.nhs.uk/catalogue/PUB13218/HSE2012-Ch3-Phys-act-child.pdf

60 Winkleby, M. A., Jatulis, D. E., Frank, E., & Fortmann, S. P. (1992). Socioeconomic status and health: how education, income, and occupation contribute to risk factors for cardiovascular disease. American journal of public health, 82(6), 816-820.

61 Nelson, M., Erens, B., Bates, B., Church, S., & Boshier, T. (2007). Low income diet and nutrition survey.

62 Bleich, S., Blendon, R., & Adams, A. (2007). Trust in scientific experts on obesity: implications for awareness and behavior change. Obesity, 15(8), 2145-2156.

63 Malam, S., Clegg, S., Kirwan, S., McGinigal, S., Raats, M., Shepherd, R., ... & Dean, M. (2009). Comprehension and use of UK nutrition signpost labelling schemes. London: Food Standards Agency.

64 Rothman, R. L., Housam, R., Weiss, H., Davis, D., Gregory, R., Gebretsadik, T., ... & Elasy, T. A. (2006). Patient understanding of food labels: the role of literacy and numeracy. American journal of preventive medicine, 31(5), 391-398.

65 McGill, R., Anwar, E., Orton, L., Bromley, H., Lloyd-Williams, F., O'Flaherty, M., ... & Allen, K. (2015). Are interventions to promote healthy eating equally effective for all? Systematic review of socioeconomic inequalities in impact. BMC public health, 15(1), 457.

66 Katz, S. J., & Hofer, T. P. (1994). Socioeconomic disparities in preventive care persist despite universal coverage: breast and cervical cancer screening in Ontario and the United States. Jama, 272(7), 530-534.

67 Blank, R. M., & Barr, M. S. (Eds.). (2009). Insufficient funds: Savings, assets, credit, and banking among low-income households. Russell Sage Foundation.

68 Barr, M. S. (2012). No slack: The financial lives of low-income Americans. Brookings Institution Press.

69 McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. American psychologist, 53, 185.

70 Mullainathan, S., & Shafir, E. (2013). Scarcity: Why having too little means so much. Macmillan.

71 Deck, C., & Jahedi, S. (2015). The effect of cognitive load on economic decision making: A survey and new experiments. European Economic Review, 78, 97-119.

72 Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. (2013). Poverty impedes cognitive function. science, 341(6149), 976-980.

73 Daminger, A., Hayes, J., Barrows, A., & Wright, J. (2015). Poverty Interrupted: Applying Behavioral Science to the Context of Chronic Scarcity. Ideas42, 1-49.

74 Boyce, C. J., Brown, G. D., & Moore, S. C. (2010). Money and happiness: Rank of income, not income, affects life satisfaction. Psychological Science, 21(4), 471-475.

75 Mullainathan, S., & Shafir, E. (2013). Scarcity: Why having too little means so much. Macmillan.

76 Wagmiller, R. L., Lennon, M. C., Kuang, L., Alberti, P. M., & Aber, J. L. (2003). Income changes and cognitive stimulation in young children's home learning environments. Journal of Marriage and Family, 65, 341–355.

77 Hill, H. D., Morris, P., Gennetian, L. A., Wolf, S., & Tubbs, C. (2013). The consequences of income instability for children's well-being. Child Development Perspectives, 7(2), 85-90.

78 Zimmerman, F. J., & Shimoga, S. V. (2014). The effects of food advertising and cognitive load on food choices. BMC Public Health, 14(1), 342.

79 Stults-Kolehmainen, M. A., & Sinha, R. (2014). The effects of stress on physical activity and exercise. Sports medicine, 44(1), 81-121.

80 Byrd-Bredbenner, C., Quick, V., Koenings, M., Martin-Biggers, J., & Kattelmann, K. K. (2016). Relationships of cognitive load on eating and weight-related behaviors of young adults. Eating behaviors, 21, 89-94.

81 Adam, T. C., & Epel, E. S. (2007). Stress, eating and the reward system. Physiology & behavior, 91(4), 449-458.

82 Masih, T., Dimmock, J. A., Epel, E. S., & Guelfi, K. J. (2017). Stress-induced eating and the relaxation response as a potential antidote: A review and hypothesis. Appetite, 118, 136-143.

