



Liverpool Healthy Weight Strategy 2018-2028



Contents

Foreword	4
1. Introduction	5
2. Strategic aims	5
3. What do we mean by healthy weight?	6
4. Why is obesity and being overweight an issue?	6
4.1 Type 2 diabetes	9
4.2 Musculoskeletal problems	9
4.3 Circulatory system	9
4.4 Metabolic syndrome.....	10
4.5 Cancers	10
4.6 Reproductive and urological problems.....	10
4.7 Respiratory problems.....	10
4.8 Non-alcoholic Fatty Liver Disease (NAFLD)	10
4.9 Mental health and wellbeing	10
5 At-risk groups.....	11
6. Cost of obesity	12
7. The national picture	12
7.1 National policy context.....	13
8. The local picture	15
8.1 Children	15
8.2 Adults.....	18
8.3 Local physical activity levels	19
8.4 Local Food Consumption	19
8.5 Malnutrition & undernourishment	20
9. Inequalities	20
10. Causes of unhealthy weight.....	24
11 Achieving a healthy weight for Liverpool.....	25
11.1 Whole Systems Approach	25
11.2 Priorities.....	26
11.3 Planning – the food environment and physical environment.....	27
11.4 Increasing fruit and vegetable consumption	35
11.5 Reducing consumption of fats, sugar, and salt	36

11.6 Upselling	36
11.7 Food labelling	38
11.8 Healthier vending	38
11.9 Change 4 Life, Sugar Smart, Food Smart & Save Kids from Sugar.....	41
11.10 Food Active and Give Up Loving Pop (GULP)	42
11.11 The Life Course Approach	43
11.11.1 The Perinatal period	44
11.11.2 Years: the early years	45
11.11.3 5 to 19 years: school age children and young people	46
11.11.4 Adults and older people	48
11.11.5 Food insecurity	49
11.11.6 Very Elderly and Frail	51
11.11.7 Settings.....	51
11.12 Physical activity	51
11.12.1 Physical activity and sport strategy	52
12 Governance, partnerships and monitoring	53
13. Conclusion and our next steps.....	54
14 References	56

Foreword

Healthy weight is essential for positive well-being and living a full, healthy life. Key public health challenges to achieving and maintaining a healthy weight are obesity and malnourishment.

Obesity is a complex challenge to public health, driven by our behaviours, environment, genetics and culture. Reducing obesity levels will save lives as obesity doubles the risk of dying prematurely. Today nearly a third of children aged two to 15 are overweight or obese. Younger generations are becoming obese at earlier ages and are more likely to stay overweight or obese as they grow-up. Obese adults are seven times more likely to develop type 2 diabetes than adults of a healthy weight. Whilst anyone can become overweight or obese, children, adults and families with low household incomes face the greatest challenges to maintaining a healthy weight. A healthy weight is also about being well nourished. Nationally and locally, we are increasingly seeing serious health problems related to malnourishment particularly in older people, asylum seekers, refugees and the homeless.

The scale of the challenge is considerable and long-term, sustainable change will only be achieved through the active engagement of communities, families and individuals, as well as the public, private and voluntary sectors.

The approach described within this strategy builds on the *Healthy Weight; Healthy Liverpool Strategy 2009 – 2011*. Many changes have impacted on health and social care since that strategy was delivered. Structures have evolved and there have been changes in the environments within which many of us work, live and spend our leisure time. Local Authorities, Clinical Commissioning Groups, Foundation Trusts, educational institutions, the voluntary and community sector are all committed to working collaboratively. This partnership approach will ensure that the good work to date is built upon. Positive, solution focused innovation is needed now more than ever as we move forward within this challenging environment.

Wide ranging interventions are needed to tackle unhealthy weight and achieve improvements in population health. Liverpool City Council have committed to signing a *Local Authority Declaration on Healthy Weight* which affirms our commitment to develop and implement policies which promote healthy weight. The Healthy Weight Strategy will deliver upon this declaration, as well as help to consolidate existing work, and develop new initiatives and partnerships. This will encompass: health literacy, health intelligence, education, workplace health, food provision, active lifestyles, transport, behaviour change and evaluation to optimise investment. We are all part of a journey to help provide a positive environment within which healthy choices can be made more easily by children, adults and families. This will help us to achieve our goal of a healthier population living and working in Liverpool, from pre-birth right across the life-course.

**Cllr Paul Brant, Cllr Paul Brant, Labour Councillor for Fazakerley, &
Cabinet member for Health & Social Care, Liverpool City Council**

Dr Sandra Davies, Director of Public Health

1. Introduction

By 2050 obesity is predicted to affect 60% of adult men, 50% of adult women and 25% of children in the UK making obesity a major public health challenge (Foresight 2007).

This predicted increase in obesity and associated consequences constitutes one of the most widespread threats to the health of people in the UK. Significant action is required to reduce obesity at population level if a major health crisis is to be avoided.

Poor diet is the second highest risk factor for ill health in the North West (GBD, 2016) coming second only to tobacco. Being overweight is the fourth highest risk factor for ill health and is closely related to our food intake. Poor diet is much more common in lower socio-economic groups and a major contributor to health inequalities.

The strategy proposes a whole systems approach that will focus on making the healthier choice the easier choice in as many settings as possible. In addition to this we will provide targeted information and support to improve nutrition and increase physical activity amongst individuals.

It is only through collective action that we will be able to increase the number and proportion of children and adults who are a healthy weight, leading to an improvement in health within our communities.

The Liverpool Vision

Liverpool will be an active, healthy city where residents maintain a healthy weight from childhood through adult life and into older age

2. Strategic aims

This strategy has three clear aims:

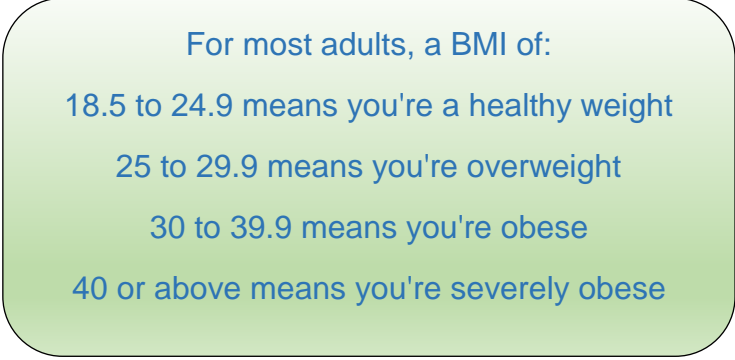
1. To reduce the impact of the environment on weight gain across the population;
2. To give all children the best start in life and halt the rising tide of childhood obesity across the city; and
3. To support a system-wide approach enabling children, adults and families to achieve and maintain a healthy weight throughout the life-course.

3. What do we mean by healthy weight?

In this strategy we define 'healthy weight' as a weight which does not increase the risk of related diseases or a premature death for individuals.

Body mass index (BMI) is a useful indicator of weight status. It is calculated by dividing body weight in Kg by height (in metres) squared. It is one of the most commonly used ways of estimating whether a person is overweight or underweight and hence more likely to experience health problems than someone with a healthy weight. It is also used to measure population prevalence of overweight and obesity. BMI is used because, for most people, it correlates reasonably well with their level of body fat. It is also relatively easy, cheap and a non-invasive to measure.

Healthy weight is part of a continuum from underweight at one end to morbid obesity at the other.



For most adults, a BMI of:

- 18.5 to 24.9 means you're a healthy weight
- 25 to 29.9 means you're overweight
- 30 to 39.9 means you're obese
- 40 or above means you're severely obese

As children grow and develop, the relationship between their levels of body fat and BMI will vary with age and sex. Therefore instead of using fixed BMI thresholds to classify individuals (as used for adults) children's BMI is categorised using variable thresholds that take into account the child's age and sex. BMI thresholds are frequently defined in terms of a specific z score, or centile, using a child growth reference.

4. Why is obesity and being overweight an issue?

The increasing levels of people who are overweight and obese within the population presents a major public health threat. The prevalence of obesity among adults has increased sharply during the 1990s and early 2000s - almost two thirds of adults in England are now overweight or obese. Around one in three of all children in year 6 is now overweight or obese. This increase has been described by the World Health Organisation and British Medical Association as an 'obesity epidemic'. If trends continue then it is predicted that as many as 70% adults will be overweight or obese

by 2034 (Public Health England, 2014). Previously the Foresight Report (2007) had forecast that by 2050 obesity will affect 60% of adult men, 50% of adult women and 25% of children.

Overall, obesity prematurely doubles the risk of dying and is associated with a range of health problems including type 2 diabetes, cardiovascular disease, cancer and poor mental health. The resulting NHS costs attributable to overweight and obesity are projected to reach £9.7 billion by 2050, with wider costs to society estimated to reach £49.9 billion per year in the UK (Foresight 2007). These factors combine to make the prevention of obesity a major public health challenge.



Public Health
England

Why is obesity an issue?



It's widespread

Two thirds of adults, **a quarter** of 2–10 year olds and **one third** of 11–15 year olds are overweight or obese



Prevalence remains high

Overweight and obesity in adults is predicted to reach **70% by 2034**

More adults and children are now severely obese



Consequences are costly

A high BMI...

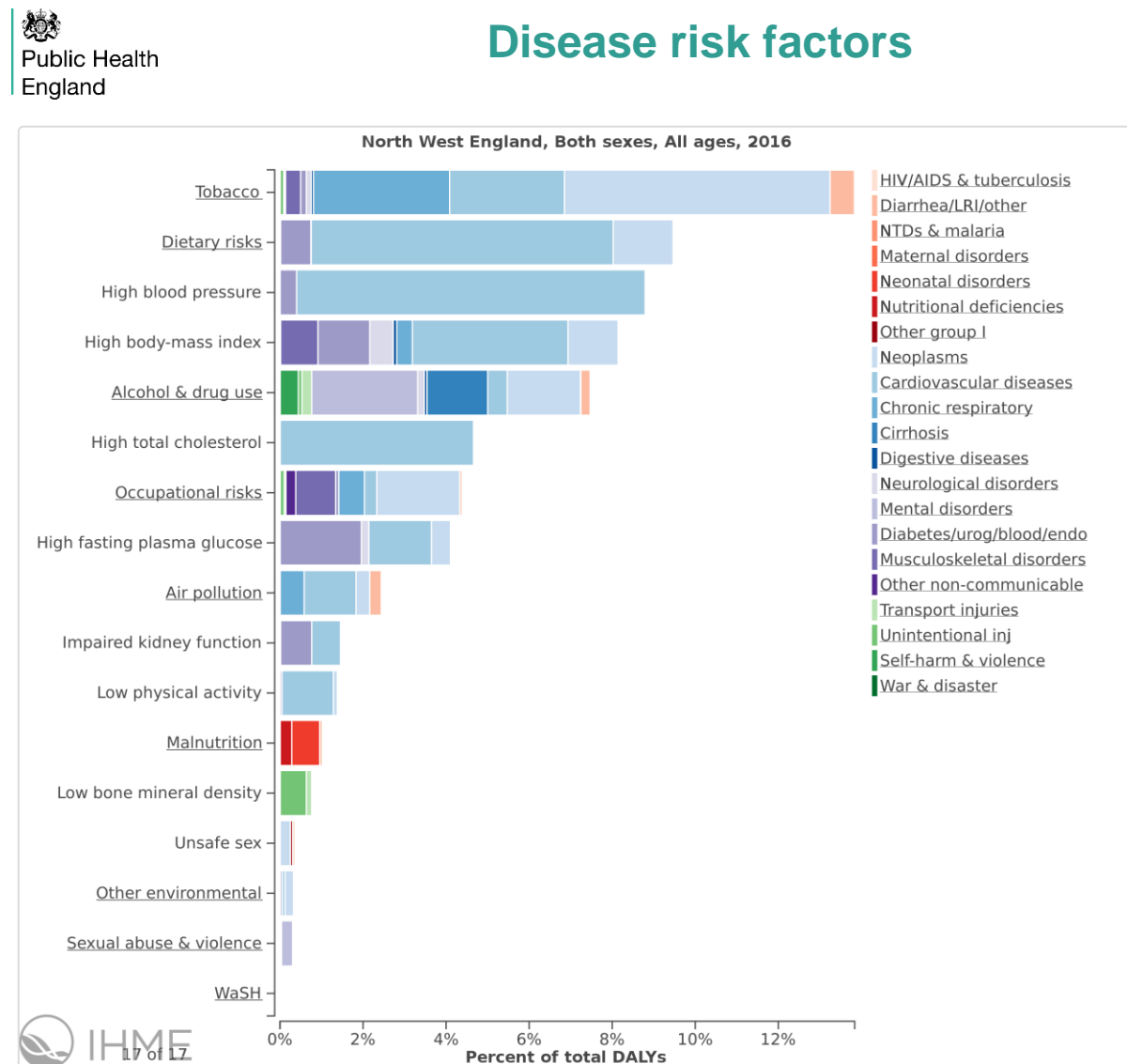
- is costly to health and social care
- has wider economic and societal impacts

Source: Public Health England 2015

The Impact on health: morbidity and life expectancy

As shown by the Global Burden of Disease Study 2016 (Figure one), the four largest contributory factors to the risk of premature, potentially preventable disease in England are: smoking, dietary risks, high blood pressure and high BMI.

Figure one: Disability Adjusted Life Years attributed to Level 2 risk factors in 2016 in North West England for both sexes combined



Source: Global Burden of Disease Study 2016

Obesity is thought to reduce life expectancy by an average of three years and for those who are severely obese by eight to 10 years. In addition, quality of life is impacted upon, for example, people who are obese are more likely to be hospitalised,

more likely to be unemployed and at an increased risk of discrimination and stigmatisation.

Overall, moderate obesity (BMI 30-35) has been found to reduce life expectancy by an average of three years, while morbid obesity (BMI 40-50) reduces life expectancy by 8-10 years. This 8-10 year loss of life is equivalent to the effects of lifelong smoking. (PHE).

The WHO regards childhood obesity as one of the most serious global public health challenges for the 21st century. Obese children and adolescents are at an increased risk of developing various health problems, be absent from school due to illness, experience health-related limitations and require more medical care than normal weight children. Overweight and obese children are also more likely to become obese adults, and have a higher risk of morbidity, disability and premature mortality in adulthood.

Obesity increases the risk of developing a range of physical health conditions described below.

4.1 Type 2 diabetes

Obese individuals are 5 times more likely to develop type 2 diabetes. It has been estimated that excess body fat underlies almost two-thirds of cases of diabetes in men and three quarters of cases in women. Blood vessels are damaged by high blood glucose levels increasing the risk of cardiovascular disease. There is a greater risk of increased blood fats which also increases the risk of cardiovascular disease.

