Gloucestershire

Obesity Needs Assessment

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GLOSSARY

Accelerometry - Accelerometers are movement monitors that have the ability to capture intensity of physical activity. They are typically attached to a person waist with a belt clip; however, some monitors can also be work on the wrist, ankle, or even a shoe

BMI (Body Mass Index) - BMI is a simple index of weight-for-height and is calculated by dividing a person's weight in kilograms by the square of their height in metres (kg/m2).

BMI among adults is classified according to the categories given in the table below[1]

The International Classification of adult underweight, overweight and obesity according to BMI

Category	BMI
Underweight	<18.5
Healthy range	18.5 – 24.9
Overweight	25 – 29.9
Obese	30 – 39.9
Morbidly obese	=> 40

BMI in childhood has been classified according to the following table using the British 1990 growth reference (UK 90) distribution[2]

BMI classification	Centile of UK 90 BMI distribution
Underweight	Less than or equal to 2
Healthy weight	Greater than 2 and less than 85
Overweight	Greater than or equal to 85 and less than 95
Obese (very overweight)	Greater than or equal to 95
Excess weight	Greater than or equal to 85 (Overweight plus Obese)

NB: The thresholds above are used for **population monitoring**. For **clinical assessment** of individual children 'overweight' is defined as a BMI percentile =>91st percentile and 'obesity' as a BMI percentile => 98th percentile.

Please note that the term 'obese' and 'very overweight' are used interchangeably throughout this document.

Indices of Multiple Deprivation – measures relative deprivation across a range of parameters experienced by people living in small areas called Lower level Super Output Areas (LSOAs) in England.

Inequalities - Inequities in health are caused by the unequal distribution in the determinants of health, including power, income, goods and services, poor and unequal living conditions,

1 Source: Adapted from WHO, 1995, WHO, 2000 and WHO 2004.

[2] Cole TJ, Freeman JV, Preece MA. Body mass index reference curves for the UK. 1990. Archives of Disease in Childhood 1995 73:25-9

and the differences in health-damaging behaviours that these wider determinants produce. Large socioeconomic, gender and ethnic inequities exist in terms of obesity.[3]

National Child Measurement Programme (NCMP) - the National Child Measurement Programme (NCMP) for England records height and weight measurements of children in Reception (aged 4-5yr) and Year 6 (aged 10-11yr) enabling analysis of prevalence and trends in childhood obesity levels.

NICE – National Institute for Health and Care Excellence. NICE guidelines make evidence-based recommendations on a wide range of topics, from preventing and managing specific conditions, improving health and managing medicines in different settings, to providing social care to adults and children, and planning broader services and interventions to improve the health of communities.

Obesogenic environment - The term 'obesogenic environment' refers to the role environmental factors may play in determining both nutrition and physical activity. It has been defined an environment that promotes gaining weight and one that is not conducive to weight loss" within the home or workplace (Swinburn, et al., 1999).

Whole Systems Approach (WSA) - Whole systems approaches involve identifying the various components of a system and assessing the nature of the links and relationships between each of them

[3] WHO (2013) Obesity and inequities Guidance for addressing inequities in overweight and obesity

1.0 EXECUTIVE SUMMARY

This needs assessment seeks to provide local and national quantitative and qualitative evidence to inform a strategic and whole systems approach to reducing obesity in Gloucestershire. This document will continually evolve and be informed by the new healthy weight programme that is being jointly led by Gloucestershire County Council and Gloucestershire Clinical Commissioning Group. The new programme will include ongoing detailed analysis on epidemiological data, evidence of effectiveness and stakeholder views. This will result in the document continually being updated to ensure it reflects the most up to date information.

1.1 Background

Obesity is a global public health problem and the UK has the highest rate of child obesity in Europe. Obesity is a complex issue influenced by many factors. While at an individual level the main causes are poor diet and sedentary lifestyles, the Foresight report (2007) identified over 100 "wider determinants" of individual, and family eating and physical activity habits (see figure A). These include the food and physical activity environments in which people live, work and play; their income; education; occupation and mental health and wellbeing.

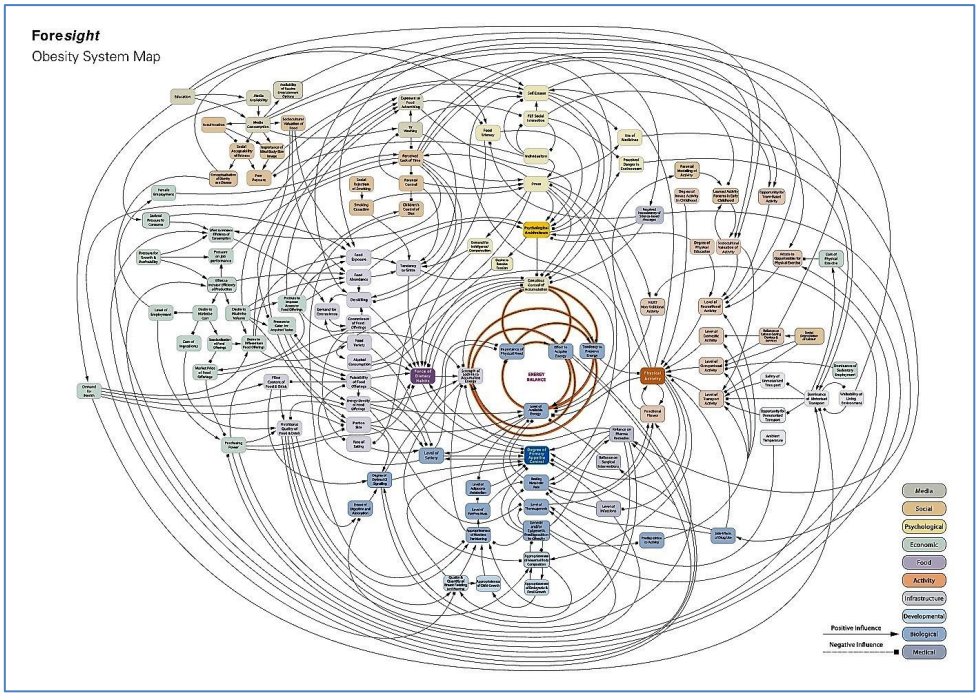


Figure A: Foresight Obesity Systems Map

Over the last 20-30 years society has become characterised by environments and lifestyles that promote the consumption of high calorie food and drink, and sedentary behaviour so it is now widely agreed that obesity is a normal 'passive' biological response to these changes.

1.2 Epidemiology

1.2.1 Maternity and Early Years

There is a large body of evidence which links maternal obesity to adverse pregnancy outcomes. Data on the prevalence of maternal obesity are not collected routinely in the UK, but there are currently around 11 million women of childbearing age (16 to 44 years) in England, of which around 2 million (19%) are obese. Local data shows that 19.4% of women have a BMI over 30 on antenatal booking.

There is some evidence that mothers who breastfeed provide their child with protection against excess weight in later life. Breastfeeding rates in Gloucestershire are measured from birth, known as initiation rates and whether breastfeeding continues until 6-8 weeks. Across the county Gloucestershire does slightly better than the national average having 77.1% of mothers initiating breastfeeding compared with 74.3% nationally[4]. Forest and Gloucester city have the lowest initiation rates with South Cotswolds having the highest (86.8%).

1.2.2 Children and Young People

At present the health risks of obesity are more common in adults but the increase in the proportion of overweight and obese children is a major medical concern. Problems are likely to develop earlier if obesity continues from childhood into adult life. Evidence shows that growth in early life influences later risk of obesity and that many risk factors for developing obesity originate during childhood.