83 Aaker, J., Rudd, M., & Mogilner, C. (2010). If money doesn't make you happy, consider time.

84 Chatzitheochari, S., & Arber, S. (2012). Class, gender and time poverty: a time-use analysis of British workers' free time resources. The British journal of sociology, 63(3), 451-471.

85 Burchardt, T. (2008) Time and Income Poverty, Joseph Rowntree Foundation. Low-income defined as 60% or less than the median household income.

86 Rose D. Food stamps, the Thrifty Food Plan, and meal preparation: the importance of the time dimension for US nutrition policy. J Nutr Educ Behav 2007;39:226–232.

87 Zick, C. D., & Stevens, R. B. (2010). Trends in Americans' food-related time use: 1975–2006. Public health nutrition, 13(7), 1064-1072.

88 Whybrow, S., Hollis, J. L., & Macdiarmid, J. I. (2017). Social deprivation is associated with poorer adherence to healthy eating dietary goals: analysis of household food purchases. Journal of Public Health, 1-8.

89 Rose D. Food stamps, the Thrifty Food Plan, and meal preparation: the importance of the time dimension for US nutrition policy. J Nutr Educ Behav 2007;39:226–232.

90 White, M., Adams, J., & Heywood, P. (2009). How and why do interventions that increase health overall widen inequalities within populations. Social inequality and public health, 65-82.

91 Thomas, S., Fayter, D., Misso, K., Ogilvie, D., Petticrew, M., Sowden, A., ... & Worthy, G. (2008). Population tobacco control interventions and their effects on social inequalities in smoking: systematic review. Tobacco control, 17(4), 230-237.

92 Handy, S. L., Boarnet, M. G., Ewing, R., & Killingsworth, R. E. (2002). How the built environment affects physical activity: views from urban planning. American journal of preventive medicine, 23(2), 64-73.

93 Lake, A., & Townshend, T. (2006). Obesogenic environments: exploring the built and food environments. The Journal of the Royal society for the Promotion of Health, 126(6), 262-267.

94 Lambert, K. G., Neal, T., Noyes, J., Parker, C., & Worrel, P. (1991). Food-related stimuli increase desire to eat in hungry and satiated human subjects. Current Psychology, 10(4), 297-303.

95 Cohen, D. A. (2008). Obesity and the built environment: changes in environmental cues cause energy imbalances. International journal of obesity (2005), 32(0 7), S137.

96 WHO, Global Strategy on Diet, Physical Activity and Health: What are the causes? http://www.who.int/dietphysicalactivity/childhood_why/en/

97 Harris, J. L., Bargh, J. A., & Brownell, K. D. (2009). Priming effects of television food advertising on eating behavior. Health Psychology, 28(4), 404-413.; Halford, J. C., Gillespie, J., Brown, V., Pontin, E. E., & Dovey, T. M. (2004). Effect of television advertisements for foods on food consumption in children. Appetite, 42(2), 221-225.; Halford, J. C., Boyland, E. J., Hughes, G. M., Stacey, L., McKean, S., & Dovey, T. M. (2008). Beyond-brand effect of television food advertisements on food choice in children: The effects of weight status. Public Health Nutrition, 11(09), 897-904.

98 Boyland, E. J., Nolan, S., Kelly, B., Tudur-Smith, C., Jones, A., Halford, J. C., & Robinson, E. (2016). Advertising as a cue to consume: A systematic review and meta-analysis of the effects of acute exposure to unhealthy food and non-alcoholic beverage advertising on intake in children and adults. The American Journal of Clinical Nutrition, ajcn120022.

99 Letona, P., Chacon, V., Roberto, C., & Barnoya, J. (2014). Effects of licensed characters on children's taste and snack preferences in Guatemala, a low/middle income country. International Journal of Obesity, 38(11), 1466-1469.

100 Mackenbach, J. D., Rutter, H., Compernolle, S., Glonti, K., Oppert, J. M., Charreire, H., ... & Lakerveld, J. (2014). Obesogenic environments: a systematic review of the association between the physical environment and adult weight status, the SPOTLIGHT project. BMC Public Health, 14(1), 233.

101 Pirgon, Ö., & Aslan, N. (2015). The role of urbanization in childhood obesity. Journal of clinical research in pediatric endocrinology, 7(3), 163.

102 Drewnowski, A., & Popkin, B. M. (1997). The nutrition transition: new trends in the global diet. Nutrition reviews, 55(2), 31-43.