4.2 Musculoskeletal problems

Raised body weight puts strain on the body's joints, especially the knees, increasing the risk of osteoarthritis (degeneration of cartilage and underlying bone within a joint). There is also an increased risk of low back pain.

4.3 Circulatory system

Raised BMI increases the risk of hypertension more than 2.5 times (high blood pressure). This increases the risk of coronary heart disease including heart attacks, heart failure and stroke. Risks of deep vein thrombosis and pulmonary embolism are also increased.

4.4 Metabolic syndrome

This a combination of disorders including high blood glucose, high blood pressure and high cholesterol and triglyceride levels. It is more common in obese individuals and is associated with significant risks of coronary heart disease and type 2 diabetes.

4.5 Cancers

Obesity increases the risk of several cancers including endometrial, breast and colon cancers; for example being colon cancer is 3 times more likely if obese.

4.6 Reproductive and urological problems

Risks are increased for stress incontinence, menstrual abnormalities, polycystic ovarian syndrome, infertility and erectile dysfunction. Maternal obesity is associated with health risks for both the mother and the child during and after pregnancy.

4.7 Respiratory problems

Overweight and obese people are at increased risk of sleep apnoea (interruptions to breathing while sleeping). There is also a relationship between increasing BMI and risk for other respiratory conditions such as asthma.

4.8 Non-alcoholic Fatty Liver Disease (NAFLD)

NAFLD refers to a range of conditions resulting from the accumulation of fat in cells inside the liver. It is one of the commonest forms of liver disease in the UK. It can lead to fibrosis, cirrhosis and increases the risk for liver cancer.

4.9 Mental health and wellbeing

Overweight and obese adults maybe more likely to suffer from stress, low self-esteem, social disadvantage, depression and reduced libido. Factors associated with mental health problems in obese children include lower levels of physical activity, low self-esteem, body dissatisfaction, eating disorders and bullying. There is strong evidence to suggest that by adolescence, there is increased risk of low self-regard and impaired quality of life in obese individuals.

Obesity harms communities as well as individuals it leads to:

- A less physically active population
- Increased sickness absence
- Increased demand on social care as severely obese people are over 3 times more likely to need social care than those who are a healthy weight
- Increased cost for an infrastructure to facilitate those who are morbidly obese such as rail and bus services, primary care, hospital and ambulance services.

It is estimated that obesity is responsible for more than 30,000 deaths each year in England (PHE Health Matters, 2017). On average, obesity deprives an individual of an extra 9 years of life, preventing many individuals from reaching retirement age. In the future, obesity could overtake tobacco smoking as the biggest cause of preventable death.

5 At-risk groups

There are certain sectors of the population who are more at-risk of being or becoming an unhealthy weight and suffering related conditions. Therefore as well as targeting preventive actions across the life course this strategy will consider these population groups as priorities for supporting healthy weight interventions through specific and appropriately targeted services. The following groups are known to be at greater risk:

- **Pregnant women:** For some women pregnancy leads to weight gain and successive pregnancies can lead to obesity.
- **Bottle-fed babies:** Breastfed babies are less likely to be obese as children and adults. In Liverpool, 55% of babies initiate breastfeeding compared to 74.5% nationally; and 33.5% are still breastfeeding at 6-8 weeks after birth compared to 44.4% nationally (2016/17).
- **Children aged 5 to 11 years of age:** Annual results from the National Child Measurement Programme indicate that between the ages of 5 and 11 many children move from healthy to unhealthy weight categories and from overweight to obese. This is also the pattern in Liverpool.
- **Children with experience of, or in the care system:** children who live in foster or residential care often have poorer experiences of nutrition and food.
- **Children from families where at least one parent is obese:** Research shows that where a mum is obese, daughters are more likely to be obese and the same is true for fathers and sons.
- **Older people:** Malnutrition affects over 10% of people over the age of 65.
- **People with Disabilities & Long Term Conditions** People with a long-term illness, disability or health problem are significantly more likely to be obese than those without (30% compared to 18%). People whose mobility is restricted and those with disabilities are more likely to be obese.

- **Refugee and asylum seekers** can struggle to gain access to fresh affordable food and are at risk for malnutrition. This can be because of lack of resources both in the areas from which they have come from and come to (LCC, 2014)
- **Homeless families** have poor access to fresh affordable food. 35% homeless people do not eat at least 2 meals per day. (Homeless Link, 2014)
- **BAMER groups:** There is no straightforward relationship between obesity and ethnicity, with a complex interplay of factors affecting health in minority ethnic communities in the UK. There is some evidence to suggest that those from black, Asian and other minority ethnic groups are at risk of obesity-associated conditions and diseases at a lower BMI than the white population. Any development of pathways and services will need to take this into account.
- **People with a mental illness:** Prevalence of obesity is higher amongst those with a mental illness (Gatineau & Dent 2011). Levels have been reported to be particularly high amongst adults in mental health secure units (PHE, 2017c).
- **Low socio economic status** – evidence shows that there is a strong relationship between deprivation and obesity, with the proportion of people with obesity increasing as with lower socioeconomic status. This is explored further in section **9: Inequalities**

6. Cost of obesity

Obesity has a serious impact on economic development. The overall cost of obesity to wider society is estimated at £27 billion. It is estimated that the NHS in England spent £6.1 billion on overweight and obesity-related ill-health in 2014 to 2015.

Forecast Costs

The UK-wide NHS costs attributable to overweight and obesity are projected to reach £9.7 billion by 2050, with wider costs to society and businesses estimated to reach £49.9 billion per year. (Foresight 2007).

7. The national picture

The World Health Organisation (WHO 2003) identified the emergence of an international Obesity Epidemic more than a decade ago. In England, the prevalence of obesity among adults rose from 14.9% to 25.6% between 1993 and 2014. The rate of increase has slowed down since 2001, although the trend is still upwards.

The prevalence of overweight has remained broadly stable during this period at 36–39% of the population.

In England, nearly two-thirds of adults (61.3%) are currently classed as being overweight or obese. Obesity prevalence has increased from 15% in 1993 to 27% in 2015. The prevalence of obesity is similar among men and women, although men are more likely to be overweight than women. In 2015, 58% of women and 68% of men were overweight or obese.

7.1 National policy context

The government's 2011 obesity strategy, '*Healthy Lives, Healthy People: A call to action on obesity in England*', set a new target for a downward trend in excess weight for children and adults by 2020. Although the document acknowledged the role each individual has in being responsible for their own health, it also highlighted the role of the state and its partners in supporting people with busy 21st century lifestyles to make healthy choices. The strategy called on all sections of society to play a role, including the food and drink industry. It also said local government was "uniquely well placed" to lead the drive, as each community has different characteristics and problems that were best addressed at a local level.

In April 2013 responsibilities for the local planning and delivery of the public health function was transferred from PCTs to local authorities. Health and wellbeing boards (HWBs) bring together key commissioners from the local NHS, local Clinical Commissioning boards (CCGs) and local government to strategically plan local health and social care services.

The 5 Year Forward View (NHS England, 2014) places a focus on prevention outlining a commitment to:

- hard hitting broad based national action and campaigns,
- clearer information and labelling for food and drinks,
- supporting and incentivising behaviour change,
- a national evidence-based diabetes prevention programme,
- product formulation, and
- supporting workplace health.

In 2016 the government launched *Childhood Obesity: A Plan for Action* which aims to significantly reduce England's rate of childhood obesity within the next ten years by encouraging:

- industry to cut the amount of sugar in food and drinks, and
- primary school children to eat more healthily and stay active.

As part of a renewed focus on prevention, in June 2018 the government published *Childhood obesity: a plan for action, Chapter 2*. This publication outlines bold new actions the government will take towards its goal of halving childhood obesity and reducing the gap in obesity between children from the most and least deprived areas by 2030. Key actions include:

Sugar reduction

- Monitoring progress towards the target of 20% sugar reduction by 2020 in children's food (many parts of the food and drink industry have already reduced sugar in their most popular products).
- Reviewing sugary milk drinks.
- Consulting on ending sales of energy drinks to children.

Calorie reduction

- Consistent calorie labelling for the out of home sector (restaurants, cafes and takeaways).
- Explore any additional opportunities leaving the European Union presents for food labelling in England.

Advertising

- Consult (in 2018) on introducing a 9pm watershed on TV advertising of high fat, sugar and salt products and similar protection for children viewing adverts online.
- Review need for additional legislation for regulating online advertising of unhealthy food and drinks.

Local Authorities

- Trailblazer programme with local authority (LA) partners to show what can be achieved within existing powers
- Resources to support LAs who want to use their powers, including economic information and guidance and training for planning inspectors.

Schools

- Update School Food Standards to reduce sugar with detailed guidance.
- Consult (in 2018) on strengthening the nutrition standards in the Government Buying Standards for Food and Catering Services.
- Review how the least active children are being engaged in physical activity.
- Promote a national ambition for every primary school to adopt an active mile initiative such as the Daily Mile.
- Invest over £1.6million during 2018/19 to support cycling and walking to school.

8. The local picture

8.1 Children

Latest figures for Liverpool (Table 1) show that one quarter of all children in Reception (26.8%) are classed as overweight or obese. By Year 6, this has increased to almost two out of every five children being overweight or obese (37.9%). Rates of obesity in Reception and Year 6 children are significantly above both the England and North West averages. Obese children are more likely to become obese adults.

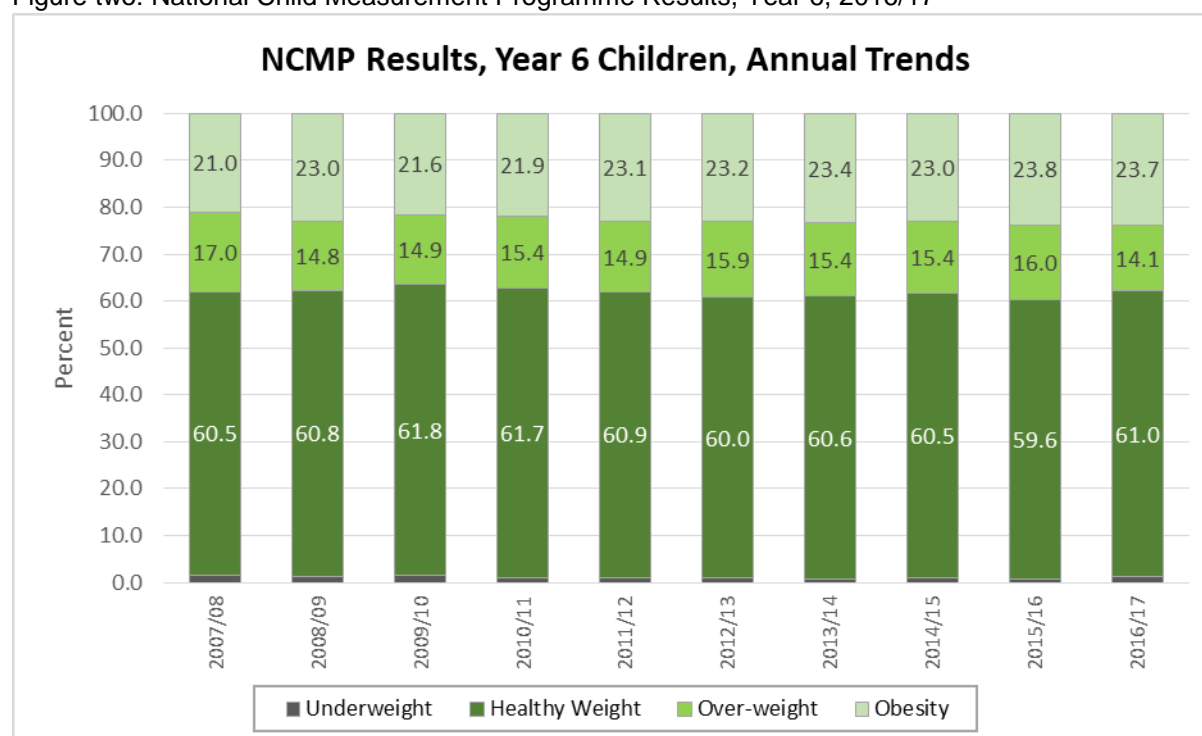
Table 1: Prevalence of underweight, overweight and obese children

Area		Reception Children				Year 6 Children			
		Under-weight	Over-weight	Obese	Excess Weight	Under-weight	Over-weight	Obese	Excess Weight
Liverpool	%	0.7	14.2	12.6	26.8	1.1	14.1	23.7	37.9
North West	%	0.9	13.6	10.3	23.9	1.3	14.4	20.8	35.2
England	%	1.0	13	9.6	22.6	1.3	14.3	20	34.2

Source: National Child Measurement Programme, 2016/17

The proportion of children in Reception and Year 6 who are a healthy weight has changed little since 2007-08. However, the proportion of children who are obese in year 6 has increased as children have moved from the 'overweight' category to the 'obese' category. This is illustrated in Figure two below.

Figure two: National Child Measurement Programme Results, Year 6, 2016/17



Source: Public Health England, National Child Measurement Programme

Children in Reception and Year 6 in Liverpool are more likely to be overweight or obese compared to England, the North West region and most of Liverpool City Region and the Core Cities (Figures three and four below).