Data for child obesity comes from the National Child Measurement Programme (NCMP) for England that records height and weight measurements of children in Reception (aged 4-5yr) and Year 6 (aged 10-11yr) enabling analysis of prevalence and trends in childhood obesity levels. In 2015-16 8.7% of 4-5 year olds measured were obese. This is below the annual average of 9.3% but the difference is not statistically significant. 17.7% of 10-11 year olds measured were obese, which is significantly below the national average of 19.8%. Though below national averages, these figures remain a major concern.

Locally and nationally, children are more likely to be obese in year 6 rather than reception, see figure 3. Over the past 9 school years, obesity levels for Gloucestershire reception children have fluctuated slightly, but have generally remained less than 10% and this year (2015/16) is below the national average (see figure B). For the same time period, obesity in Gloucestershire year 6 children has risen slowly from 15% in 2009/10 to 17.7% this year in line with the national trend. This data equates to approximately one in twelve children in Gloucestershire are obese in reception doubling to one in six by the time they reach year 6.

[4] http://fingertips.phe.org.uk/profile/cyphof/data#page/3/gid/1938132969/pat/6/par/E12000009/ati/102/are/E10000013/iid/20201/age/1/sex/2/nn/nn-1-E10000013

Research has shown that children who are very overweight at reception year are likely to remain very overweight at year 6.[5]

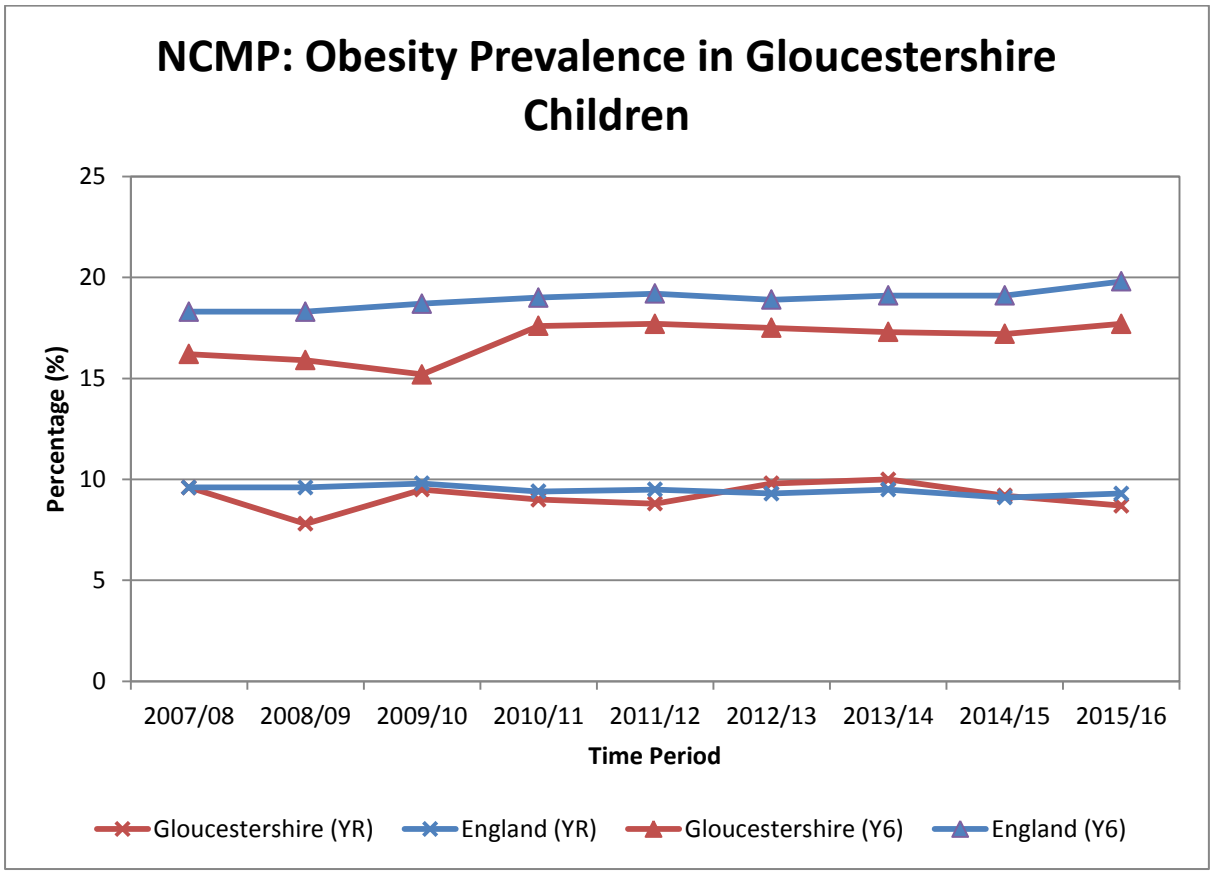


Figure B – obesity prevalence in children in Reception and Year 6 Children

Child obesity prevalence is strongly correlated with socioeconomic status and is highest in the most deprived areas across Gloucestershire with the year 6 pupils who live in the most deprived areas having significantly higher rates of obesity than Gloucestershire as a whole and double that of the least deprived areas (see figure C). Gloucester and Forest have the highest levels of obese children with levels above the county average. Cotswolds and Stroud have the lowest rates of obese children in year 6.

[5] Pearce et al (2015) Changes in objectively measured BMI in Children aged 4-11years: data from the National Child Measurement Programme