103 WHO, Healthy Cities - http://www.euro.who.int/en/health-topics/environment-and-health/urban-health/activities/healthy-cities

104 NHS England, Healthy New Towns https://www.england.nhs.uk/ourwork/innovation/healthy-new-towns/

105 Kernper, K. A., Sargent, R. G., Drane, J. W., Valois, R. E., & Hussey, J. R. (1994). Black and white females' perceptions of ideal body size and social norms. Obesity, 2(2), 117-126.

106 Moore, L. V., Roux, A. V. D., & Brines, S. (2008). Comparing perception-based and geographic information system (GIS)-based characterizations of the local food environment. Journal of Urban Health, 85(2), 206-216.

107 McGinn, A. P., Evenson, K. R., Herring, A. H., Huston, S. L., & Rodriguez, D. A. (2007). Exploring associations between physical activity and perceived and objective measures of the built environment. Journal of Urban Health, 84(2), 162-184.

108 Prentice, A. M., & Jebb, S. A. (2003). Fast foods, energy density and obesity: a possible mechanistic

link. Obesity reviews, 4(4), 187-194.

109 Townshend, T., & Lake, A. (2017). Obesogenic environments: current evidence of the built and food environments. Perspectives in Public Health, 137(1), 38-44.

110 Sinclair, S., & Winkler, J. T. (2008). The School Fringe: What pupils buy and eat from shops surrounding secondary schools. London: Nutrition Policy Unit, London Metropolitan University.

111 Townshend, T. G. (2017). Toxic high streets. Journal of Urban Design, 22(2), 167-186.

112 Cetateanu, A., & Jones, A. (2014). Understanding the relationship between food environments, deprivation and childhood overweight and obesity: evidence from a cross sectional England-wide study. Health & place, 27, 68-76.

113 White, M., Bunting, J., Williams, L., Raybould, S., Adamson, A., & Mathers, J. (2004). Do 'food deserts' exist? A multi-level, geographical analysis of the relationship between retail food access, socio-economic position and dietary intake. Food Standards Authority, London.

114 Galvez, M. P., Hong, L., Choi, E., Liao, L., Godbold, J., & Brenner, B. (2009). Childhood obesity and neighborhood food-store availability in an inner-city community. Academic pediatrics, 9(5), 339-343.

115 Cetateanu, A., & Jones, A. (2014). Understanding the relationship between food environments, deprivation and childhood overweight and obesity: evidence from a cross sectional England-wide study. Health & place, 27, 68-76.

116 Epstein, L. H., Raja, S., Daniel, T. O., Paluch, R. A., Wilfley, D. E., Saelens, B. E., & Roemmich, J. N. (2012). The built environment moderates effects of family-based childhood obesity treatment over 2 years. Annals of behavioral medicine, 44(2), 248-258.

117 Das, P., & Horton, R. (2012). Rethinking our approach to physical activity. The Lancet, 380(9838), 189-190.

118 Bauman, A. E., Reis, R. S., Sallis, J. F., Wells, J. C., Loos, R. J., Martin, B. W., & Lancet Physical Activity Series Working Group. (2012). Correlates of physical activity: why are some people physically active and others not? The lancet, 380(9838), 258-271.

119 Nocon, M., Müller-Riemenschneider, F., Nitzschke, K., & Willich, S. N. (2010). Increasing physical activity with point-of-choice prompts-a systematic review. Scandinavian journal of public health, 38(6), 633-638.

120 Williams, D. M., Matthews, C., Rutt, C., Napolitano, M. A., & Marcus, B. H. (2008). Interventions to increase walking behavior. Medicine and science in sports and exercise, 40(7 Suppl), S567.

121 Hesketh KR, Lakshman R, van Sluijs EMF. Obes Rev. 2017 Sep;18(9):987-1017

122 Burdette, H. L., & Whitaker, R. C. (2004). Neighborhood playgrounds, fast food restaurants, and crime: relationships to overweight in low-income preschool children. Preventive medicine, 38(1), 57-63.

123 White, M., Bunting, J., Williams, L., Raybould, S., Adamson, A., & Mathers, J. (2004). Do 'food deserts' exist? A multi-level, geographical analysis of the relationship between retail food access, socio-economic position and dietary intake. Food Standards Authority, London.

124 Dibsdall, L. A., Lambert, N., Bobbin, R. F., & Frewer, L. J. (2003). Low-income consumers' attitudes and behaviour towards access, availability and motivation to eat fruit and vegetables. Public health nutrition, 6(2), 159-168.