Figure three: National Child Measurement Programme Results Reception Year by Core Cities

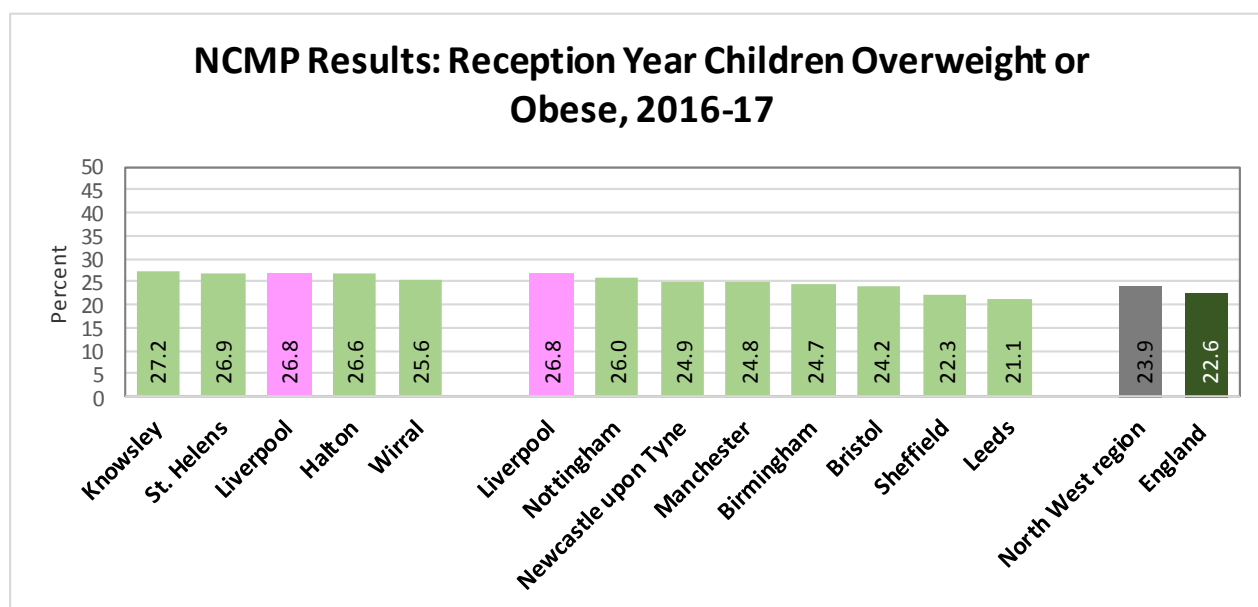
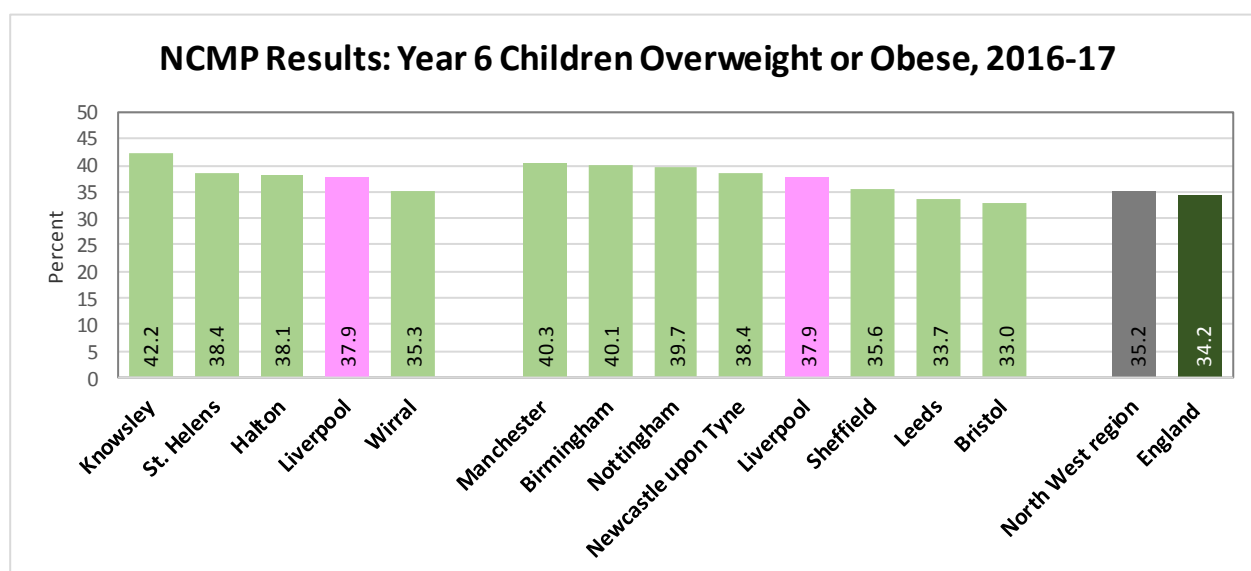
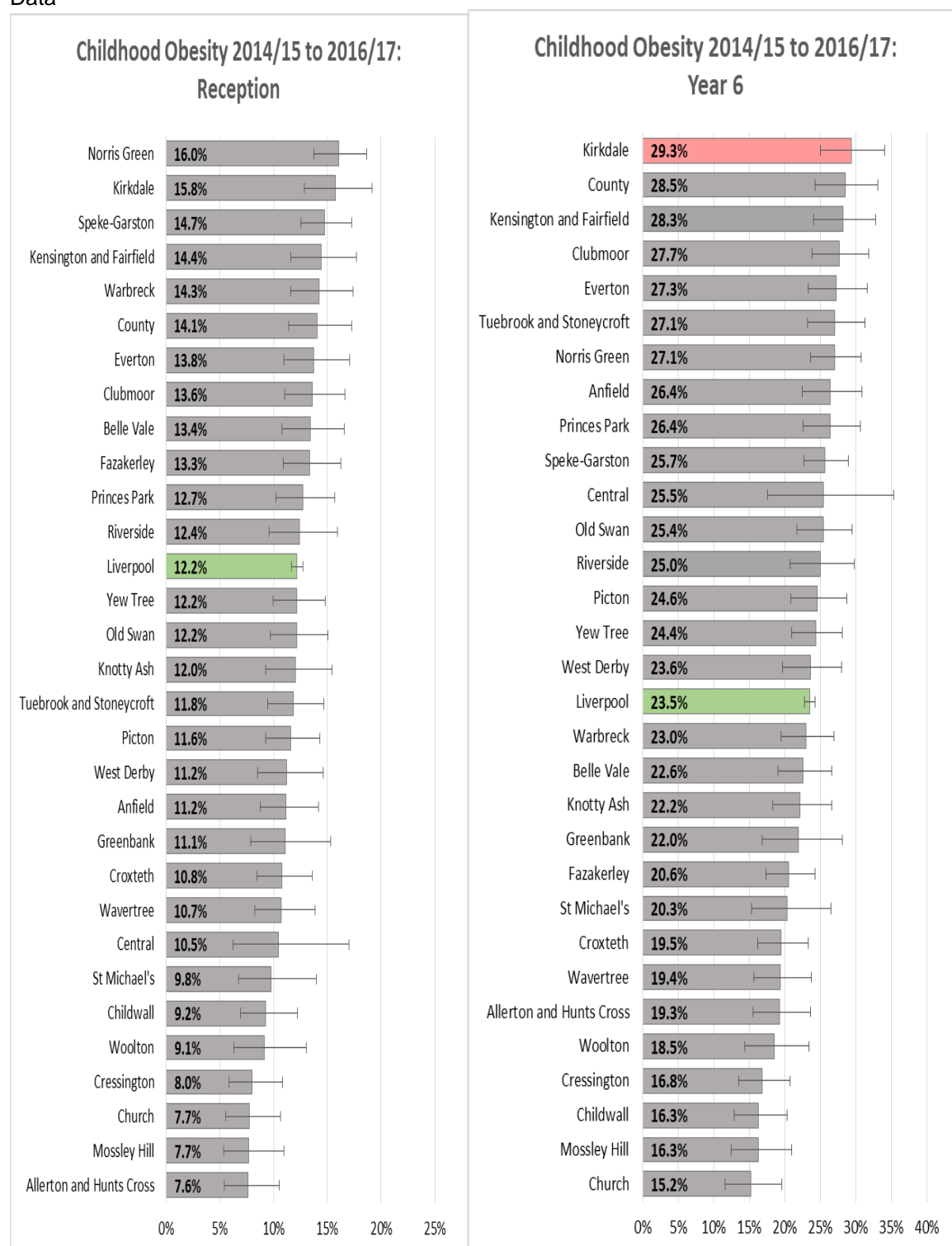


Figure four: National Child Measurement Programme Results Year 6 by Core Cities



The prevalence of obesity amongst children varies considerably across the city (Figure five), the highest being within the more socioeconomically deprived wards.

Figure five: Prevalence of obesity in Reception and Year 6 children by Liverpool Wards.
Data



Source: PHE; NCMP Prevalence, modelled estimates from suppressed MSOA data.

8.2 Adults

Current estimates show that Liverpool has approximately 100,294 obese adults. This is above the national average as it represents 25.2% compared to an England average of 23.3%. Almost two thirds of adults in the city are overweight or obese (61.5%); this is slightly above the England average. Among adults aged 18 and over, 36.3% are in the overweight category (below the England average). 37.6% have a healthy weight and a very small percentage of adults are underweight (0.9%).

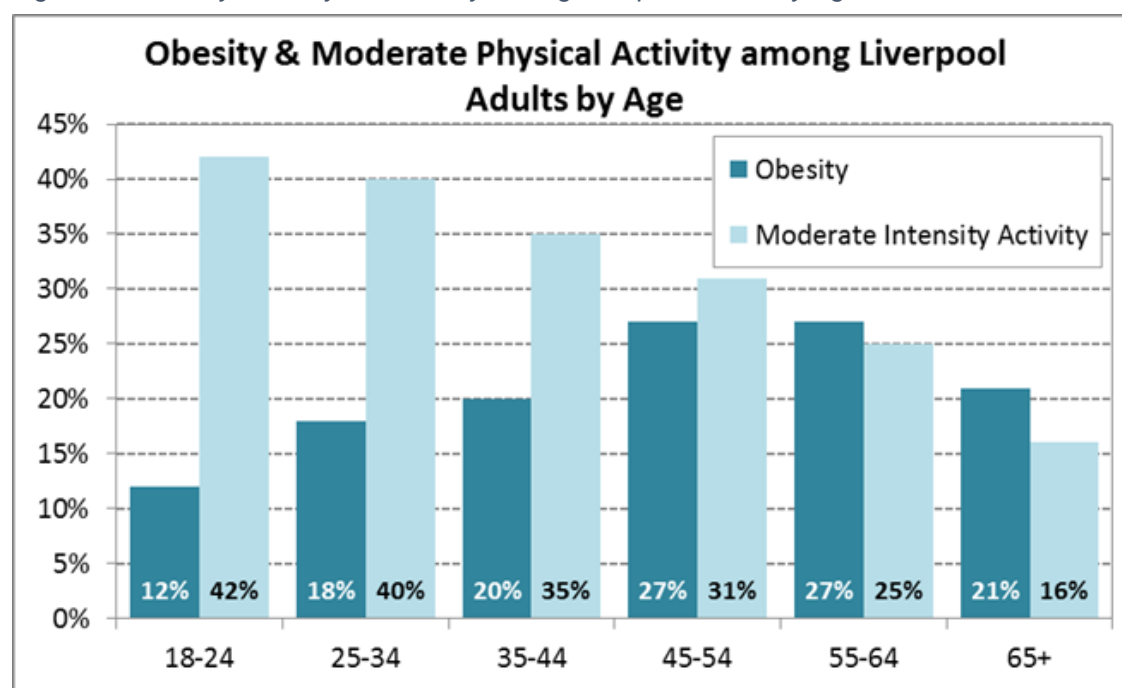
Table two: Adjusted prevalence of underweight, overweight and obesity ages 18+, 2016/17

		Adults (ages 18 and over)				
		Underweight	Healthy Weight	Overweight	Obese/ Severely obese	Excess weight
Liverpool	No.	3,582	149,645	144,471	100,294	244,766
	%	0.9%	37.6%	36.3%	25.2%	61.5%
North West	%	1.1%	35.7%	37.9%	25.4%	63.3%
England	%	1.1%	37.6%	38%	23.3%	61.3%

Sources: Active Lives/PHE; ONS population estimates mid-2017.

The Merseyside Lifestyle Survey 2012-13 showed that as adults get older, they become more overweight. Prevalence of obesity among adults rises from just 12% of those aged 18-24 to 27% of adults between 45 and 64 (Figure six). The amount of moderate intensity physical activity reduces as adults get older (Figure six).

Figure six: Obesity and Physical Activity among Liverpool Adults by Age Band



Source: The Liverpool Lifestyles Survey, 2012/13

The Local Sport Profile produced by Sport England provides councils with a profile of up-to-date data for their local area, covering sports participation, facilities, health, economic and demographics.

8.3 Local physical activity levels

While around a third of the population engage in moderate intensity activity (defined as any activity which causes a small increase in breathing or heart rate, such as a brisk walk, cycling or swimming, for at least 10 minutes continuously and for at least 150 min per week), this falls to just 16% of those aged 65 and older. People whose mobility is restricted and those with disabilities have lower rates of physical activity than the general population.

The benefits of physical activity are well documented. The Health Impact of Physical Inactivity (HIPI) modelling tool was used (March 2018) to estimate the potential impact of 75% of 40-79 years population in Liverpool engaging in the recommended amounts of physical activity. The model showed that this could:

- prevent between 61 and 155 deaths,
- avoid between 19 and 48 emergency hospital admissions for coronary heart disease,
- reduce the number of breast cancer incidents by between 9 and 22,
- reduce the number of colorectal cancer incidents by between 7 and 17, and
- avoid between 387 and 988 people from developing diabetes.

There is also a huge financial incentive for the city in increasing cycling and walking. One scenario that was modelled was getting 20% of non-cyclists to participate in a cycling activity for 30 minutes three times a week suggested that the total economic impact for the city would be £330M. There would also be an estimated reduction in carbon emissions of 2,842 tonnes.

8.4 Local Food Consumption

Two in five of adults (40.2%) in Liverpool report that they consume at least five portions of fruit and vegetables each day, as per the Government guidelines. This mirrors the Merseyside figure of 43%. The average number of portions consumed in Liverpool is 4.1, but this is skewed somewhat by the 12% who eat seven or more portions each day.