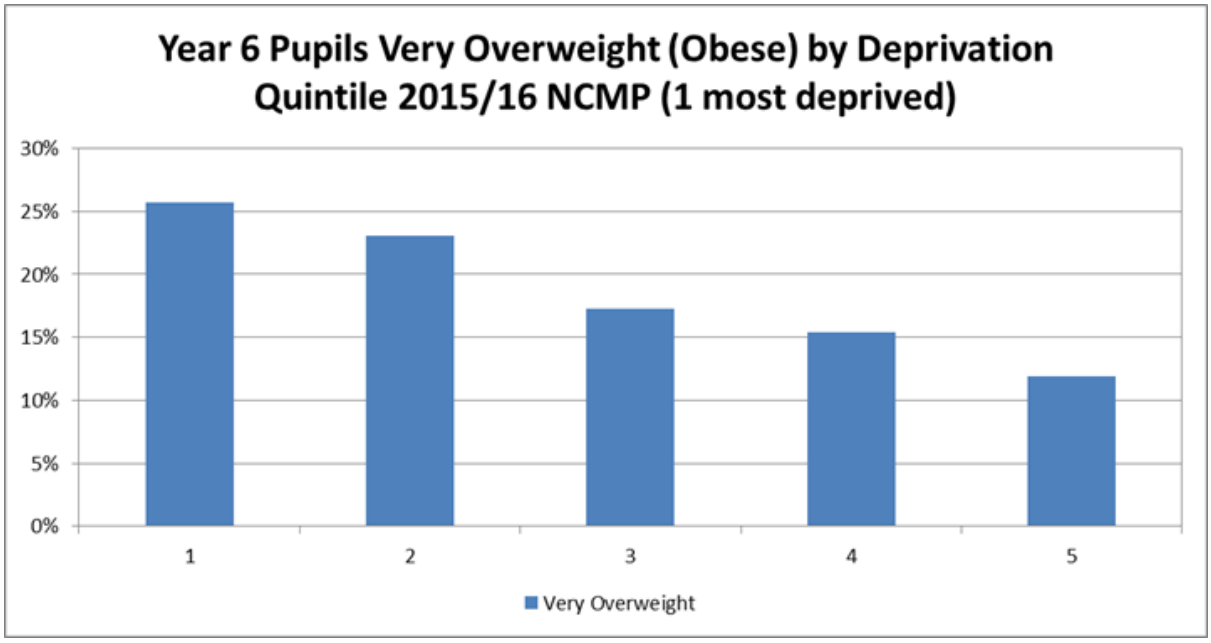


Figure C – Year 6 pupils very overweight by deprivation quintile 2014/15

1.2.3 Adults

Data collection on adult obesity is not as robust as children. National data suggests that one in four men is obese (24.7%) and one in four women is obese (24.9%). In Gloucestershire modelled data indicates that 23.5% of adults (18 and over) in Gloucestershire are obese – which equates to approximately 114,714 adults. Modelled national data indicates that severe obesity (adults with a BMI 40+) is steadily rising. Data shows that severe obesity is consistently higher among women (increasing from 1.4% in 1993 to 3.9% in 2013) than among men (increasing from 0.2% in 1993 to 1.6% in 2012).

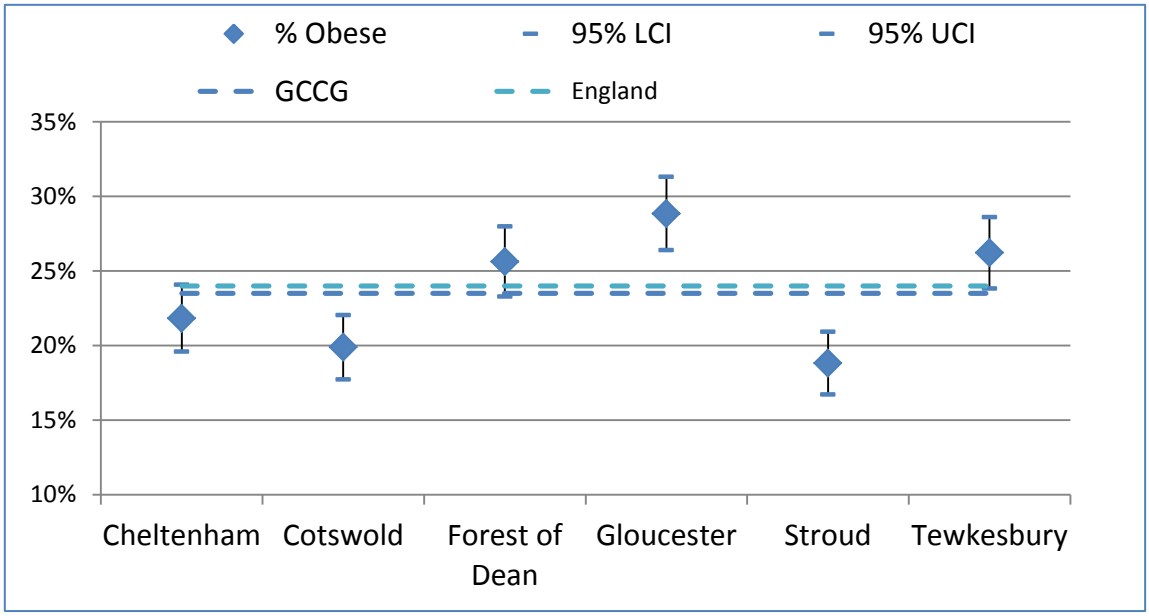


Figure D - Proportion (%) of Obese (BMI > 30) Gloucestershire districts 2012-14

As with children, obesity does not affect all groups equally. For example, it is more common among older age groups, some minority ethnic groups, people with disabilities, people with mental health problems and people from more deprived areas.

Local variation in the prevalence of obesity shows that Gloucester has the highest prevalence, with 29% of adults obese – statistically significantly worse than both the national and the Gloucestershire average. 26% of adults are obese in both the Forest of Dean and Tewkesbury. There is significant local variance in obesity levels - the local authority area with the lowest prevalence is Stroud, with 19% of adults obese. This might mean a targeted, place-based approach to commissioning services needs to be considered in order to ensure the biggest impact in terms of health improvement

1.3 The Consequences of Obesity

1.3.1 Health

There is strong evidence to show that adult obesity is associated with a wide range of health problems which include type 2 diabetes, coronary heart disease, some types of cancer (such as breast cancer and bowel cancer) and stroke. Obesity can also impact on people's quality of life and lead to psychological problems, such as depression and low self-esteem.

1.3.2 Economic

Whilst further analysis needs to be undertaken to understand the economic consequences to Gloucestershire, national modelling indicates that NHS costs attributed to overweight and obesity in Gloucestershire are estimated to be £160 million per annum. These costs are primarily derived from costs of six major obesity related conditions i.e. coronary heart disease & stroke, cancer, hypertension, type 2 diabetes and knee osteoarthritis). On top of the costs to health and social care, obesity imposes a considerable wider economic burden through reduced productivity, increased sickness absence and increased sickness benefit claims. Nationally, these have been estimated to be in the region of £40billion.[6]

1.4 Current Provision

Gloucestershire currently has a variety of weight management services provided across the life course which range from prevention through to treatment.

1.4.1 Maternity

Maternity Services in Gloucestershire requires all pregnant women accessing antenatal care to have their BMI calculated and recorded at the booking appointment. Women with a BMI over 30 are considered for birth at a consultant unit and if the BMI is greater than 35 women are recommended to birth in a consultant unit.

[6] Local Government Association, Public Health England. Social care and obesity. A discussion paper. London: Local Government Association; 2013

1.4.2 Children

A number of preventative services exist across the county. These range from Early Year programmes such as HENRY (Health, Exercise and Nutrition for the Really Young) which support health living in early year settings, through to the Gloucestershire Health Living and Learning (GHLL) service that support healthy school environments. The National Child Measurement Programme (NCMP) provides high-quality, reliable data on child overweight and obesity levels and trends. Letters are sent to parents of those children who are identified over a certain BMI thresholds (>99.6th percentile) and offered support by the School Nursing Team. However uptake of this service by parents is low. Whilst community weight management support for children has previously been piloted in various areas within the county, no universal or targeted services exist.

There are no dedicated tier 3 weight management services in Gloucestershire; however the children's endocrinology team and dietetic department will accept referrals from health professionals for children and young people who have excess weight. A limited number of Children with complex needs are referred to the Care of Childhood Obesity (CoCo) in Bristol. This provides a multidisciplinary assessment and care over a period of 12-18 months at Bristol Royal Hospital for Children. Surgical intervention is not generally recommended in children or young people. However, bariatric surgery may be considered for young people only in exceptional circumstances, and if they have achieved or nearly achieved physiological maturity.

1.4.3 Adults

There are a plethora of services and activities that exist across Gloucestershire aimed at supporting people to maintain and achieve a healthy weight. Many of these are provided or commissioned by local authorities, voluntary and the private sector. These consist of leisure and cultural services, physical activity and exercise groups, and healthy eating classes. Community Health Trainers promote health awareness and support individuals to make healthy changes to their lifestyle such as being more physically active, losing weight and eating more healthily.