125 White, M., Bunting, J., Williams, L., Raybould, S., Adamson, A., & Mathers, J. (2004). Do 'food deserts' exist? A multi-level, geographical analysis of the relationship between retail food access, socio-economic position and dietary intake. Food Standards Authority, London.

126 Tversky, A., & Kahneman, D. (1985). The framing of decisions and the psychology of choice. In Environmental Impact assessment, technology assessment, and risk analysis (pp. 107-129). Springer, Berlin, Heidelberg.

127 Mutrie, N., Carney, C., Blamey, A., Crawford, F., Aitchison, T., & Whitelaw, A. (2002). "Walk in to Work Out": a randomised controlled trial of a self-help intervention to promote active commuting. Journal of Epidemiology & Community Health, 56(6), 407-412.

128 Office for National Statistics. 7.9% from a minority ethnic group. www.statistics.gov.uk/CCI/ nugget. asp?ID=273 (accessed May 2010).

129 Smith GD, Chaturvedi N, Harding S, Nazroo J, Williams R. Ethnic inequalities in health: a review of UK epidemiological evidence. Crit Public Health 2000; 10: 375–408.

130 Marmot, M. G., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., & Geddes, I. (2010). Fair society, healthy lives: Strategic review of health inequalities in England post-2010.

131 Cruickshank, J.K., Mbanya, J.C., Wilks, R., Balkau, B., Forrester, T., Anderson, S.G., Mennen, L., Forhan, A., Riste, L. & McFarlane-Anderson, N.A. (2001) Hypertension in four African-origin populations: current "Rule of Halves", quality of blood pressure control and attributable risk of cardiovascular disease. J. Hypertens., 19, 41–46.

132 Ridler, C., Townsend, N., Dinsdale, H., Mulhall, C., & Rutter, H. (2009). National child measurement programme: detailed analysis of the 2007/08 national dataset. National Obesity Observatory, London, 41.

133 National Child Measurement Programme England 2015-16, retrieved from http://content.digital.nhs.uk/catalogue/PUB22269/nati-chil-meas-prog-eng-2015-2016-rep.pdf

134 Ridler, C., Townsend, N., Dinsdale, H., Mulhall, C., & Rutter, H. (2009). National child measurement programme: detailed analysis of the 2007/08 national dataset. National Obesity Observatory, London, 41.

135 Hudda, M. T., Nightingale, C. M., Donin, A. S., Fewtrell, M. S., Haroun, D., Lum, S., ... & Cook, D. G. (2016). Body-mass index adjustments to increase the validity of body fatness assessment in UK black African and South Asian children: a cross-sectional calibration study. The Lancet, 388, S56.

136 El-Sayed, A. M., Scarborough, P., & Galea, S. (2011). Ethnic inequalities in obesity among children and adults in the UK: a systematic review of the literature. obesity reviews, 12(5).

137 Hudda, M. T., Nightingale, C. M., Donin, A. S., Owen, C. G., Rudnicka, A. R., Wells, J. C., ... & Whincup, P. H. (2017). Reassessing Ethnic Differences in Mean BMI and Changes Between 2007 and 2013 in English Children. Obesity.

138 Tiu Wright, L., Nancarrow, C., & Kwok, P. M. (2001). Food taste preferences and cultural influences on consumption. British Food Journal, 103(5), 348-357.

139 Rawlins, E., Baker, G., Maynard, M., & Harding, S. (2013). Perceptions of healthy eating and physical activity in an ethnically diverse sample of young children and their parents: the DEAL prevention of obesity study. Journal of Human Nutrition and Dietetics, 26(2), 132-144.

140 Marmot, M. G., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., & Geddes, I. (2010). Fair society, healthy lives: Strategic review of health inequalities in England post-2010.

141 Szczepura A, Price C, Gumber A (2008) Breast and bowel cancer screening uptake patterns over 15 years for UK south Asian ethnic minority populations, corrected for differences in socio-demographic characteristics. BMC Public Health 8: 346

142 Malam, S., Clegg, S., Kirwan, S., McGinigal, S., Raats, M., Shepherd, R., ... & Dean, M. (2009). Comprehension and use of UK nutrition signpost labelling schemes. London: Food Standards Agency.

143 Sinclair, S., Hammond, D., & Goodman, S. (2013). Sociodemographic differences in the comprehension of nutritional labels on food products. Journal of nutrition education and behavior, 45(6), 767-772.