While the consumption of fruit and vegetables in the city is below recommended levels, it is also apparent that a large number of adults in the city consume fast food on a regular basis. Figures from the Merseyside Lifestyle Survey 2012-13 show that over one in four adults (26%) consume fast food at least once every week (Map one)

8.5 Malnutrition & undernourishment

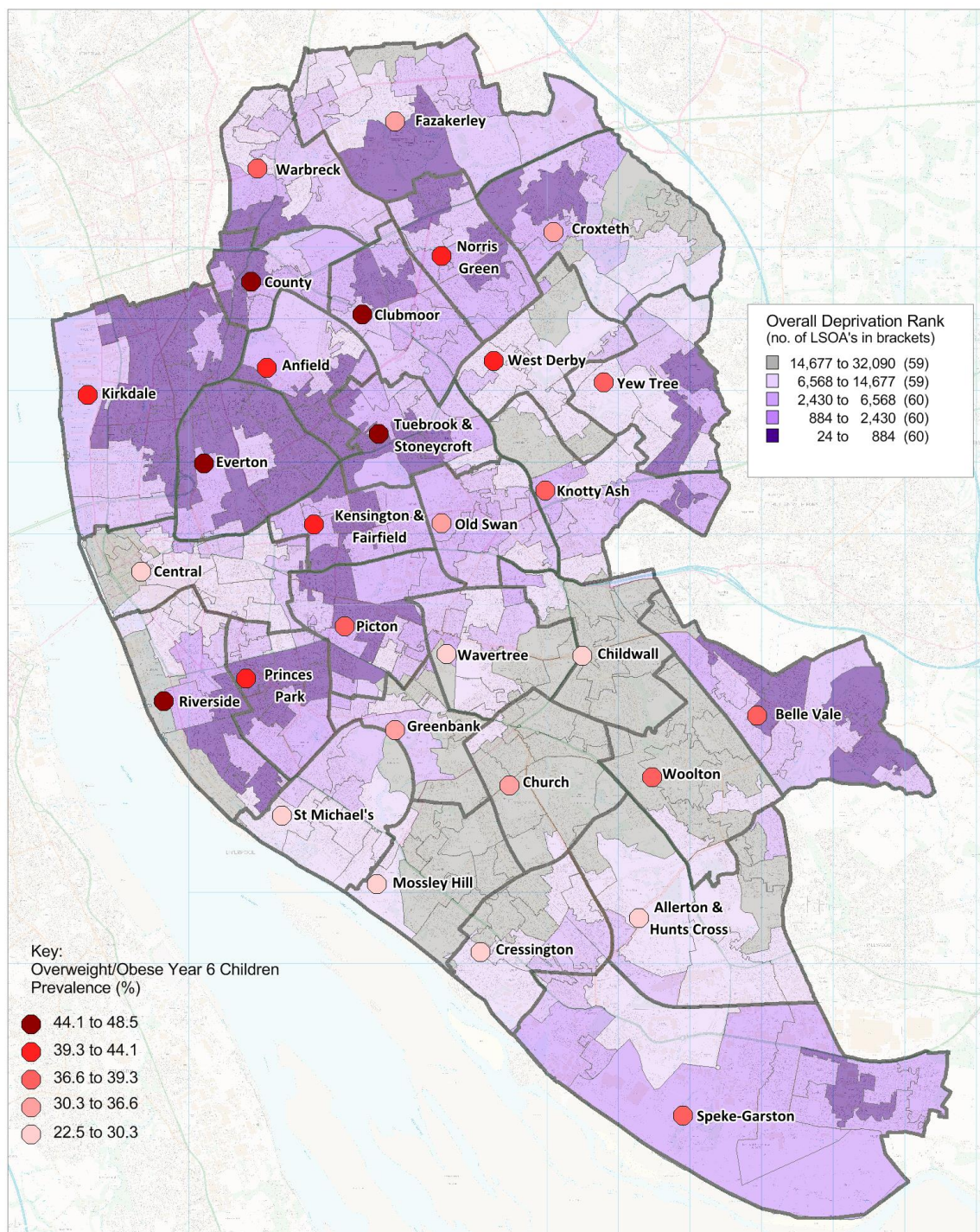
At any given time, more than three million people in the UK are either malnourished (undernourished) or at risk of malnutrition. The vast majority of these (approximately 93%) are living in the community, with a further 5% in care homes and 2% in hospitals. It is estimated that one in 10 people over 65 are malnourished or at risk. The population of people over 75 is at highest risk of malnutrition and is projected to double in the next 30 years. As many as 37% of older people who have recently moved into care homes are at risk.

Between 2015/16 and 2016/17, women aged 15-44 were 3.7 times more likely to be admitted to hospital for malnutrition than was the case between 2012/13 and 2013/14. There was also a four-fold increase in their risk of admission for this condition. Likewise children and young people aged under 25 years were 2.8 times more likely to be admitted to hospital for malnutrition over the same time period (LPHAR, 2016/17).

9. Inequalities

The Mayoral Commission for a Healthier Liverpool recognised the major achievements that the city has made in the last 20 years in the areas of urban and economic regeneration. Liverpool has narrowed some measures of health inequalities. However health inequalities persist and Liverpool still has some tough challenges – including healthy weight.

There is a strong correlation between deprivation and childhood obesity. Obesity prevalence increases among children in Reception and Year 6 with increased deprivation. This is illustrated on the map (Map one) below, which shows the highest rates of obesity occur in many of the areas of highest deprivation.



NCMP Overweight/Obese Year 6 Children (2016/17) and Index of Deprivation 2015 - Overall Index National Rank

Date created: October 2017

Liverpool City Council | Millennium House | Victoria Street | Liverpool L1 6JD

Public Health Liverpool | E: kate.scott@liverpool.gov.uk

© Crown copyright and database rights 2015 Ordnance Survey 100018351



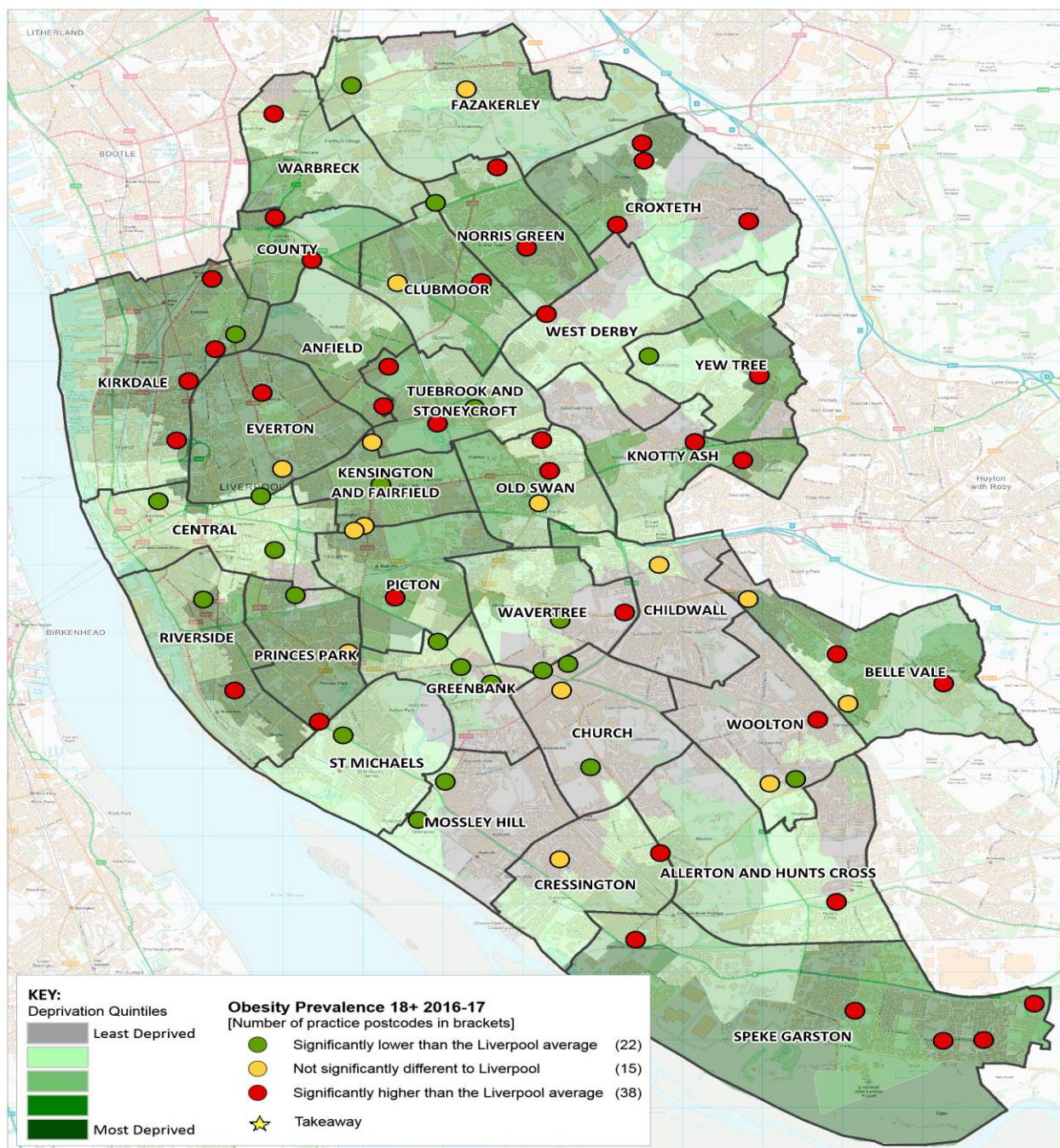
**Liverpool
City Council**

Map one. NCMP Overweight Obese Year 6 Children (2016/17)

New research also indicates that there are more fast food outlets in these areas. Liverpool has approximately 116 takeaways per 100,000 population compared to the English average of 88 per 100,000 (PHE 2017). This is further illustrated by Map two.

For women obesity prevalence increases with increasing levels of deprivation, regardless of the measure used (eg income or Index of Multiple Deprivation). Women in the highest socioeconomic group have significantly lower obesity prevalence than the other income groups. However for men only occupation based and qualification based measures show a correlation with obesity (ie. men in professional occupations have lower obesity prevalence than those in other occupational groups, but the differences are smaller than for women). (PHE 2014).

As illustrated in Map two, the highest prevalence (red traffic light) of adult obesity (by GP practice) is found amongst the most socioeconomically deprived areas (darker green):



Obesity Prevalence Ages 18+ by GP Practice and Deprivation in Liverpool

Date created: July 2018

Liverpool City Council | Millennium House | Victoria Street | Liverpool L1 6JD

Public Health Liverpool | E: sophie.kelly@liverpool.gov.uk

© Crown copyright and database rights 2014 Ordnance Survey 100018351



Liverpool
City Council

Map two: Obesity Prevalence Ages 18+ by GP practice and deprivation in Liverpool

10. Causes of unhealthy weight

In simple terms, obesity occurs when energy intake from food and drink intake is greater than energy expenditure by the body over time. This results in the accumulation of excess body fat. However there are many complex behavioural, environmental and societal factors that combine to contribute to the causes of obesity.

- Biology – including genetics and factors that cannot usually be changed such as age and sex.
- Culture and Society – including the media, education, peer pressure, family and socioeconomic status.
- Mental Health – there is a bidirectional relationship between mental health and obesity. Good mental health underpins all health including healthy weight. At the same time obesity and overweight can lead to poor mental health.
- Individual Behaviour – individual psychology and environmental factors can influence food consumption choices and levels of physical activity.
- Environment – including the availability of high quality food and good urban design that facilitates physical activity and active travel.
- Austerity – this can affect access to healthy food leading to food insecurity. The rate of foodbank use has increased alongside hospital admissions for malnutrition. The relationship between food insecurity and weight status will need to be further understood.

This complex range of factors needs to be considered together as we tackle unhealthy weight in the population. This is an urgent and important challenge for the City.

11 Achieving a healthy weight for Liverpool

11.1 Whole Systems Approach

At the beginning of 2018, LCC started the journey on the Health in All Policies agenda, integrating Public Health across the city council as part of the Mayoral Inclusive Growth Plan, and continuing to work closely with the NHS. It is now clear for all stakeholders in the city that good health and wellbeing are about more than healthcare.

The most efficient and effective way to improve population health and reduce health inequalities is to address the social determinants of health within the city – to invest upstream and reshape peoples’ physical and social environment to support wellbeing, healthy lifestyles and economic growth. Healthy policy interventions are most equitable, cost saving and, although politically challenging, could achieve substantial and surprisingly rapid reductions in disease. While investments in NHS and social care are always needed, the health of Liverpool residents will not be improved solely by investing more in the care system, but by complementing this with upstream intervention to engineer less need for care in the structure of the city. Liverpool needs to become healthier by design.

Given the complex interaction of factors that underlie obesity and unhealthy weight - a whole systems approach is proposed by this strategy. This will recognise the importance of taking both a life course approach and the role that settings play in the development of unhealthy weight. There are some settings that affect multiple points across the life course. At the same time a range of cross cutting themes that operate across these domains has been identified. *Making Obesity Everybody’s Business*, (LGA; PHE, 2017) recommends that a whole systems approach is taken for addressing obesity.

Evidence shows that our food choices are influenced by: the food we were given in early life (conception to start of school); all forms of marketing (this particularly affects children); widespread exposure to cheap and appealing calorie-dense, nutrient-poor food; affordability (including the impact of poverty); education and health promotion; social influences and social changes. In order to maximise effectiveness, our healthy weight strategy will need to address all sources of influence.

The range of influences on our food choices highlights that whilst consumer education and personal responsibility are important, they will not be sufficient to produce the change we want to see in Liverpool. Interventions that rely less on individual choice and more on changes to the wider environment are essential in making healthier choices easier. Such changes will also have a greater impact on health inequalities as they are less reliant on individual behaviour and personal resources.

By taking a whole system approach, the strategy will tackle unhealthy weight by:

- limiting exposure to cheap and appealing calorie-dense, nutrient-poor food in the wider environment and restricting opportunities for the marketing of this type of food (particularly in places where the council has some control or influence),
- improving access to good food so that it is physically and financially accessible to everyone,
- promoting investment in active travel infrastructure in the city and implementing the physical activity strategy for Liverpool, and
- providing information and support especially to those in greatest need to gain the knowledge and skills to access a healthy diet and physical activity opportunities.

11.2 Priorities

Actions will be grouped into six priority areas:

- 1. Further develop and deliver the Health in all Places agenda**
- 2. Develop healthy food and drink policy for the council, wider public and commercial sectors**
- 3. Increase access to healthy food for those on low incomes**
- 4. Deliver mass media and marketing campaigns to change dietary behaviours with a specific focus on sugar reduction**
- 5. Support individuals to improve their diet and achieve/maintain a healthy weight through a life course approach.**
- 6. Influence national agenda**

Priority 1. Further develop and deliver the Health in all Places agenda.

One strand of the health in all Policies agenda currently in progress is the development and implementation of a 'Health in all Places' strategy, with the aim of ensuring that health and wellbeing and the health infrastructure are considered in planning and decision making about health in the public realm.

The main recommendations that are currently taken forward are to:

- promote investment in cycling and walking infrastructure in Liverpool to support delivery of Mayoral Inclusive Growth Plan,
- make the case for investing in school active travel infrastructure and promote cycling to school alongside the development of safe cycling routes,
- develop a list of criteria and best practice guidance that could be applied during pre-applications at the design and access scheme to demonstrate the impact on health of new developments in the city. Develop a 'Wellbeing' SPD to the local plan,
- strengthen the recommendations around hot fast food takeaways in the local plan and SPD covering this topic, and
- develop a public realm strategy and an active city design guide for Liverpool.

11.3 Planning – the food environment and physical environment

Planning can significantly influence the built environment to improve health and reduce excess weight in local communities. Local authorities have a role in enabling a healthier environment by supporting opportunities for communities to access a wide range of healthier food production and consumption choices.