Gloucestershire provides weight management support across all tiers of the adult weight management pathway. Slimming World is the primary community based support for adults whom are obese and commissioner by Gloucestershire County Council. Since 2014, 12,907 patients have participated in Slimming World. 64% of patients achieved a 3% weight loss and 36.1% of patients achieved a 5% weight loss at 12-weeks. No long-term outcome data is available. Uptake of the service by men is poor with 87.5% of users being female.

Gloucestershire's Tier 3 Specialist Weight Management Service (SWMS) and Tier 4 specialist and surgical service are provided by Gloucestershire Hospitals NHS Foundation Trust. The SWMS is a multidisciplinary service designed and delivered by dieticians and health

psychologists. In 2015/16, 374 (67%) patients were treated with 73% of having lost more than 5% of their weight at 6-months. At 12-months, At 12 months, 73% of patients had lost weight with 21.84% losing more than 10%. It is estimated that approximately 10,000 people in Gloucestershire would be eligible for a Tier 3 service.

Severe and complex obesity services (Tier 4 – surgery for weight management) are defined as specialised services and were previously commissioned by NHS England. From April 2016, these responsibilities were devolved to CCGs. Surgical intervention has been shown to be more effective than non-surgical options after a person has received intensive non-surgical treatment. Weight loss is more likely to be maintained in the longer term. There is no current data. Modelled data undertaken by NHSE England indicate that approximately 2,588 patients may be eligible for surgery.

1.5 Patient Voice

Several engagement activities have been conducted across the county and within existing weight management services. Many patients and services users are positive about their experience and have reported positive health outcomes. Countywide consultations have found that people would like better information on services that can support healthy lifestyles. People have also wanted more emphasis on helping individuals and communities to help themselves – supporting 'self-care'

Child weight management services have found to be supportive for many families, although they have also been criticised for singling out overweight children. The overall satisfaction level within Slimming World was very high with 91% of participants saying they would recommend the service to a friend or family member who wanted to lead a healthier lifestyle.

In 2015/16 Patient satisfaction (based on feedback from patients who completed the end of treatment questionnaire) within the Tier 3 SWSM continued to be high with 97% of patients reporting finding the service useful on their end of treatment questionnaire, with 69% of patients giving the highest satisfaction rating possible, an increase of 8% compared to the previous year.

1.6 What currently works?

The evidence base on effective action to tackle obesity remains weak, and skewed towards individual level downstream approaches (trying to manage the consequences of obesity rather than more upstream approaches, which attempt to solve the real problems underpinning obesity).

Addressing obesity will necessitate the establishment of new social norms around eating and physical activity and, given the complex interplay of determinants most experts agree

that a 'whole system approach' needed. Currently there are very few examples around the world of successfully reversing the trend despite over a decade of intervention.

These approaches require the involvement of all organisations from across local systems that tackle the determinants for obesity and look at whole population approaches that tacle the obesogenic environment. Gloucestershire is currently one of five pilot sites working alongside Leeds Beckett University and a Public Health England to understand how a whole system approach can be applied in practice.

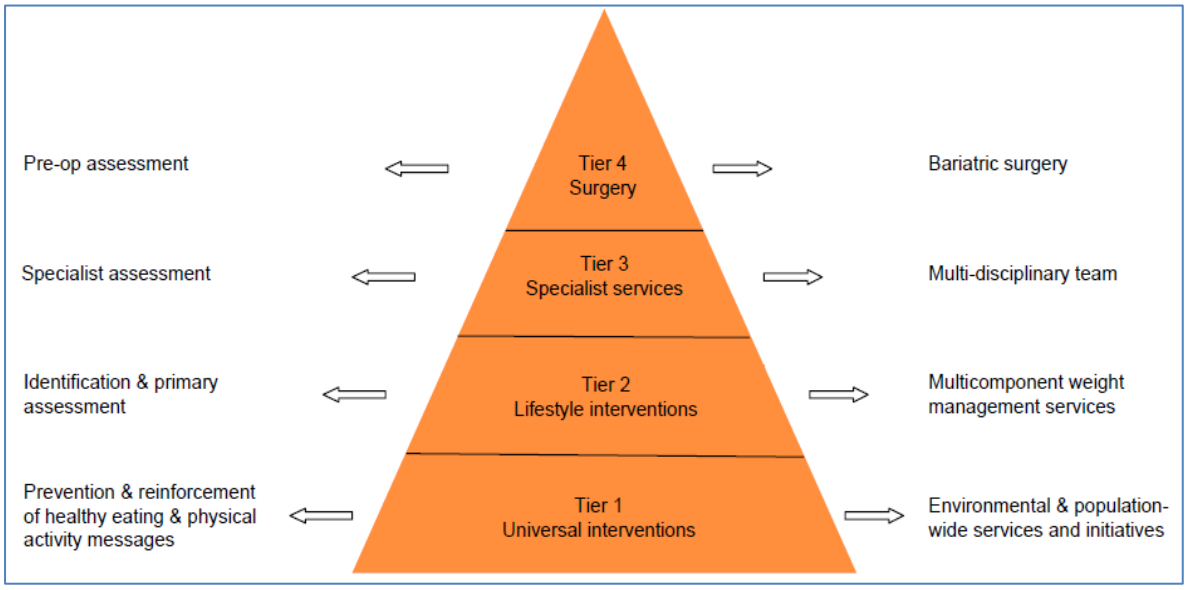


Figure E - Hierarchical model illustrating the difference tiers that can be adopted in tackling obesity

Within the UK, a four-tiered approach is adopted to achieve and maintain healthy weight for both adults and children and young people: the Obesity Care Pathway. As the severity of excess weight increases, a higher tier of intervention is required and advocated. A wealth of evidence has been produced by NICE to support the prevention and treatment of obesity across the life course (see appendix 6). Much of the evidence to support overweight children and adults highlights the importance of multi-component approaches that tackle diet, physical activity and behaviour change.

2.0 RECOMMENDATIONS

Recommendation 1: Embed healthy weight as a strategic priority across local organisations and agencies

Gloucestershire Health and Wellbeing Board, working with partner organisations, wider stakeholders, communities and Leeds Beckett University* should:

- Develop a long term strategy and action plan for the prevention and management of overweight and obesity across the life course in Gloucestershire. This will adopt a 'whole systems approach' and will evolve in line with emergent learning from the national programme
- Establish robust governance arrangements for the healthy weight agenda
- Policy and decision makers to embed the healthy weight agenda into all relevant strategies and plans, commissioning contracts and policies including planning and licencing agreements
- Ensure the promotion of healthy weight within existing commissioned services

*Lead organisation for the national 'Whole Systems Approach' Obesity Programme (2015-18)

Recommendation 2: A comprehensive healthy weight framework for children and young people should be developed that includes universal and targeted provision.

- Promote and encourage healthy weight throughout the first 1001 days of life
- Promote and support women to initiate and continue any breastfeeding for the first six months
- Restrict unhealthy food on offer in schools and promote healthy eating and food skills e.g. budgeting, menu planning and cooking in curriculum activities
- Develop innovative approaches to engage with families to encourage uptake of healthy weight services and interventions including the NCMP
- Ensure that sufficient action is in place to mitigate the reduction in physical activity levels across children and young people as they age
- Ensure that sufficient action is in place to mitigate the risks to nutrition across children and young people as they age e.g. skipping breakfast, more unhealthy snacks, fewer portions of fruit and veg
- Work with safeguarding leads to agree a local policy for issues around safeguarding and obesity
- Ensure a seamless weight management pathway is place for children and young people that include the provision of Tier 2 family weight management support and a Tier 3 multidisciplinary specialist weight management service.