144 Signal L, Lanumata T, Robinson JA et al. (2008) Perceptions of New Zealand nutrition labels by Maori, Pacific and low income shoppers. Public Health Nutr 11, 706–713.

145 Caprio, S., Daniels, S. R., Drewnowski, A., Kaufman, F. R., Palinkas, L. A., Rosenbloom, A. L., ... & Kirkman, M. S. (2008). Influence of race, ethnicity, and culture on childhood obesity: implications for prevention and treatment. Obesity, 16(12), 2566-2577.

146 Maynard, M., Baker, G., & Harding, S. (2017). Exploring childhood obesity prevention among diverse ethnic groups in schools and places of worship: Recruitment, acceptability and feasibility of data collection and intervention components. Preventive Medicine Reports, 6, 130-136.

147 Rutter, H., Savona, N., Glonti, K., Bibby, J., Cummins, S., Finegood, D. T., … Petticrew, M. (2017). The need for a complex systems model of evidence for public health. The Lancet. doi:10.1016/S0140-6736(17)31267-9

148 WHO, International Panel of Experts on Sustainable Food Systems, 2017; http://www.ipesfood.org/images/Reports/Cities_full.pdf

149 Center for Social Justice, Off the Scales, Tachlink England's childhood obesity crisis, December 2017

150 Gilbert, K. L., Quinn, S. C., Goodman, R. M., Butler, J., & Wallace, J. (2013). A meta-analysis of social capital and health: a case for needed research. Journal of health psychology, 18(11), 1385-1399.

151 NHS Digital. National Child Measurement Programme - England, 2016-17. Available at https://digital.nhs.uk/catalogue/PUB30113 . Last accessed 13/1/2018

152 Foresight. Tackling Obesities: Future Choices. Government Office for Science. Available at https://www.gov.uk/government/publications/reducing-obesity-future-choices. Last accessed 13/1/2018.

153 NHS Digital. The National Child Measurement Programme. Available at http://content.digital.nhs.uk/ncmp. Last accessed 13/1/2018.

154 Southwark Health and Wellbeing Board. Everybody's Business Southwark Healthy Weight Strategy 2016-2021.

155 Marmot, M. G., Allen, J., Goldblatt, P., Boyce, T., McNeish, D., Grady, M., & Geddes, I. (2010). Fair society, healthy lives: Strategic review of health inequalities in England post-2010.

156 Kings Fund Time to Think Differently. Available at https://www.kingsfund.org.uk/projects/time-think-differently/trends-healthy-behaviours-obesity

157 Cancer Research UK report: Ad Brake: Primary school children's perceptions of unhealthy food advertising on TV

158 Public Health England (October 2015). Sugar Reduction: the evidence for action

159 Boyland E, Nolan S, Kelly B (2016). Advertising as a cue to consume: a systematic review and meta-analysis of the effects of acute exposure to unhealthy food and nonalcoholic beverage advertising on intake in children and adults *Am J Clin Nutr*

160 Hastings, G. (2006) The extent, nature and effects of food promotion to children: a review of the evidence. WHO 16.

161 McDermott L et al. (2006). International food advertising, pester power and its effects. International Journal of Advertising.

162 Ofcom (2017) Children and parents: media use and attitudes report.

163 Obesity Health Alliance report: A Watershed Moment: Why it's Prime Time to Protect Children from Junk Food Advertising.s

164 Scaglioni S, Arrizza C, Vecchi F, Tedeschi S (2011). Determinant of Children's Eating Behaviours, Am J Clin Nutr. 94(suppl), 2006S–11S.

165 Nicklaus S (2016). The role of food experiences during early childhood in food pleasure learning. Appetite. 104, 3-9.

166 Paroche M, Caton S, Vereijken C, Weenen H, Houston-Price C (2017). How Infants and Young Children Learn About Food: A Systematic Review. Front Psychol. 8: 1046.

167 Andersen S, Vassard D, Havn L, Damsgaard C, Biltoft-Jensen A, Holm L. (2016). Measuring the impact of classmates on children's liking of school meals. Food Quality and Preference. 52: 87-95.

168 Skinner J, Carruth B, Bounds W, Ziegler P. (2002). Children's food preferences: a longitudinal analysis. J. Am. Diet. Assoc. 102.