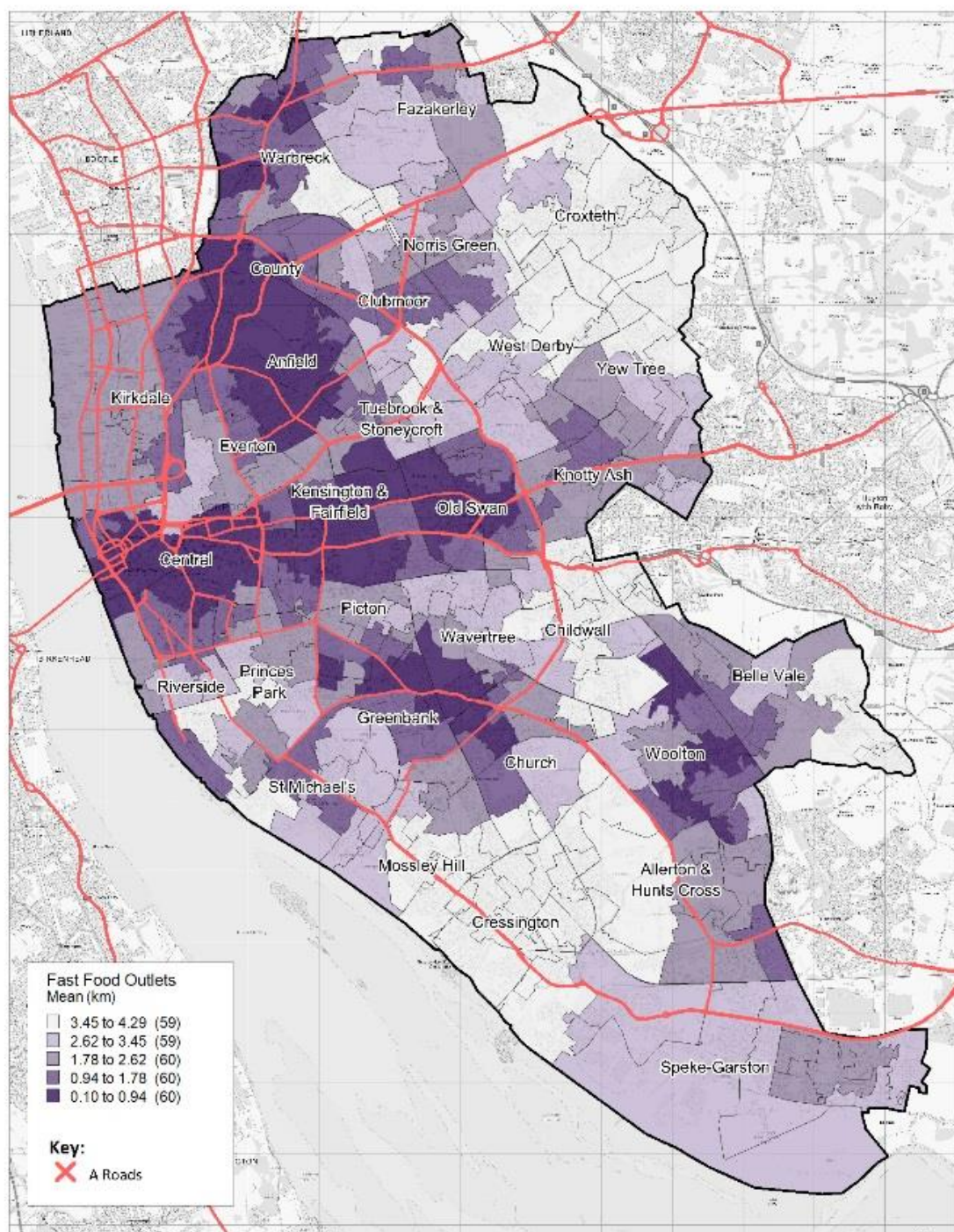
The Department for Communities and Local Government (DCLG) has published a new revision of the Health and Wellbeing Planning Practice Guidance as advised by Public Health England (PHE) in association with the Department of Health (DH).

Local planning authorities can consider bringing forward, where supported by an evidence base, local plan policies and supplementary planning documents, which limit the proliferation of certain use classes in identified areas, where planning permission is required. The local public health team together with the Liverpool Health & Wellbeing board therefore have a key role in producing this evidence and guidance as well as influencing and championing the process. Local planning authorities and planning applicants could have particular regard to the following issues in relation to healthy weight:

- proximity to locations where children and young people congregate such as schools, community centres and playgrounds,

- evidence indicating high levels of obesity, deprivation and general poor health in specific locations,
- over-concentration and clustering of certain use classes within a specified area,
- physical activity, and the
- provision of adequate space for community growing opportunities.

There is a growing body of evidence on the association between exposure to fast food outlets and obesity (Donin 2018; Patterson, 2012; Burgoine, 2016). Residents in some parts of Liverpool have access to five times more fast food outlets than more affluent parts of the country.



Fast Food Outlets, Mean (km) by LSOA March 2018, Source cdrc.ac.uk

Date created: March 2018

Liverpool City Council | 4th Floor Cunard Building | Pier Head | Water Street | Liverpool | L3 1DS

Public Health Liverpool | E: kate.scott@liverpool.gov.uk

© Crown copyright and database rights 2014 Ordnance Survey 100018351



**Liverpool
 City Council**

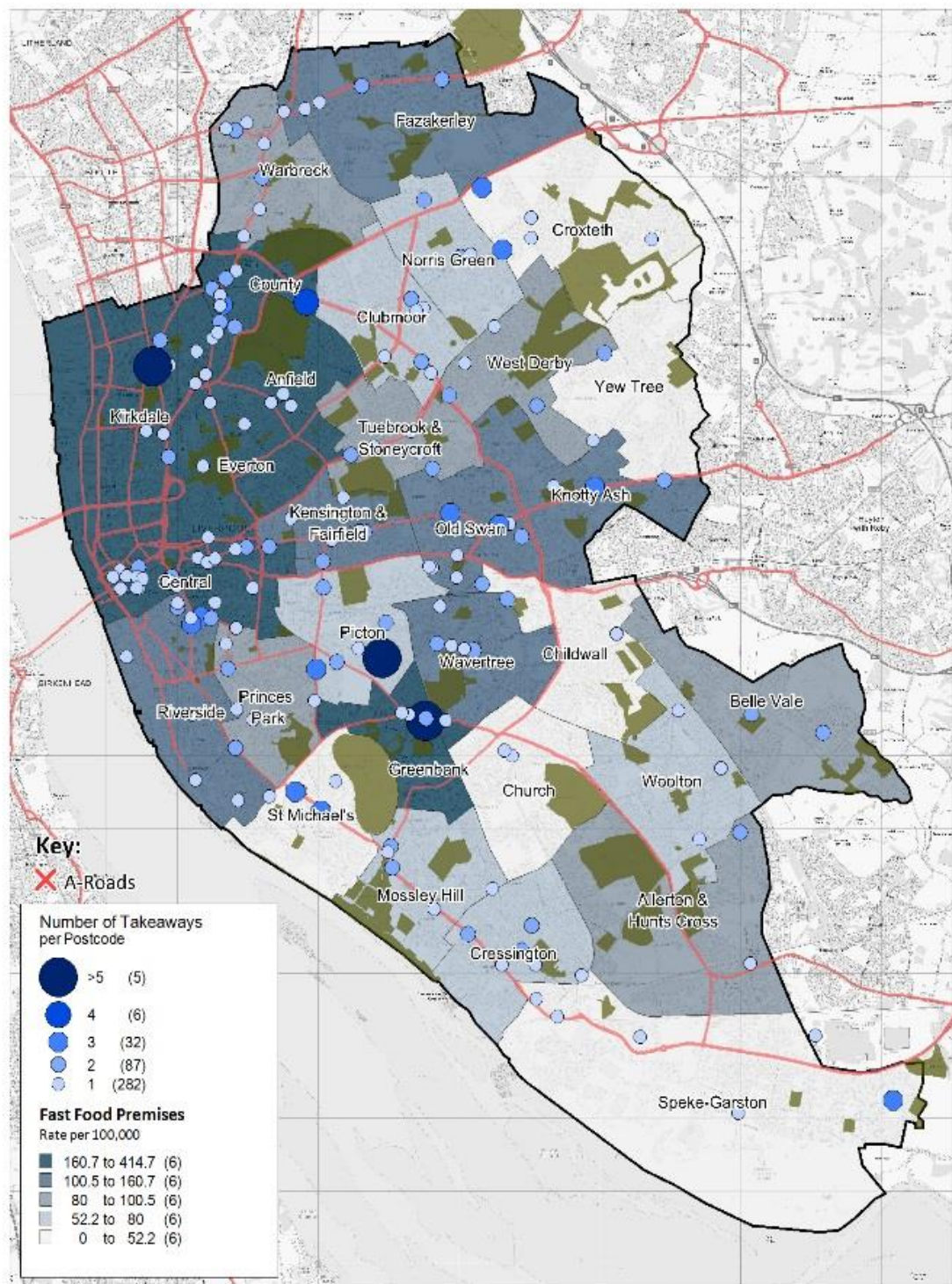
Map three: Fast food outlets (Source: National Institute for Health Research, Consumer Data Research Centre)

Map three, above, shows that:

- On average a Liverpool residents lives 1km from a fast food outlet compared with a Core Cities average of 1.2km (Great Britain average = 2.6km).
- More than a quarter of Liverpool's LSOAs are in the worst performing quintile in Great Britain.
- Residents living in and around the city centre, Kensington, Old Swan, County and Anfield, and parts of Woolton have the easiest access to fast food outlets in terms of distance.

The Food Environment Assessment Tool (FEAT, 2018) shows the number of takeaway outlets in England has increased by 4,000 between 2014 and 2017. In Liverpool the number has risen by 98 over the same period.

This report has already used nationally released data to show that Liverpool residents have easy access to fast food outlets. The map below (Map four) uses local authority licensing data to show the geographic distribution of takeaway outlets across the city.



Takeaway Outlet Locations (LCC Food Register) & Fast Food Establishment at ward level Rate per 100,000 population (PHE, 2016)

Date created: April 2018

Liverpool City Council | 4th Floor Cunard Building | Pier Head | Water Street | Liverpool | L3 1DS

Public Health Liverpool | E: kate.scott@liverpool.gov.uk

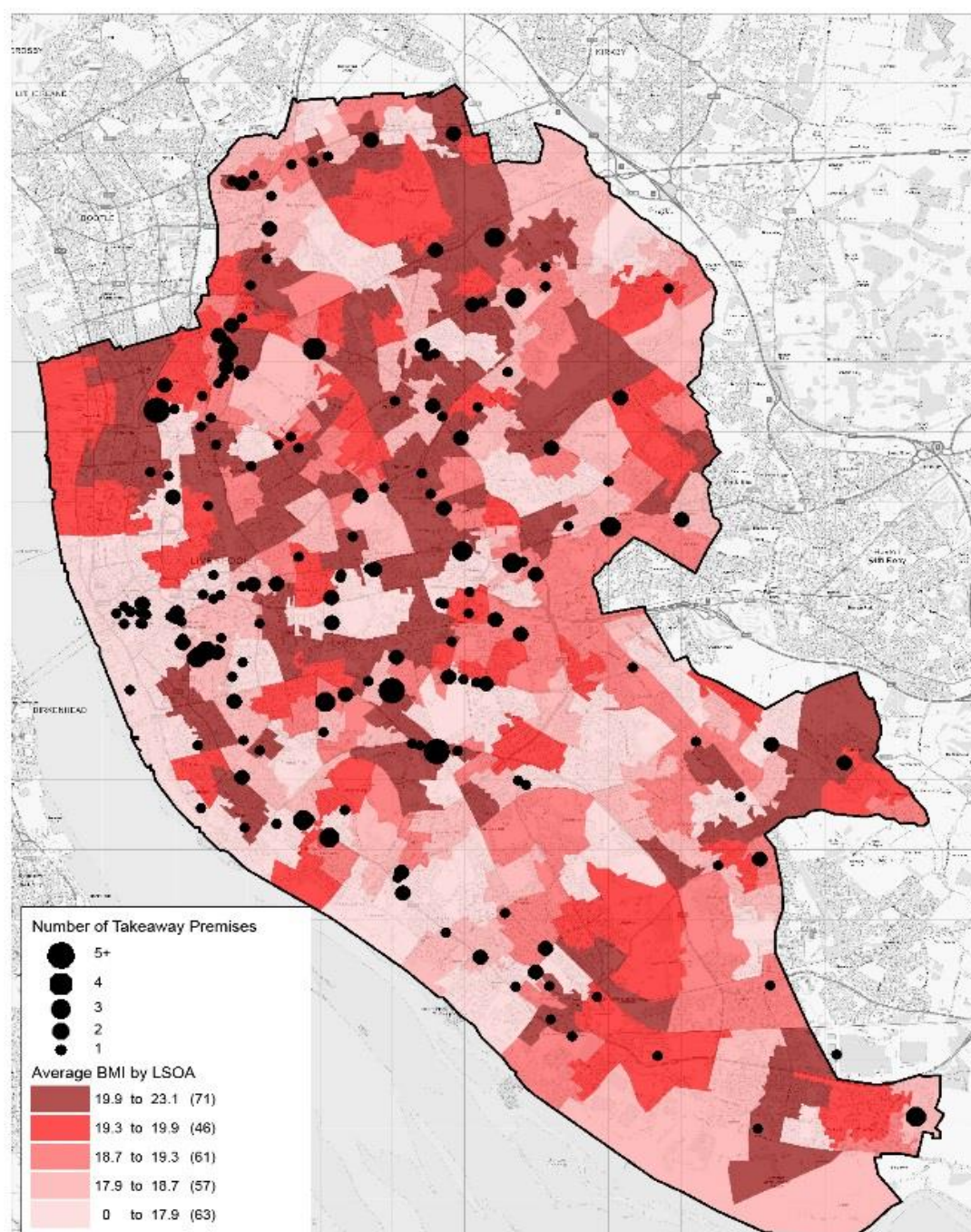
© Crown copyright and database rights 2014 Ordnance Survey 100018351



Liverpool
City Council

Map four: Takeaway outlet locations (Sources: LCC Food Register, PHE 2016)

In addition, Map five, shows average BMI of Year 6 pupils as well as the geographic location of Year 6 pupils who are overweight or obese with the fast food locations over layered. Further work is needed locally to determine the extent of the association between location of fast food premises and childhood weight problems, but the scale of the problem facing all of our communities is represented below.