Recommendation 3: Ensure a patient-centred healthy weight care pathway, integrated across the community, for tiered levels of obesity for adults

- Develop a maternal obesity care pathway that aligns with NICE guidance
- Improve promotion and targeting of services to those groups with greatest health need and ensure that services are accessible and appropriate for these communities including: people living in less affluent communities; people with physical disabilities; people with learning disabilities; people with mental health problems; people of South Asian, Chinese, black African or African-Caribbean descent
- Ensure that the healthy weight pathway accommodates the preferences of both genders and young as well as older adults
- Ensure healthy weight services adopt a whole family approach as well as taking account of the key role of 'significant others' or carers
- Ensure that the healthy weight pathway details how patients/service users should move through the pathway and between services i.e. step down into community support etc.
- Ensure that the healthy weight pathway is integrated into other clinical care pathways to ensure a holistic model of person-led care i.e. mental health, CVD, Diabetes, MSK, Pre-diabetes etc. This should also include integration within other health behaviours such as smoking and alcohol intake etc.
- Bariatric surgery should be considered for those patients/service users who would benefit and meet the criteria stated within the locally defined bariatric surgery policy.

Recommendation 4: Co-ordinate preventative activity using a 'settings' and 'placed based approach' which focuses on empowering local communities and co-ordinating action across schools and workplaces to promote healthy living

- Ensure that preventative activity is commissioned that is proportionate to the level of disadvantage and targets areas of greatest need
- Support interventions that encourage healthy workplaces i.e. Workplace Wellbeing Charter
- Co-ordinate whole-school approaches to promote healthy eating and physical activity i.e. Gloucestershire Healthy Living and Learning
- Local authorities and NHS commissioners should ensure that healthier choices are included in catering contracts and vending, and are promoted through pricing and educational initiatives
- Implement a whole system and community change approach to increasing physical activity levels across the county

Recommendation 5: The local workforce should be given the skills, knowledge and confidence to support individuals to achieve or maintain a healthy weight

- Provide training for all health and social care professionals and voluntary sector workers where appropriate, to be trained in initiating conversations about healthy weight and healthy behaviours, brief intervention and motivational interviewing i.e. MECC
- Work with health professionals to identify ways of making the most of opportunities to raise weight management and signpost to services and support. This might include NHS Health Checks and other times when BMI, blood pressure, or blood glucose is measured, during or after a stop smoking attempt, when prescribing antipsychotic medication, and during referral and assessment for surgery.
- Encourage health professionals and patients to identify ways in which patients can do more to help themselves through promotion of digital and self-help resources and identify ways to promote access to alternative options to Slimming World at Tier 1 and Tier 2 including Health Trainers and local exercise on referral schemes.

Recommendation 6: Improve the quality of data on weight managements services and obesity across the life course

- Improve quantitative and qualitative data collection across all services in the pathway so that information about those who do not attend services is collected, and information about patient co-morbidities and longer term weight loss and maintenance is available.
- Improve the data quality of adult obesity in primary care to ensure that progress can be monitored against the local obesity plan
- Ensure high quality and consistent evaluation of all weight management, diet and physical activity interventions (including pilot programmes) that support future commissioning decisions
- Further interrogate Gloucestershire's online pupil survey to understand the needs of pupils around healthy eating, physical activity and mental health and wellbeing

Recommendation 7: Develop an Infrastructure and environment that promote healthy eating and encourages physical activity

- Consider the consequences of planning decisions on the health and wellbeing of communities (i.e. Health Impact Assessments)
- Develop an environment that promotes physical activity as part of daily life e.g. a sustainable transport network that makes walking and cycling the default form of travel around our communities
- Promote active travel to work and school e.g. through Bike to Work Schemes

Recommendation 8: Marketing and communications

- Ensure a co-ordinated approach to communicate preventative activity and weight management services to the public. This could include a central point of information (a countywide directory) on public sector and VCS services and activities available (regarding diet, exercise and healthy lifestyles) – to be accessible to the public, GPs and other clinicians, frontline workers as well as communities.
- Consider a consistent approach to the type of language and media used to communicate about obesity, tailoring language to the situation and co-producing communications with intended audiences
- Include actions to adopt a principle of 'first do no harm' and to reduce stigma around overweight and obesity

3.0 PURPOSE AND SCOPE

This needs assessment seeks to provide local and national quantitative and qualitative evidence to inform a strategic and whole systems approach to reducing obesity in Gloucestershire.

The scope of this assessment is to:

- Identify the need through a review of the prevalence and experience of obesity across the life course using
  - epidemiological data and prevalence of obesity
  - national evidence of what works
  - identify the needs of the people in Gloucestershire in relation to healthy lifestyles
  - Patient and community voice
  - identify services currently provided and what works well
- Make recommendations to commissioners, policy makers and service providers for what happens next.

This Health Needs Assessment is a 'live' document and will be updated as new evidence becomes available.

3.1 BACKGROUND

Obesity is a global public health problem and the UK has the highest rate of child obesity in Europe. England has been hailed as the 'fat man of Europe'.

Obesity is a complex issue influenced by many factors. While at an individual level the main causes are poor diet and sedentary lifestyles, the Foresight report (2007) identified over 100 "wider determinants" of individual, and family eating and physical activity habits. These include the food and physical activity environments in which people live, work and play; their income; education; occupation and mental health and wellbeing.