169 Review of social determinants and the health divide in the WHO European Region: final report, (WHO, 2014)

170 Wallop, H. 'Fast Food becomes the UK's meal of choice', The Telegraph, accessed at http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/9016251/Fast-food-becomes-the-UKs-meal-of-choice.html, 19th January 2018

171 Meltzer, T. 'Britain's fried-chicken boom', The Guardian, accessed at https://www.theguardian.com/lifeandstyle/2011/feb/18/britains-fried-chicken-boom, 18th January 2018

172 Cetateanu, A and Jones, A. "Understanding the relationship between food environments, deprivation and childhood overweight and obesity: Evidence from a cross sectional England-wide study" Elsevier (2014). https://doi.org/10.1016/j.healthplace.2014.01.007

173 Health on the High Street Report, Royal Society for Public Health, 2015.

174 Cairns G, Angus K, Hastings G, Caraher M. Systematic reviews of the evidence on the nature, extent and effects of food marketing to children. A retrospective summary. Appetite. 2013 Mar;62:209-15. doi: 10.1016/j.appet.2012.04.017. Epub 2012 May 2.

175 Children use busses more than any other type of public transport in London. Review of the Nutrient Profiling Model, Public Health England, October 2016

GUY'S & ST THOMAS' CHARITY

Acknowledgements:

We're hugely grateful to everyone who has contributed to this report. In particular, the families who welcomed us into their homes and shared their stories: Donna, Jackie & Greg, Gabrielle, Lela, Meryem and Tracy.

Report content and production

- Creative direction – The Cernis Collective and Why Not Associates
- Report design – Ed Smith, B Major C Sharp
- Additional design – Chris Collicott, Madalena Studio
- Photography – Lee Mawdsley
- Research and interviews – Samantha Gibson
- The Behavioural Insights Team – Hugo Harper, Edward Flahavan, Hannah Behrendt, Sophie Chung and Michael Hallsworth
- Family profiles – Chloe Cook and Maia Muir Wood, Shift Design

Essays

- Anna Taylor – Food Foundation and Robin Hinks – 2017 Churchill Fellow
- Bimpe Oki – Lambeth Council
- Caroline Cerny – Child Obesity Alliance
- Eric van der Burg – deputy Mayor of Amsterdam
- Harry Rutter – London School of Hygiene & Tropical Medicine
- Imogen Moore-Shelley – Citizens UK
- Jamie Oliver – Jamie Oliver Foundation
- Professor Kevin Fenton – Southwark Council
- Nicky Hawkins – Frameworks Institute
- Liz Robinson – Surrey Square School
- Shirley Cramer CBE – Royal Society of Public Health
- Tom Doust – Pop Up Parks
- Yancy Jensen and Caroline Machamire – Evelina London Children's Hospital, Guy's and St Thomas' NHS Foundation Trust

Contributors

- Ben Reynolds – Sustain
- Bimpe Oki and Vida Cunningham – Lambeth Council
- Dolly Theis – Centre for Social Justice
- Emma Pawson – Public Health England, London
- Professor Janice Rymer – Royal College of Obstetricians and Gynaecologists
- John Sheedy and Jessica Attard – Healthy London Partnership
- Jonathan Pauling – Alexandra Rose Charity
- Karen den Hertog – Amsterdam Programme
- Kim Chaplain – Mayor's Fund for London
- Louise Holland, Alison Corfield, Fran Eatwell Roberts, Emma Shipley and Jonathan Parker – Jamie Oliver Foundation
- Professor Lucilla Poston – King's College London
- Matt Creamer and Rebecca Palmer – Greater London Authority
- Matthew Bolton – Citizens UK
- May Chung – Community Children's Nutrition and Dietetics Service – Evelina London Children's Hospital, Guy's and St Thomas' NHS Foundation Trust
- Melinda Chau, Rosie Dalton-Lucas – Southwark Council
- Paul Ogden – Local Government Association
- Richard Sangster and Hayley Keegan – Department of Health
- Sue Sheehan – Lambeth Food Partnership/Incredible Edible
- Timothy Baker – Charlton Manor Primary School, London
- Dr Tom Coffey – Greater London Authority
- Dr William Bird – Intelligent Health

Guy's and St Thomas' Charity
Francis House
9 Kings Head Yard
London SE1 1NA

@GSTTCharity

gsttcharity.org.uk/bitesize

Registered Charity No. 1160316
Company limited by guarantee registered in England and Wales No. 9341980