Takeaway Premises and Average BMI of Year 6 Pupils by Lower Super Output Area (NCMP, 2016/17)

Date created: May 2018

Liverpool City Council | 4th Floor Cunard Building | Pier Head | Water Street | Liverpool | L3 1DS

Public Health Liverpool | E: richard.jones@liverpool.gov.uk

© Crown copyright and database rights 2014 Ordnance Survey 100018351



What Liverpool is doing

Policy SP4 Food and Drink Uses and Hot Food Takeaways in The Liverpool Plan proposes to restrict the proliferation of hot food takeaways in terms of proximity to secondary schools and colleges as well as daytime hours of operation.

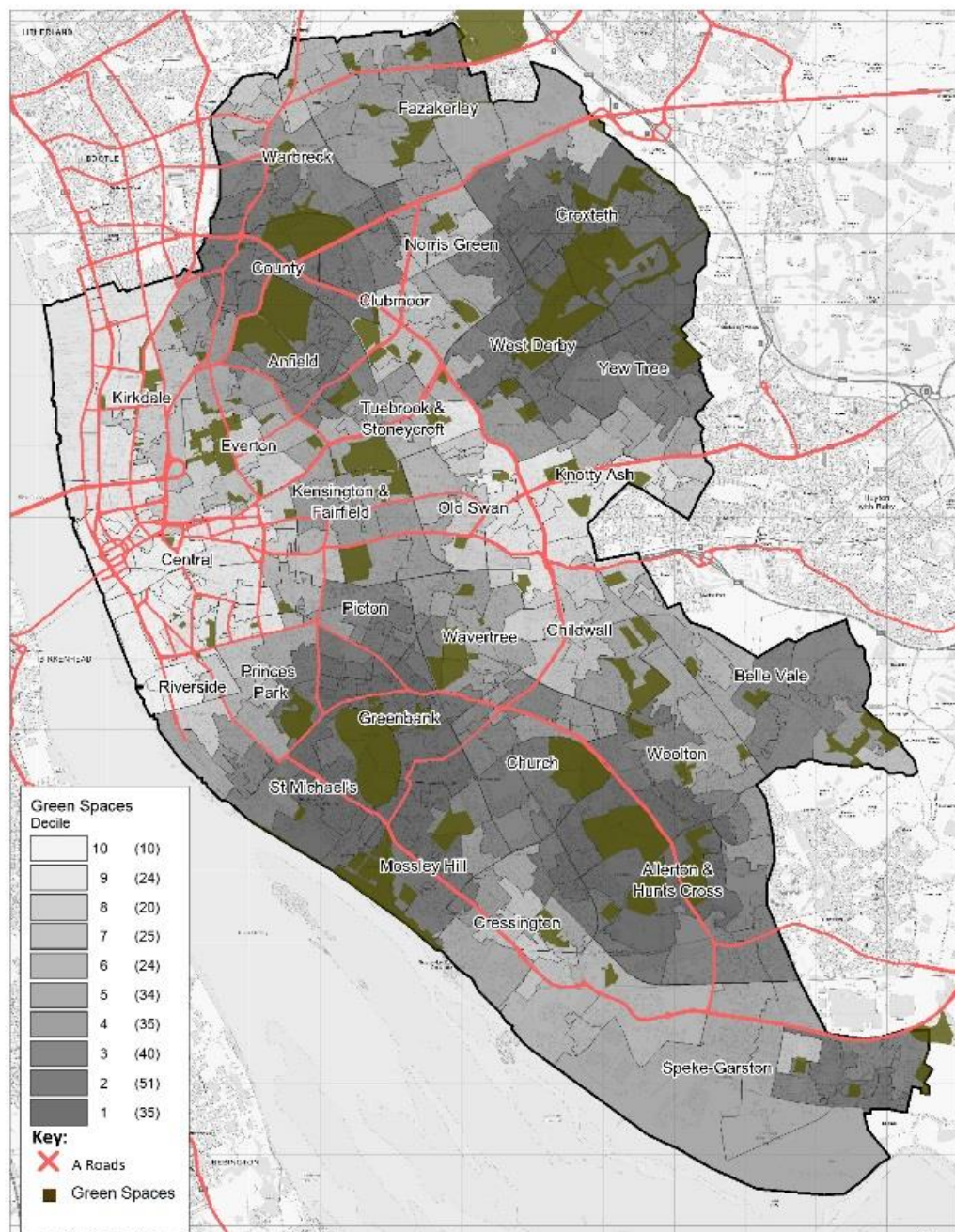
Nationally there is a strong association between deprivation and the density of fast food outlets, with more deprived areas having a higher proportion of fast food outlets per head of population than others.

There is significant and growing evidence on the physical and mental health benefits of green spaces (PHE; UCL 2014). Research shows that access to green space is associated with better health outcomes and income-related inequality in health is less pronounced where people have access to green space. Access to good quality green space is associated with a range of positive health outcomes including better self-rated health; lower body mass index, overweight and obesity levels, and improved mental health and wellbeing.

The Liverpool Strategic Green and Open Spaces Review Board have also highlighted the importance of green spaces to health and wellbeing.

Data from the Monitor of Engagement with the Natural Environment Survey (Natural England, 2015) show that some population groups (disadvantaged social groups, those living in urban deprived areas, older people, minority ethnic groups, and those with disabilities) are less likely to visit green spaces, and therefore have less opportunity to gain the health benefits associated with green space.

Green spaces can facilitate active travel if they are incorporated into walking and cycling routes used for everyday journeys. Urban planning can be used to create connected street network patterns within neighbourhoods to promote walking for transport and to reduce motor vehicle dependency (Giles-Corti et al, 2016).



Green Spaces, Decile by LSOA March 2018, Source cdrc.ac.uk

Date created: March 2018

Liverpool City Council | 4th Floor Cunard Building | Pier Head | Water Street | Liverpool | L3 1DS

Public Health Liverpool | E: kate.scott@liverpool.gov.uk

© Crown copyright and database rights 2014 Ordnance Survey 100018351



**Liverpool
City Council**

Map six: Green space (Source: National Institute for Health Research, Consumer Data Research)

- Liverpool residents have better access to green space than the English Core City average. In addition to the Country Park at Croxteth, the city benefits from historic Victorian parks, small street-level, incidental and neighbourhood green and open spaces, civic and pedestrianised areas, green spaces within the grounds of institutions, and a long waterfront area (which blends 'blue' and 'green' spaces). Sefton Park, Stanley Park and Chavasse Park all have Green Flag status.
- Some 29% of LSOAs in Liverpool are within the best performing quintile nationally compared with 25% in the Core Cities.
- However access is not equitable across Liverpool and 11% of our LSOAs are in the worst performing quintile compared with 8% in the Core Cities.

Recommendations

1. Public health, Planning and elected members continue to review the new planning guidance and consider how to work together to reduce the impact of the local built environment on obesity.
2. Support the maximisation of green spaces for improving healthy weight

Priority 2: Develop healthy food and drink policy for the council and wider public sector

Local authorities have an important role to play in improving the food environment and making the healthier choice the easier choice. In order to help people to achieve healthier diets, we need to develop consistent policies regarding the food that is available, for sale and marketed in settings controlled or influenced by Liverpool City Council.

11.4 Increasing fruit and vegetable consumption

National guidelines advise that everyone should eat at least five portions of a variety of fruit and vegetables every day. The '5 A DAY' guidelines are based on a recommendation from the WHO that consuming 400g fruit and vegetables a day on a regular basis, over time can reduce risks of chronic diseases, e.g. heart disease, stroke, and some cancers.

What Liverpool is doing

1. Children aged four to six attending a fully state-funded infant, primary or special school are entitled to receive a free piece of fruit or vegetable each school day.

2. There are a variety of mobile providers of fresh fruit and vegetables across the city, with some of them visiting our public services.

Recommendations

1. Encourage workplaces to make use of mobile fruit and vegetable providers
2. Understand how price, availability, and other structural factors present as meaningful barriers to fruit and vegetable consumption, particularly among low-income communities in Liverpool
3. Explore how fruit and vegetable consumption can be maximised across Liverpool.

11.5 Reducing consumption of fats, sugar, and salt

The Childhood Obesity Plan challenges all sectors of the food and drinks industry to reduce overall sugar across a range of products that contribute to children's sugar intakes by at least 20% by 2020, including a 5% reduction in year one..

PHE report (2018) that during the first year the programme has resulted in cereals from one retailer reducing sugar content by 34%, but the average reduction in foods commonly available to children fell below the 5% in year one target. There have been reductions in sugar levels in 5 out of the 8 food categories where progress has been measure. For retailers own brand and manufacturer branded products there has been a 2% reduction in total sugar per 100g. A clearer indication of progress across the whole industry will be available in 2019.

11.6 Upselling

The food industry uses numerous marketing ploys and consumer psychology to maximise sales, leading to the industry being worth over £100 billion annually in the UK. Most consumers will be familiar with common practices such as buy-one-get-one-free offers, half price deals on certain products, reduced for a limited time or multi-pack discount bargains on food and drink. All of these techniques are used to maximise profit whilst making consumers feel like they've received a good deal. These deals are also seen to be detrimental for the public's health, so much so that in 2015 the Commons Health Select Committee recommended that the Government take action to introduce tougher controls on the marketing of unhealthy food and drink in promotional offers. Consumers face an average of 106 verbal pushes towards unhealthy choices each year as they are asked whether they would like to upgrade to larger meals and drinks, add high calorie toppings or sides to their order or take advantage of special offers on unhealthy food and drink (RSPH, 2017).

The extent to which this 'upselling' happens locally will need to be understood and opportunities for disincentivising this behaviour explored.

What Liverpool is doing

The School Food Plan, published in July 2013, has helped bring about whole school improvements in food. The new School Food Standards came in to force from January 2015. Liverpool school meals are inspected for compliance with the government's standards as part of the Liverpool Healthy School Award. A healthy eating officer visits each school and undertakes a full lunchtime audit of the food that is provided in the school, the menus are checked against the January 2015 school food standards and the results reported back to the school once the audit is completed. Every school within the city has been visited and audited at some point. Liverpool Healthy Schools have developed a support service for schools to assist with the implementation of the new food, cooking and nutrition aspects of the National Curriculum and this has been implemented in a number of schools.

Recommendations

1. Engage with the local food and drink sector (retailers, manufacturers, caterers, out of home settings) where appropriate to consider responsible retailing (such as not selling energy drinks to under 18s), offering and promoting healthier food and drink options, and reformulating and reducing the portion sizes of high fat, sugar and salt (HFSS) products.
2. Consider how commercial partnerships with the food and drink industry may impact on the messages communicated around healthy weight to our local communities.
3. Review provision in all public buildings, facilities and 'via' providers to make healthy foods and drinks more available, convenient and affordable and limit access to high-calorie, low-nutrient foods and drinks. This should be applied to public institutions such as schools, hospitals, care homes and leisure facilities where possible.
4. Ensure food and drinks provided at public events include healthy provisions, supporting food retailers to deliver this offer.
5. Explore the feasibility of a voluntary sugary drinks levy on sales at council run canteens and public events. Support and promote the national sugar levy.
6. Ensure clear and comprehensive healthy eating messages are consistent with government guidelines.
7. Continue to offer the Healthy Schools Award and support schools to develop healthy eating policies and deliver the school food plan.
8. Understand the extent to which 'upselling' happens locally and explore opportunities for disincentivising this activity.

9. Explore ways in which consumers can become more aware of the additional calorie intake from upselling.
10. Ensure strong leadership and influence local policy by signing up to the Local Authority Declaration for Healthy Weight.
11. Understand the relationship between food insecurity, child poverty, austerity and healthy weight.

11.7 Food labelling

In order to make healthier choices, families need to be presented with clear information about the food they are buying that is easy to understand. The UK has implemented a voluntary front of pack traffic light labelling scheme, which now covers two thirds of products sold in the UK. The Childhood Obesity Plan commits to further development of food labelling – ensuring the new sugar recommendations are clearly displayed. Additional opportunities will be explored to go further and ensure we are using the most effective ways to communicate information to families, for example potentially using teaspoons of sugar graphics.

What Liverpool is doing

1. Promoting and developing a local sugar cubes campaign and Save Kids from Sugar to clearly display sugar content in specific drinks and cereals.
2. Implemented a local pilot to position additional signage in commercial concessions in a local hospital to 'nudge' behaviour (funded by LGA).

Recommendations

1. Analyse and consider how the results of the hospital food labelling pilot can be utilised locally.
2. Consider next steps for our sugar campaigns using local insight

11.8 Healthier vending

The environment in which people live influences their ability to achieve and maintain a healthy weight. As such, local authorities and NHS organisations as employers and service providers can set an example by providing healthy food and drink choices at their venues. They can influence venues in the community such as leisure centres and services provided by commercial organisations to have a positive impact on the diet of people using them.

What Liverpool is doing

The offer of food in vending machines across the 10 LCC run leisure centres has already been improved during the period 2016-17. Bottled water now makes up almost half of all sales – this is a major success. A pilot in three sites has been undertaken to explore the feasibility of further improving the offer.

Recommendations

1. Promote the success of the improved vending product offer that has occurred across Liverpool City Council 10 Leisure sites.
2. Evaluate the vending pilot in three sites across Liverpool and consider next steps for improving vending machine offers across the city.
3. Explore opportunities to influence the vending offer across public sector organisations in Liverpool.

Priority 3: Increase access to healthy food for those on low incomes

Food, and in particular, access to healthy food, costs money. The experience of poverty is an unfortunate aspect of the lives of many families in Liverpool. In 2015, 28% of children aged under 16 in Liverpool, lived in families on low incomes; significantly higher than a national figure of 16.8%. The average household income in Liverpool in 2018 is currently £27,046 compared to a UK average of £39,884 (LCC, 2018). Lower incomes also mean that greater proportions of household income go on food expenditure. In 2017, UK households in the lowest 10% income decile spent 12.6% of their weekly budget on food, compared to 7.2% in the highest 10% income decile (ONS, 2018). Furthermore, in 2017 gross weekly pay for women in Liverpool was £52.70 less than for men (£478 vs £530.70 respectively) (LCC, 2018). With this in mind, the following areas should be given consideration within the whole system approach:

- steps to support families in reducing debts and maximising welfare benefits for those entitled,
- promoting the living wage and equal pay for women with local businesses, as a basis for good employment,
- the promotion of community fruit and vegetable growing schemes, and
- advocating for food growing to be embedded within the school curriculum.