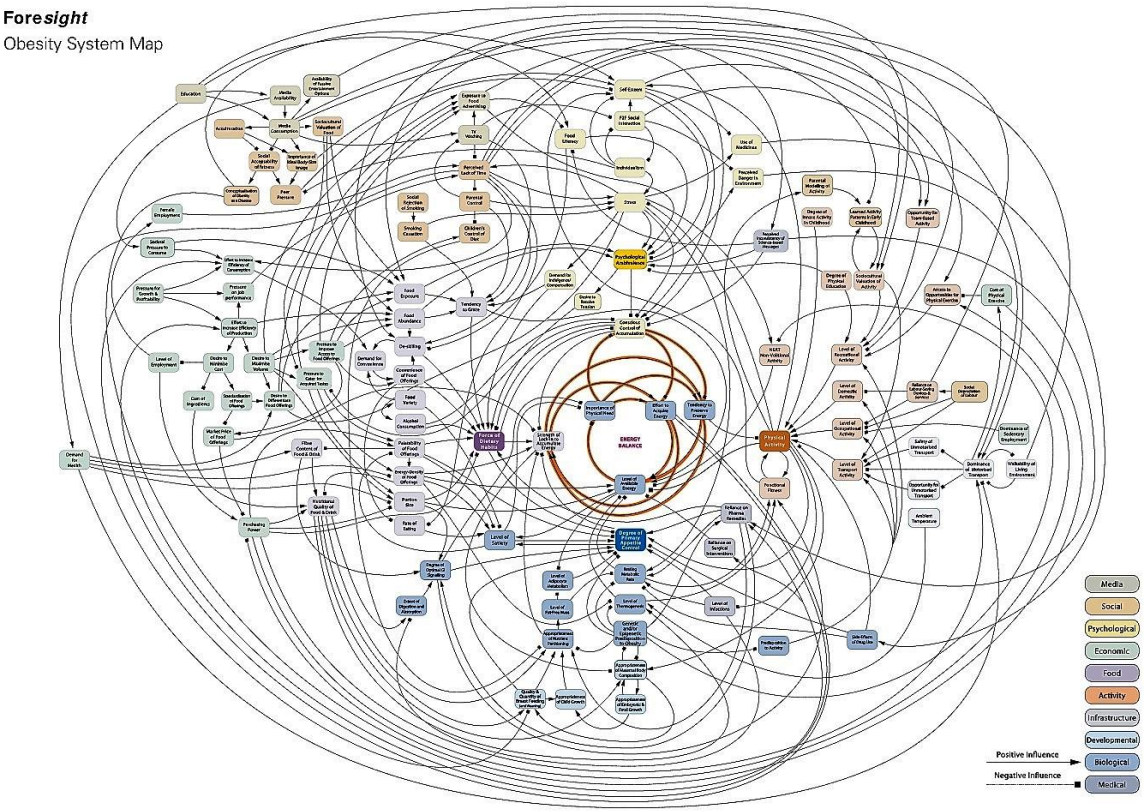


Figure 1 – Foresight Obesity System Map

Over the last 20-30 years society has become characterised by environments and lifestyles that promote the consumption of high calorie food and drink, and sedentary behaviour so it is now widely agreed that obesity is a normal 'passive' biological response to these changes.

There is a significant association between parental and child obesity with children within households where both parents are obese being at significantly greater risk than those living in households where neither, or only one parent, is obese. This highlights the influence of family behaviours on child obesity.

Addressing obesity will necessitate the establishment of new social norms around eating and physical activity and, given the complex interplay of determinants most experts agree that a 'whole system approach' needed. Currently there are very few examples around the world of successfully reversing the trend despite over a decade of intervention.

There is overwhelming evidence of the costs of obesity to individuals, families and wider society:

Compared with a non-obese man, an obese man is:

- five times more likely to develop type 2 diabetes
- three times more likely to develop cancer of the colon
- more than two and a half times more likely to develop high blood pressure – a major risk factor for stroke and heart disease.

An obese woman, compared with a non-obese woman, is:

- almost thirteen times more likely to develop type 2 diabetes
- more than four times more likely to develop high blood pressure
- more than three times more likely to have a heart attack.

BMI is a strong predictor of mortality among adults.

- moderate obesity (BMI 30-35 kg/m2) was found to reduce life expectancy by an average of three years,
- morbid obesity (BMI 40-50 kg/ kg/m2) reduces life expectancy by eight to ten years. This eight to ten year loss of life is equivalent to the effects of lifelong smoking.

These are the estimated effects of becoming obese by middle age, the effects on life expectancy of becoming obese in childhood have not yet been precisely estimated.

For people with severe obesity the risk of dying from stroke was 6.5 times higher and their risk of dying from diabetes was 22.5 times higher than the general population.

BMI had a positive association with systolic and diastolic blood pressure throughout the range 15 to 50 kg/m2. On average across all ages (15 to 89 years), each increase in BMI of 5 kg/m2 was associated with an increase of at least 5 mm Hg systolic blood pressure and around 4 mm Hg diastolic blood pressure.

Obesity was strongly associated with diabetes, the sex-specific prevalence increasing more than five-fold over the BMI range 15 to 50 kg/m2 (from 2.8% to 11.4% for men; from 1.8% to 10.3% for women), most of this increase occurring above 25 kg/m2. Data from the Health Survey for England 2006 [8] show a similar picture, although based on a small sample size and self-reported diagnosis of diabetes. Amongst adults for whom both BMI and diabetes status was reported, the prevalence of diabetes amongst those with normal weight (BMI 18.5 to 25 kg/m2) was around 1.5%, increasing to 15% in the severely obese.[7]

4.0 POLICY CONTEXT

4.1 NATIONAL POLICY CONTEXT

Childhood Obesity: A Plan for Action (2016) sets out the Government's approach for reducing childhood obesity over the next decade. The plan aims to significantly reduce England's rate of childhood obesity within the next ten years, meaning fewer obese children in 2026 than if obesity rates stay as they are through:

[7] See http://www.noo.org.uk/NOO_about_obesity/severe_obesity

- Introducing a soft drinks industry levy (the revenue from the levy will be invested in programmes to reduce obesity and encourage physical activity and balanced diets for school age children including: increasing the Primary PE and Sport Premium and investing in school healthy breakfast clubs. Allocations will be proportionate to local deprivation).
- Challenging the food industry to reduce overall sugar across a range of products that contribute to children's sugar intakes by at least 20% by 2020
- Developing a new framework to help families to recognise which food and drink products are healthier and which are less healthy
- Making healthy options available in the public sector e.g. ensuring that every public sector setting, from leisure centres to hospitals, has a food environment designed so the easy choices are also the healthy ones.
- Re-committing to the Healthy Start scheme, which provides support towards the cost of healthy food for eligible pregnant women and those with young children
- Helping all children to enjoy an hour of physical activity a day. At least 30 minutes should be delivered in school every day through active break times, PE, extra-curricular clubs, active lessons, or other sport and physical activity events, with the remaining 30 minutes supported by parents and carers outside of school time.
- Creating a new voluntary healthy rating scheme for primary schools to recognise and encourage their contribution to preventing obesity by helping children to eat better and move more. This scheme will be taken into account during Ofsted inspections
- Making school food healthier by encouraging all academies to commit to the 2015 school food standards and funding the expansion of healthy breakfast clubs
- Providing clearer visual food labelling, for example, clarifying which sugars are unhealthy
- Developing revised nutrition guidelines for early years settings and delivering a campaign to raise awareness of these guidelines, and the guidelines for physical activity in the early years among both early years practitioners and parents
- Harnessing new technology to support healthier choices e.g. Change 4 Life sugar app
- Enabling health professionals to support families by always talking to parents about their family's diet, working towards making it the default to weigh everyone, referring people to local weight management services, clubs and websites if they ask for more advice.

4.2 LOCAL STRATEGIC CONTEXT

There has been work on-going for a number of years to start to help people take more control over their lives to achieve and maintain a healthy weight.

The Gloucestershire Health and Wellbeing Strategy highlighted obesity as a priority area (Glos 2012) and a 'healthy weight delivery plan' is in place setting out local priorities for action from 2016-19.

In addition the five year Sustainability and Transformation Plan (STP) for Gloucestershire has identified obesity as a priority area. It reiterates the need to work in partnership to deliver whole system approach to prevention through empowering individuals and enabling active communities.

Gloucestershire is one of four areas working with Leeds Beckett University on a national programme to co-develop a whole system approach to addressing obesity. The aim is to co-create a roadmap that all local authorities will be able to use to help implement whole systems approaches based on what works for local authorities, drawing on national and international evidence, learning and practice.

5.0 GLOUCESTERSHIRE DEMOGRAPHICS

According to the Office of National Statistics (ONS) 2014 mid-year estimates (released June 2015), there are 611,332 residents of Gloucestershire, of which 123,806 are aged under 18. Gloucestershire has a lower proportion of 0-19 year olds and 20-64 year olds compared to the national average but the 65+ population exceeds the national average. ONS projections show that the population of children and young people will increase but not as significantly as the older population (aged 60+).

According to the 2011 Census, 95.4% of Gloucestershire's population is white. Gloucestershire has a small Black and Minority Ethnic (BME) population (4.6%) compared to England (14.1%); however there are variations between districts, with Gloucester having the highest BME population (10.9%).

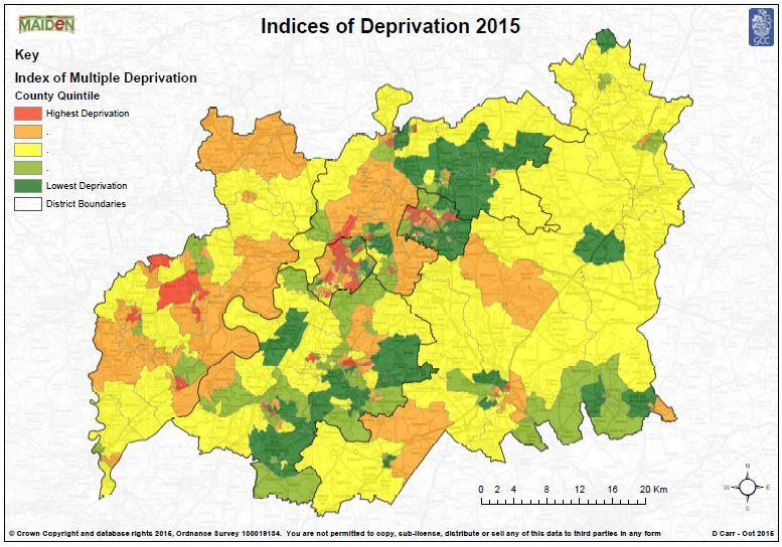


Figure 2 – Map showing areas of highest and lowest deprivation

Although Gloucestershire benefits from a high standard of living, this wealth is not evenly distributed and pockets of deprivation do exist. These can be seen in the main urban areas of Gloucester city and Cheltenham and in some of the market towns in the rural districts.

There are 13 areas of Gloucestershire in the most 10% deprived nationally for the overall Indices if Multiple Deprivation. These 13 areas account for 20,643 people - 3.4% of the county population (ONS Mid-year-estimates 2014).

LSOA	District	National Rank (1 most deprived)
Westgate 1	Gloucester	360
Podsmead 1	Gloucester	503
Matson and Robinswood 1	Gloucester	902
Kingsholm and Wotton 3	Gloucester	1,239
Westgate 5	Gloucester	1,618
Moreland 4	Gloucester	1,883
St Mark's 1	Cheltenham	2,101
Hesters Way 3	Cheltenham	2,222
St Paul's 2	Cheltenham	2,413
Barton and Tredworth 4	Gloucester	2,599
Matson and Robinswood 5	Gloucester	2,842
Barton and Tredworth 2	Gloucester	2,904
Westgate 4	Gloucester	3,065

Table 1 – Table listing the 13 areas of Gloucestershire in the most 10% deprived nationally

Further information about Gloucestershire's demographic population can be found in the Joint Strategic Needs Assessment.

6.0 EPIDEMIOLOGICAL DATA

6.1 MATERNAL OBESITY

Maternal obesity is defined as a Body Mass Index (BMI) of 30 kg/m2 or more at the first antenatal consultation. Data on the prevalence of maternal obesity are not collected routinely in the UK, but there are currently around 11 million women of childbearing age (16 to 44 years) in England, of which around 2 million (19%) are obese. Using an indicative

benchmark rate from NICE it is estimated that of these obese women, 5.3% or 110,000 women will become pregnant per year.[8]

Within Gloucestershire it can be seen that there is a greater percentage of women who have a BMI over 30 on antenatal booking in the Forest, Gloucester, South Cotswolds and Tewkesbury.

BMI as percentage of locality	No BMI	<18	18-29.99	30-34.99	35-39.99	40-44.99	45-49.99	>50
Cheltenham	0.9%	1.4%	82.5%	9.9%	3.7%	1.2%	0.4%	0.1%
Forest	0.6%	1.1%	76.8%	15.1%	5.0%	0.8%	0.6%	0.0%
Gloucester	1.4%	2.2%	73.7%	14.0%	5.4%	2.6%	0.7%	0.0%
Nth Cotswolds	2.4%	0.0%	81.7%	8.5%	6.1%	0.0%	1.2%	0.0%
Sth Cotswolds	0.7%	2.0%	77.9%	15.4%	2.0%	1.3%	0.0%	0.7%
Stroud	0.7%	1.5%	81.2%	9.6%	3.5%	2.6%	0.9%	0.0%
Tewkesbury	1.3%	3.3%	71.2%	15.0%	6.5%	2.0%	0.7%	0.0%

Table 2 - Body mass index by locality (Source: STORK April to October 2013)

There is a large body of evidence which links maternal obesity to adverse pregnancy outcomes.[9] [10] In the UK, the Centre for Maternal and Child Enquiries (CMACE) summarises these risks as follows;

- severe morbidity
- miscarriage
- cardiac disease
- spontaneous first trimester and recurrent miscarriage
- pre-eclampsia
- gestational diabetes
- thromboembolism
- post-caesarean wound infection
- infection from other causes, postpartum haemorrhage
- maternal death.[11]

Foetal risks include macrosomia, congenital anomalies, both low and high birthweight, stillbirths and childhood obesity.

Severe maternal obesity is associated with greater risks of birth complications, longer postnatal stays and wound infection. Recent evidence from the UK indicates that high

[8] *National Institute for Health and Care Excellence. Weight management before, during and after pregnancy. NICE commissioning guides [CMG36]. March 2011.*

[9] Heslehurst N, Simpson H, Ells LJ, et al. The impact of maternal BMI status on pregnancy outcomes with immediate short-term obstetric resource implications: a meta-analysis. Obesity reviews : an official journal of the International Association for the Study of Obesity 2008;9(6):635-83.

[10] Mission JF, Marshall NE, Caughey AB. Pregnancy Risks Associated with Obesity. Obstetrics and gynecology clinics of North America 2015;42(2):335-53.

[11] Centre for Maternal and Child Enquiries. Maternal Obesity in the UK: Findings from a National Project. London: CMACE, 2010.

maternal BMI is also associated with increased health service usage and healthcare costs which are discussed further in section 7.2.

Due to these risks, women with a BMI over 30 are considered for birth at a consultant unit (NICE, 200712) and if the BMI is greater than 35 women are recommended for birth in a consultant unit. The largest group of women have a BMI within a range 18 to 29.99 which is not considered to be an issue for maternity services (at present).

These health risks are reflected locally with higher risk modes of delivery being associated with a high BMI, illustrated in Figure 3. As the BMI of the woman increases, the likelihood of Lower Segment Caesarean Section (LSCS) as an emergency procedure becomes greater and has been shown increase the risk of having a life threatening event such as haemorrhage and sepsis[13]. We can see that the largest percentage of normal deliveries is seen in those with a BMI of 29.99 or less,