The following initiatives could be developed and piloted in parts of the city to develop the evidence for what works. Schemes/initiatives that have been used elsewhere might involve:

- use of subsidies or incentives to attract healthier food retailers to neighbourhoods where these are currently lacking,
- voucher or subsidy schemes for individuals on low incomes or in deprived neighbourhoods to incentivise the purchasing of fruit and vegetables, and
- support for community ventures that increase access to fresh food (social supermarkets and cafes, community meals, lunch clubs, veg box schemes etc.) .

Local voucher scheme

The Alexandra Rose Vouchers scheme (also funded by the Big Lottery Fund & Esmée Fairbairn) helps families on low incomes to buy fresh fruit and vegetables, while developing the skills and confidence to give their children the healthiest start in life.

The project works with local children's centres to identify families who could benefit from the scheme and provides them with vouchers that can only be redeemed for fresh fruit & veg from participating retailers including mobile fruit & veg vans. The project was launched in Liverpool in 2017 in partnership with Granby & Belle Valle Children's Centres. It will support up to 240 families and is funded for three years. It is hoped that over time the scheme will grow to include other children's centres in city and will partner up with further retailers including local markets and traditional green grocers.

Priority 4: Deliver mass media and marketing campaigns to change activity levels and dietary behaviours with a specific focus on sugar reduction

Social marketing is important as both a motivator and enabler for consumers to change their own and their families' diets and can help underpin structural and policy level interventions to improve food choices. Building on the Safe Kids from Sugar very successful campaign, we will develop other innovative ways of addressing behaviour change around our diet, with a focus on sugar.

11.9 Change 4 Life, Sugar Smart, Food Smart & Save Kids from Sugar

The government led Food and Sugar Smart campaigns in 2015 (part of the Change 4 Life programme) communicated the new guidelines on the daily recommended maximum sugar intakes and promoted the new Sugar Smart app designed to show how much total sugar is in everyday food and drinks.

Save Kids from Sugar Campaign

Following the launch of Sugar Smart, Liverpool developed a local version: the Sugar Cubes Campaign in which popular drinks brands were named – with the aim of explicitly demonstrating the amount of sugar in specific products. Materials were produced and disseminated to support parents in making more informed decisions around purchasing drinks for children. Liverpool also took the bold step to name branded breakfast cereals and yogurts and highlight the amount of sugar in them.

The campaign *Save Kids From Sugar* launched in June 2017 and has attracted national attention. Since launch the campaign website www.savekidsfromsugar.co.uk has seen over 78,560 hits, 180,192 views of the videos and 15,000 people have completed the sugar check which allows parents to choose a breakfast cereal, drink and snack and the sugar cube content is calculated. Over 70% of the sugar check results are over the daily recommended amount for sugar intake. The campaign has been quoted in Mintel as a market driver for Sugar reduction.

Nudge Pilot

Working in collaboration with the LGA and Cabinet Office Nudge team, Liverpool ran a nudge Pilot to reduce the sales of high sugar drinks in a retail setting. The intervention aimed to influence consumer decision by clearly showing which drinks were high sugar at the point of purchase. On alternating weeks, simple on shelf red 'pop-out' "stop" signs were placed on the refrigerator shelves containing high sugar

chilled drinks in three hospital cafes in Liverpool. The analysis finds that the signs led to a 7.3% reduction in high sugar drinks sales. If rolled out it is estimated that this could lead to around 930 fewer high sugar drinks sold in the 3 cafes over a year. There was not a reduction in the overall sale of drinks in the cafes suggesting that people substituted to low sugar alternatives.

Fit For Me

The Fit For Me campaign was launched in July 2016 to spark a social movement across Liverpool, repositioning 'fitness' as something that is achievable for everyone. To date the campaign website www.fitforme.info has received over 161, 874 visits. The campaign featured local people as ambassadors, telling their stories of how they became physically active and the benefits this has brought to their lives. Campaign films were made of each of the 9 ambassador at launch and to date have received over 100,000 views collectively.

8,770 individuals have also completed the online activity quiz featured on the campaign website. This includes an educational element and tailored results, based on testing with our local target audience, to give people a good starting point and advice to begin their journey to becoming more physically active.

Drink Less Feel Good

Drink Less Feel Good (DLFG) is a public health campaign aimed at raising the awareness of the hidden calories in alcohol. Aimed at those aged 35 to 55, DLFG uses local insight that identifies people find alcohol units confusing and are alarmed by the amount of calories in alcohol. The campaign uses hard hitting, eye catching imagery of people drinking donuts and burgers, highlighting the amount of calories in drinks like wine and beer. DLFG launched in February 2018 with an website (www.drinklessfeelgood.co.uk) and online My Drinks Check, a quick and easy tool that shows people how many doughnuts they drink in a week and how their drinking compares to other people their age. They also receive a red, amber or green score and personalised tips on how to reduce their drinking.

With coverage across national and local media, since launch My Drinks Checker has seen 20,000 people complete My Drink Check and had 68,000 people go and visit the DLFG website.

11.10 Food Active and Give Up Loving Pop (GULP)

Liverpool City Council are members of Food Active, a North West healthy weight programme which takes a population-based approach to improving health across the region. By influencing local and national policy Food Active aims to reduce unhealthy weight, making it easier for people to make better choices by improving access and

availability to good nutrition and reducing exposure to unhealthy food and drink. Food Active was formally established launched by the North West Directors of Public Health in 2013 and since then has:

1. Commissioned research which has produced evidence and gathered local support for a duty on sugary drinks.
2. Developed GULP - a public-facing campaign aimed at encouraging young people and families to reduce their intake of sugary drinks and to 'Give Up Loving Pop'. The campaign uses hard-hitting images to convey the health harms caused by over-consumption of sugary drinks via roadshows and social media.
3. Successfully launched the Local Authority Declaration on Healthy Weight, a local council-wide commitment to healthy weight which Liverpool City Council are working towards adopting in 2018.

Recommendations

1. Undertake behavioural insight work and social marketing campaigns to raise awareness and change behaviour to promote healthy weight. In particular build on the work of Save Kids From Sugar and tackle other sources of added sugar contributing to children's consumption.
2. Consider how the Nudge approach can be further utilized to change behaviours to promote healthy weight.
3. Continue to support and consider next steps for local campaign development

Priority 5: Support individuals to improve their diet and activity levels and achieve/maintain a healthy weight through a life course approach

11.11 The Life Course Approach

Taking a life course approach recognises that health is the product of behaviours, biology and the environment that individuals encounter throughout their lives. These factors have a cumulative impact on people's health and can affect their quality of life.

This way of working considers the circumstances into which people are born, and live out their lives. There are key influencers at each stage of life and it is important that consistent messages are given in a timely and appropriate way. The impact of unhealthy weight is cumulative throughout life and there is a window of opportunity in the early years. A life-course approach is also useful in that it enables us to examine and address health inequalities.

Each of the following sections will describe what **Liverpool collectively as a city is doing** followed by a set of evidence based recommendations. These recommendations will then be used as the basis for development of an action plan.

11.11.1 The Perinatal period

Excessive weight can impact on fertility and the ability to conceive. Many women who are booking into antenatal services are overweight and obese (Fit for Birth Study 2016).

Maternal obesity adversely impacts on the health of pregnant women and babies, and predisposes children to obesity in later life as well as other chronic diseases. We also know that there are poorer birth outcomes for mothers and babies and that obese mothers are less likely to breastfeed.

What Liverpool is doing

1. Recognising the importance of good antenatal care, implementing active birth sessions.
2. Providing early access by enabling newly pregnant mums to book in at community venues.
3. Partners in the city have achieved or are working towards UNICEF Baby Friendly Initiative (BFI) full accreditation.
4. Providing training for staff in brief advice and brief intervention – building on their knowledge and skills, including Midwives and Care Assistants.
5. Commissioning a breastfeeding peer support programme.
6. Increasing physical activity in pregnancy by providing a healthy lifestyle programme for pregnant women and new mothers.
7. Assessing the needs of obese women in the ante natal period through the Liverpool Women's Hospital Fit For Birth Clinic.
8. Provide a tier three adult weight management programme.

Recommendations

1. Disseminate materials developed from public health insight to promote healthy eating and physical activity throughout pregnancy and develop processes to minimise the impact of obesity.
2. Support development of an Infant Nutrition and Health Sub group (formerly Infant Nutrition Steering Group) as a sub group of the first 1001 Critical Days (the local group that oversees the first 1001 days of life period).
3. Normalise breastfeeding within the population in order to increase initiation and prevalence.
4. Maintain and improve the quality of breastfeeding support offered to women.
5. Promote programmes that will increase the numbers of organisations achieving full accreditation with the UNICEF BFI. Ensure relevant undergraduate teaching courses (Midwives, Obstetrics, Paediatrics, Health Visiting, Children's Nursing) achieve UNICEF BFI accreditation.
6. All front line staff in health and social care should be trained in brief advice and brief intervention to maximize the impact of consistent messages.
7. Relevant health and social care staff should be trained to gain confidence to raise the issue of unhealthy weight and its impact, and manage child weight and related lifestyle issues.
8. Continue to maximise opportunities for ensuring women's health is optimized during the perinatal period.

11.11.2 Years: the early years

There is strong evidence that there is a link between infant weight gain and obesity in later life. In addition, lifestyles (in particular food choices and physical activity) can originate in the early years. Children this age are more receptive to influencers so it is a key time to start embedding healthy lifestyles, even before they start school. Pre-school settings are particularly important due to the numbers of hours children spend in this setting.

What Liverpool is doing

1. Partners in the city have achieved or are working towards UNICEF Baby Friendly Initiative (BFI) full accreditation.

2. Working to increase the breastfeeding rates by maximizing opportunities for providing breastfeeding peer support to women.
3. Key partners have developed and implemented an 'Introducing Solid Foods' resource for use by Health Visitors and Children's Centre staff and implemented with joint training.
4. Developed materials based on insight for midwives, and parents regarding a range of health promoting behaviours.
5. Integrated working between Health Visitors and Children's Centres.
6. Working with health providers to develop an integrated pre-birth -19 pathway building on the healthy child programme.

Recommendations

1. Support development of an Infant Nutrition and Health Sub group (as above).
2. Increase initiation and prevalence of breastfeeding (as above).
3. Continue to support parents/ carers with introducing solid food to their infant from 6 months of age.
4. Continue to support and explore opportunities for preschool children to be physically active for 180 minutes of every day.
5. Explore opportunities for improving healthy food offers and promotion within Early Years Settings.

11.11.3 5 to 19 years: school age children and young people

Children who are overweight in their early years are likely to continue to be overweight through childhood and to become obese and overweight adults unless they are able to change their eating and physical activity habits - both of which are interlinked with emotional health and wellbeing. Therefore this will require support and interventions that bring about improvements in mental health as well as physical lifestyle changes.

Research from Liverpool John Moores University (Turner et al., 2016) highlighted several challenges faced by school health teams in managing child weight issues. It was recommended that clear protocols are developed to ensure consistency of practice, and training possibilities are explored to equip frontline health professionals

with the skills to address weight issues with children and parents and support lifestyle behaviour change.

What Liverpool is doing

1. Cycling: National Standards Bikeability Level 2 cycle training is offered to all Year 5 and 6 pupils through all primary schools in Merseyside. Around 3000 Liverpool pupils take part in this training each year. Level 3 training is offered to secondary schools although these places are limited.
2. The City Council's Road Safety Team trains primary school teaching assistants to provide Crossright pedestrian training with Year 1 and 2 pupils.
3. School Improvement Liverpool continue to work with 99% of all schools to achieve healthy school status, this is reviewed on a three year rolling programme.
4. Some schools in Liverpool implement an active mile initiative such as the Daily Mile where children (and sometimes staff) are supported to walk a mile each day, usually in school premises.
5. Health Equalities Group were funded by the British Heart Foundation and Liverpool City Council to develop a Hearty Lives Liverpool training and toolkit aimed at improving food and nutrition for children in care.
6. All children in reception and year 6 are weighed and measured as part of the NCMP.
7. Families are informed if their children are overweight and recommended to attend a Tier 2 family weight management programme.

Recommendations

1. Review weight management programmes and explore opportunities for developing integrated services where appropriate to maximise resources and patient outcomes (see *Adults and Older People* below).
2. Strengthen links between the NCMP and weight management services to:
 - a. ensure the programme is meeting families' needs and
 - b. to increase referrals for lifestyle and weight management support
3. Implement the recommendations of the Physical Activity and Sport Strategy.
4. Continue to support and explore opportunities for preschool children to be physically active for 180 minutes of every day, including Daily Mile.

5. Implement the Liverpool City Region's Transport Plan for Growth recommendations for active travel including cycling and walking measures.
6. Implement Liverpool's cycling strategy – which includes an implementation plan to deliver cycling infrastructure and promotion, with a target for 10% of all trips to be made by bike by 2025.
7. Encourage those of school age to engage in 60 minutes of moderate to vigorous physical activity every day, and minimize the time spent being sedentary.
8. Explore the possibility of including weight management training and support for School Nurses into the specification for the service.
9. Disseminate the Food in Care resource and embed Food In Care within the core training offer to Foster Carers in Liverpool.
10. Understand the impact of food insecurity on the weight status of individuals and families in Liverpool.

11.11.4 Adults and older people

NICE Guideline PH53 recommends that Local Authorities (LA) should work with other local service providers, Clinical Commissioning Groups (CCG) and the Health and Wellbeing Board to adopt an integrated approach to preventing and managing obesity. Systems should be put in place to allow people to be referred to, or receive support from/ across the different service tiers of an obesity pathway, as necessary. This should include referrals to and from lifestyle weight management programmes.

The Report of the Working Group into Joined-up Clinical Pathways for Obesity, (NHS England, 2014) recommends that:

- LA's should retain primary commissioning responsibility for tiers 1 and 2, including population level interventions to encourage healthy eating and physical activity, as well as lifestyle related weight management services
- CCG's should have primary commissioning responsibility for tier 3, clinician-led specialist multidisciplinary teams

In 2017 NHS England devolved the commissioning of Tier 4 adult obesity surgical services to CCGs (NHSE, 2016).

As illustrated earlier obesity and excess weight are significant health issues for adults across the life course and into old age. Weight management interventions are

an important component of a whole systems approach, but they are limited in terms of the numbers of individuals they can support. Therefore a population approach is crucial to tackling overweight and obesity.

11.11.5 Food insecurity

In Liverpool, the rate of hospital admissions for malnutrition among women of child bearing age (age 15-44) has increased in recent years (2017 PHAR).

There is some evidence to suggest that the current financial climate of austerity may be impacting on the ability of individuals and families to maintain a healthy weight. This relationship will need to be further explored and understood.

What Liverpool is doing

1. The Liverpool Food People (LFP) is a network of food growers, composters, buyers, cooks and eaters passionate about a positive healthy food culture for Liverpool. LFP is led through the third sector, with members currently hailing from a range of providers and programmes across the city. LFP aims to make enjoying good food easy, accessible and affordable for everyone, and to grow a lasting Liverpool food economy for the future.
2. Tier 3 clinical weight management service for adults with a BMI of over 40 (or a BMI of 35 with related conditions). Treatment and support is provided by a multidisciplinary team that includes dietitians, physiotherapists, health care support workers, occupational health and psychotherapy.
3. Bariatric Surgery. in Liverpool - people who are eligible for bariatric surgery have to undergo an assessment and intervention through the Tier 3 programme and only then can they be referred if they meet the local criteria.
4. Implementing the Impaired Glucose Regulation (IGR) pathway (Borderline Diabetes)
5. Tier 2 Child and Family Weight Management Programme for under 17 year olds
6. Commissioning a Health Trainers programme, with an emphasis on healthy weight
7. Workplace Health Charter. The Charter is a health, safety and wellbeing award scheme endorsed by Public Health England which provides organisations of all sizes with best practice advice, guidance and support to improve health and wellbeing in the workplace.
8. Exercise for health (GP prescription)
9. Implementing NICE guidance regarding care homes

10. Implementing Liverpool's cycling strategy to encourage more people to cycle more often through the development of a safer cycling environment and positive promotion
11. Offering adult cycle training and bike maintenance to increase skills and confidence
12. Commissioned insight to understand why there are a high number of adult pedestrian road injuries in Liverpool city centre. This informs the current Adult Pedestrian Casualty Reduction programme aimed at reducing pedestrian injuries - safer roads, and the perception of safer roads, are needed to encourage modal shift to walking (and cycling).
13. Making Every Contact Count (MECC) – co-ordinating training across partners to maximize front line contact with the population.

Recommendations

1. Support local networks to promote enjoyment of good food that is affordable to everyone
2. Review current weight management services to consider an integrated approach to maximise resources, patient support and health outcomes. Ensure the national Standard Evaluation Framework for Weight Management is incorporated into all weight management services and specifications
3. Continue to deliver lifestyles programmes to support healthy eating
4. Explore opportunities for increasing physical activity and healthy eating amongst the workforce
5. Review Exercise for Health programmes and maximise opportunities for use
6. Ensure providers of care services receive appropriate training to understand the dietary needs of those receiving or living in care
7. Promote the Fit For Me campaign and implement the Liverpool Physical Activity and Sport Strategy
8. Implement the Liverpool City Region's Transport Plan for Growth recommendations for active travel including cycling and walking measures
9. Implement Liverpool's cycling strategy (as above)

10. Continue to roll out MECC utilising a range of resources

11.11.6 Very Elderly and Frail

What Liverpool is doing

1. Commissioning services such as Residential services, Supported Living and Home Care Services that ensure caring staff have appropriate training in dietary needs and service users have access to a range of food and drinks that meet their nutritional, cultural and personal preferences

Recommendations

1. Implement Nutrition Strategies and Policies within care and residential homes
2. Ensure providers of care services receive appropriate training to understand the dietary needs of those receiving care
3. Explore links with re-enablement services to understand if there are any opportunities to address weight management, particularly malnutrition
4. Explore opportunities to research the impact of austerity on the weight of the very elderly

11.11.7 Settings

Healthy Settings, the settings-based approaches to health promotion, involve a holistic and multi-disciplinary method which integrates action across risk factors. The goal is to maximize disease prevention – in this case as part of a whole system approach. The Healthy Cities programme is perhaps the best-known example of a successful Healthy Settings programme. Initiated by WHO in 1986, Healthy Cities have spread rapidly across Europe and other parts of the world.

11.12 Physical activity

Even small increases in physical activity among those who are the least active can bring great health benefits. Physical activity has been described by Chief Medical Officers as ‘a wonder drug’.

The Chief Medical Officer (CMO) recommends that adults engage in moderate intensity activity for at least 150 minutes over a week and minimize time spent being sedentary (CMO report 2011). Alternatively adults may accrue the same health benefits from engaging in 75 min of vigorous physical activity over a week.

11.12.1 Physical activity and sport strategy

Liverpool Active City is the physical activity and sport strategy for Liverpool. It outlines the vision for the transformation and continued investment in sport and active recreation in the city.

As Liverpool has a comprehensive, effective and nationally recognised Physical Activity and Sport Strategy, it is not the intention of this document to duplicate this work.

As the world grows more complex and people are faced with a competing range of priorities, it is more important than ever to build in as much physical activity into everyday life as possible.

Recommendations

1. Upscale investment in cycling and walking infrastructure in Liverpool to support delivery of Mayoral Inclusive Growth Plan.
2. Invest in school active travel infrastructure and promote cycling to school alongside the development of safe cycling routes.
3. Support the aims and objectives of the Liverpool Physical Activity and Sport Strategy
4. Explore opportunities for further developing active travel strategies for the local population (eg. daily mile, walking buses).
5. Support the implementation of The Liverpool Active Promise - Our Children & Young People Physical Activity Plan

Priority 6: Influence national agenda

What Liverpool is doing

The Sugar Cubes Campaign and GULP have all received significant national coverage. The Obesity Health Alliance have noted that these campaigns have played a part in facilitating change at national level by influencing the agenda. Food Active is co-ordinated from within the third sector and has a voice outside of statutory services. They are therefore able to act independently and influence change in a way that adds value to the work undertaken by public services.

Recommendations

Ensure commitment at senior level to deliver this strategy through adoption of the Local Authority Declaration on Health Weight and explore opportunities for co-ordinating similar action with partners

1. Explore and maximise other opportunities for influencing the national agenda, especially around:
 - banning price-cutting promotions of junk food in supermarkets, such as multipacks and buy one get one free,
 - banning price-cutting promotions of junk food in supermarkets, supermarkets, as well as on social media and websites, and
 - ending junk food sponsorship of family and sporting events.
2. Continue to support local and national campaigns
3. Ensure strategies, communications and workstreams also link with and support the Obesity Health Alliance

12 Governance, partnerships and monitoring

Effective local action to tackle unhealthy weight will require the comprehensive collaboration of partners to create an environment that supports and facilitates healthy choices by individuals and families. Liverpool Health and Wellbeing Board will oversee the implementation of a multiagency Healthy Weight forum or steering group to take this strategy and the Local Authority Declaration on Healthy Weight forwards. This partnership will develop, implement and monitor a multiagency Healthy Weight action plan for Liverpool.

Partners include:

- Elected Members
- Local Authority including Public Health, Planning, Transport and Leisure
- PHE

- Liverpool CCG
- Primary Care
- Secondary care
- Social Care
- Housing providers
- Third Sector/ Voluntary sector
- Education

The **Public Health Outcomes Framework** *Healthy lives, healthy people: Improving Outcomes* sets out a vision for public health, desired outcomes and the indicators that will help us understand how well public health is being improved and protected. The following indicators directly measure healthy weight:

- 2.12 - Excess weight in Adults
- 2.06i - Child excess weight in 4-5 and 10-11 year olds - 4-5 year olds
- 2.06ii - Child excess weight in 4-5 and 10-11 year olds - 10-11 year olds

Additionally there are also a number of indicators in the framework that relate to physical activity and healthy eating.

13. Conclusion and our next steps

As well as national interventions, to make a real impact on reducing obesity rates, we will need sustained local actions that bring together a diverse range of stakeholders, both within and outside of local authorities. The scale of the challenge means that Government, the food and drink industry, the NHS, local authorities, the voluntary sector, commercial sector, schools and families, all need to play their part in helping to tackle obesity and be ambitious in doing so. The importance of senior management and political leadership also cannot be underestimated. This leadership will be key to integrating a whole systems approach, as it gives all stakeholders permission to devote the time necessary to make this way of working the norm. It also sends a clear message that tackling obesity is a priority for the whole city.

Obesity has a profound impact not just on population health, but on other local priorities including economic growth and social care. Everyone stands to benefit, yet it is often still primarily thought of as a public health concern. It will therefore be vitally important to engage all stakeholders in this process to ensure success and make Liverpool an active, healthy city where residents maintain a healthy weight from childhood throughout the life-course.

Following launch of the strategy in 2018 the next steps will be:

1. Signing of the Local Authority Declaration on Healthy Weight
2. Launch of the whole systems approach to obesity supported by Public Health England, including stakeholder mapping
3. Formation of a local healthy weight steering group
4. Development of local action plan
5. Implementation of agreed actions and monitoring of progress.

14 References

Foresight, 2007, Tackling Obesities: Future Choices – Project report, Department of Innovation Universities and Skills, DIUS/PUB 8654/2K/12/07/AR, Crown Copyright

Public Health England 2017 Health Matters: Obesity and the Food Environment, Crown Copyright 2018
<https://www.gov.uk/government/publications/health-matters-obesity-and-the-food-environment/health-matters-obesity-and-the-food-environment--2>

Public Health England, 2014a Adult obesity and socioeconomic status data factsheet
https://khub.net/c/document_library/get_file?uuid=66f4f8fd-468e-4280-af13-dae5d1436fe1&groupId=31798783

Public Health England, 2015. Making the case for tackling obesity – why invest? PHE.
http://webarchive.nationalarchives.gov.uk/20170110165555/https://www.noo.org.uk/slide_sets

Newton *et al.* (2015) Changes in health in England, with analysis by English regions and areas of deprivation, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*

The Lancet, 2009. Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies, *The Lancet* 2009; 373: 1083–96
Published Online March 18.

Public Health England, 2017a. Health Risks of Adult Obesity. *The National Archives*.
http://webarchive.nationalarchives.gov.uk/20170110171059/https://www.noo.org.uk/NOO_about_obesity/obesity_and_health/health_risk_adult

Chan, J et al. (1994). Obesity, Fat Distribution, and Weight Gain as Risk Factors for Clinical Diabetes in Men. *Sep*;17(9):961-9

Public Health England, 2017b, Maternal Obesity, Crown Copyright, Knowledge Hub.
https://khub.net/c/document_library/get_file?uuid=a5768682-fb3d-4fda-ab4a-937a8d80f855&groupId=31798783

UNICEF, 2012. Preventing disease and saving resources: the potential contribution of increasing breastfeeding rates in the UK.

Liverpool Public Health, 2014. Liverpool's Joint Strategic Needs Assessment: Asylum Seekers & Refugees Health Needs Assessment. Liverpool City Council.

Malnutrition Task Force, 2017. The State of the Nation: Older people and malnutrition in the UK today. Age UK.

Gatineau M, Hancock C and Dent M (2013) Public Health England, 2013. Obesity and Disability. Public Health England, National Archives.

Gatineau M, Mathrani S. (2011) Obesity and Ethnicity. Oxford: National Obesity Observatory.

Public Health England (2017). Working together to address obesity in adult mental health secure units. Crown Copyright.

The Unhealthy State of Homelessness (2014). Homeless Link.

Public Health England, 2014b. Child obesity and socioeconomic status data factsheet. Crown Copyright.

World Health Organisation 2003, Obesity and Overweight
<http://www.who.int/dietphysicalactivity/media/en/gsf Obesity.pdf>

Public Health England 2017d Patterns and Trends In Adult Obesity.

Gatineau M, Dent M. Obesity and Mental Health. Oxford: National Obesity Observatory, 2011

Department of Health 2011. Healthy Lives Healthy People a call to action on Obesity in England. HM Government.

NHS England. (2014) Five Year Forward View.

HM Government. Childhood Obesity: A Plan for Action. Crown Copyright.

HM Government, Department of Health & Social Care (2018) Childhood obesity: a plan for action, Chapter 2. Crown Copyright

National Child Measurement Programme Results, Year 6, 2016/17
Source: NCMP/PHE

Active Lives/PHE; ONS population estimates mid-2017.

Ministry of Housing, Communities & Local Government (2017) Health and wellbeing
The role of health and wellbeing in planning
<https://www.gov.uk/guidance/health-and-wellbeing>

PHE, 2018 Sugar Reduction and Wider Reformulation Programme: Report on progress towards the first 5% reduction. Crown Copyright.

Local Government Association 2017. Making Obesity Everybody's Business: A Whole Systems Approach to Obesity.

<https://www.local.gov.uk/sites/default/files/documents/15.6%20Obesity-05.pdf>

Global Burden of Disease Study 2016 Institute of Health Metrics and Evaluation, University of Washington

Donin AS, Nightingale CM, Owen CG, et al Takeaway meal consumption and risk markers for coronary heart disease, type 2 diabetes and obesity in children aged 9–10 years: a crosssectional study. Archives of Disease in Childhood 2018

Patterson, R., Risby, A. & Chan, M.-Y. Consumption of takeaway and fast food in a deprived inner London Borough: are they associated with childhood obesity? BMJ Open 2, e000402 (2012)

T Burgoine, N G Forouhi, S J Griffin, N J Wareham, P Monsivais. Does neighborhood fastfood outlet exposure amplify inequalities in diet and obesity? A cross-sectional study. The American Journal of Clinical Nutrition. 2016

FEAT 2018. Food Environment Assessment Tool <http://www.feat-tool.org.uk/map/>

Natural England 2015. Monitor of Engagement with the Natural Environment Survey. 2015

<https://www.gov.uk/government/statistics/monitor-of-engagement-with-the-natural-environment-2015-to-2016>

Giles-Corti B, Vernez-Moudon A, Reis R, Turrell G, Dannenberg A, Badland H, Foster S, Lowe M, Sallis J, Stevenson M and Owen N (2016) City planning and population health: a global challenge, Lancet, 372. [http://dx.doi.org/10.1016/S0140-6736\(16\)30066-6](http://dx.doi.org/10.1016/S0140-6736(16)30066-6)

Royal Society for Public Health/ Slimming World, 2017. Size Matters: the role of upselling on weight gain.

<https://www.rsph.org.uk/uploads/assets/uploaded/055c2d87-c3ab-4dfb-ba4aa44b9488c88f.pdf>

Joseph Rowntree Foundation, 2017. UK Poverty 2017.

<https://www.jrf.org.uk/report/uk-poverty-2017>

LCC, 2018 Key Statistics Bulletin June 2018 <https://liverpool.gov.uk/council/key-statistics-and-data/key-statistics-bulletin/>

ONS, 2017 Average weekly household expenditure by Output Area Classification (OAC) group, UK. Table A52.

<https://www.ons.gov.uk/peoplepopulationandcommunity>