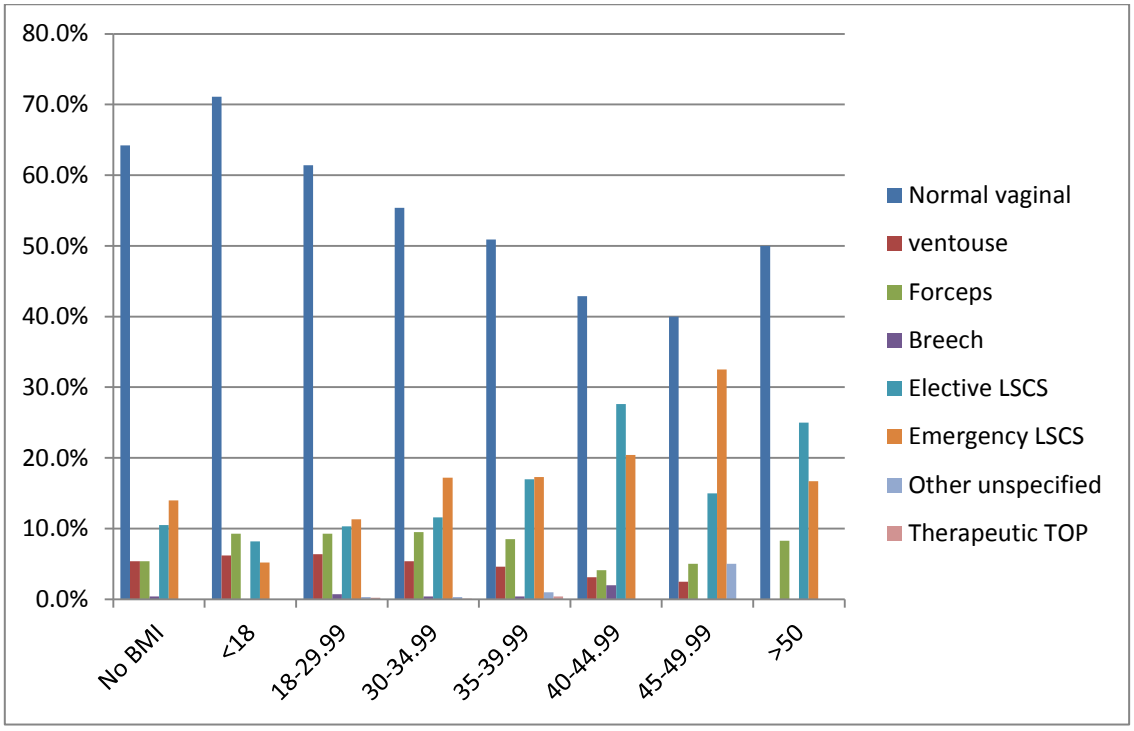


Figure 3 - Graph of Mode of birth by BMI in Gloucestershire (Source: STORK: April 12 to March 2013)

6.2 BREASTFEEDING

There is some evidence that mothers who breastfeed provide their child with protection against excess weight in later life[14]. There is also evidence that maternal obesity is

[12] NICE (2007) CG 55 Intrapartum care. NICE: London

[13] Waterstone M, Bewley S, Wolfe C: Incidence and predictors of severe obstetric morbidity: case-control study. British Medical Journal. 2001, 322: 1089-1094.

[14] McCrory and Layte (2012) Breastfeeding and risk of everweight and obesity at nine-years of age Social Science and Medicine 75(2) 323-330

associated with lower breastfeeding rates [15][16]. A recent systematic review found that maternal obesity was a risk factor for decreased intention and initiation of breastfeeding, a shortened duration of breastfeeding and a less adequate milk supply. However, socio-economic status as a potential confounding factor was not included in all studies. High gestational weight gain alongside pre-pregnancy overweight and obesity have also been linked to unsuccessful initiation and ability to sustain breastfeeding[17]

Breastfeeding rates in Gloucestershire are measured from birth, known as initiation rates and whether breastfeeding continues until 6-8 weeks. Across the county Gloucestershire does slightly better than the national average having 77.1% of mothers initiating breastfeeding compared with 74.3% nationally[18]. Table 5 shows the initiation rates in each locality with Forest and Gloucester city having the lowest rates and South Cotswolds having the highest rate of 86.8%.

Locality	Breastfeeding Initiation (Source: Stork 2013)
Cheltenham	80.7%
Forest of Dean	70.9%
Gloucester	71.0%
North Cots	81.3%
South Cots	86.8%
Stroud	82.1%
Tewkesbury	78.3%

Table 3 - Breastfeeding initiation rates per locality

The percentage of mothers who are still fully or partially breastfeeding at 6 - 8 weeks has been consistently higher in Gloucestershire than in England or the South West. In 2012/13 Gloucestershire PCT were ranked 34 out of the 151 PCTs. The breastfeeding drop off rate between initiation and 6 - 8 weeks is less in Gloucestershire than most others PCTs, in 2012/13 the drop off rate was 31.8% in Gloucestershire, 36.1 for England and 36.7% in the South West, although South west did have a higher initiation rate.

[15] Scott-Pillai R, Spence D, Cardwell CR, et al. The impact of body mass index on maternal and neonatal outcomes: a retrospective study in a UK obstetric population, 2004-2011.

[16] Marchi J, Berg M, Dencker A, et al. Risks associated with obesity in pregnancy, for the mother and baby: a systematic review of reviews. Obesity reviews : an official journal of the International Association for the Study of Obesity 2015;16(8):621-38.

[17] Winkvist A, Brantsaeter AL, Brandhagen M, et al. Maternal Prepregnant Body Mass Index and Gestational Weight Gain Are Associated with Initiation and Duration of Breastfeeding among Norwegian Mothers. J Nutr 2015;145(6):1263-70.

[18] http://fingertips.phe.org.uk/profile/cyphof/data#page/3/gid/1938132969/pat/6/par/E12000009/ati/102/are/E10000013/iid/20201/age/1/sex/2/nn/nn-1-E10000013

Organisation	2009/10	2010/11	2011/12	2012/13
NHS Gloucestershire	47.3%	49.0%	51.9%	50.6%
England	44.7%	46.1%	47.2%	47.2%
South West	48.0%	48.7%	49.7%	49.3%

Table 4 - Breastfeeding on rates at 6-weeks Gloucestershire, South West and England between 2010-2013

A systematic review found no clear association between the age of introduction of solid foods and obesity. They advised that it is likely that a whole family approach to obesity prevention will be most effective and health professionals should continue to promote healthy infant feeding in line with national recommendations[19] .

Gloucestershire's breastfeeding needs assessment:

Draft breastfeeding needs assessment.dc

6.3 CHILD OBESITY

At present the health risks of obesity are more common in adults but the increase in the proportion of overweight and obese children is a major medical concern. Problems are likely to develop earlier if obesity continues from childhood into adult life. Evidence shows that growth in early life influences later risk of obesity and that many risk factors for developing obesity originate during childhood.[20] It has also been widely documented that obesity in children can lead to the development of asthma, psychosocial morbidity, orthopaedic and cardiovascular problems as well as increased risk of obesity in adulthood.[21] In addition to these health risks, children who are obese have lower levels of physical fitness, suffer from discrimination, low self-esteem and lower quality of life.[22]

Of particular concern is the increasing number of overweight and obese children and young people with current estimates suggesting that by 2050 nearly 25% of children in the UK will be obese and nearly 40% will be overweight (Foresight 2007). Data for child obesity comes from the National Child Measurement Programme (NCMP) for England that records height and weight measurements of children in Reception (aged 4-5yr) and Year 6 (aged 10-11yr) enabling analysis of prevalence and trends in childhood obesity levels.

[19] Moorcroft, Marshall, McCormick Association between timing of introducing solid foods and obesity in infancy and childhood: a systematic review. Maternal and Child Nutrition 7(1):3-26
[20] Brisbois TD, Farmer AP, McCargar LJ. Early markers of adult obesity: a review. Obes Rev 2012;13(4):347–67.
[21] Freidemann C, Heneghan C, Mahtani K et al. Cardiovascular disease risk in healthy children and its association with body mass index: systematic review and meta-analysis. BMJ 2012;25:345.
[22] Reilly JJ. Descriptive epidemiology and health consequences of childhood obesity. Best Pract Res Clin Endocrinol Metab 2005;19(3): 327–41.

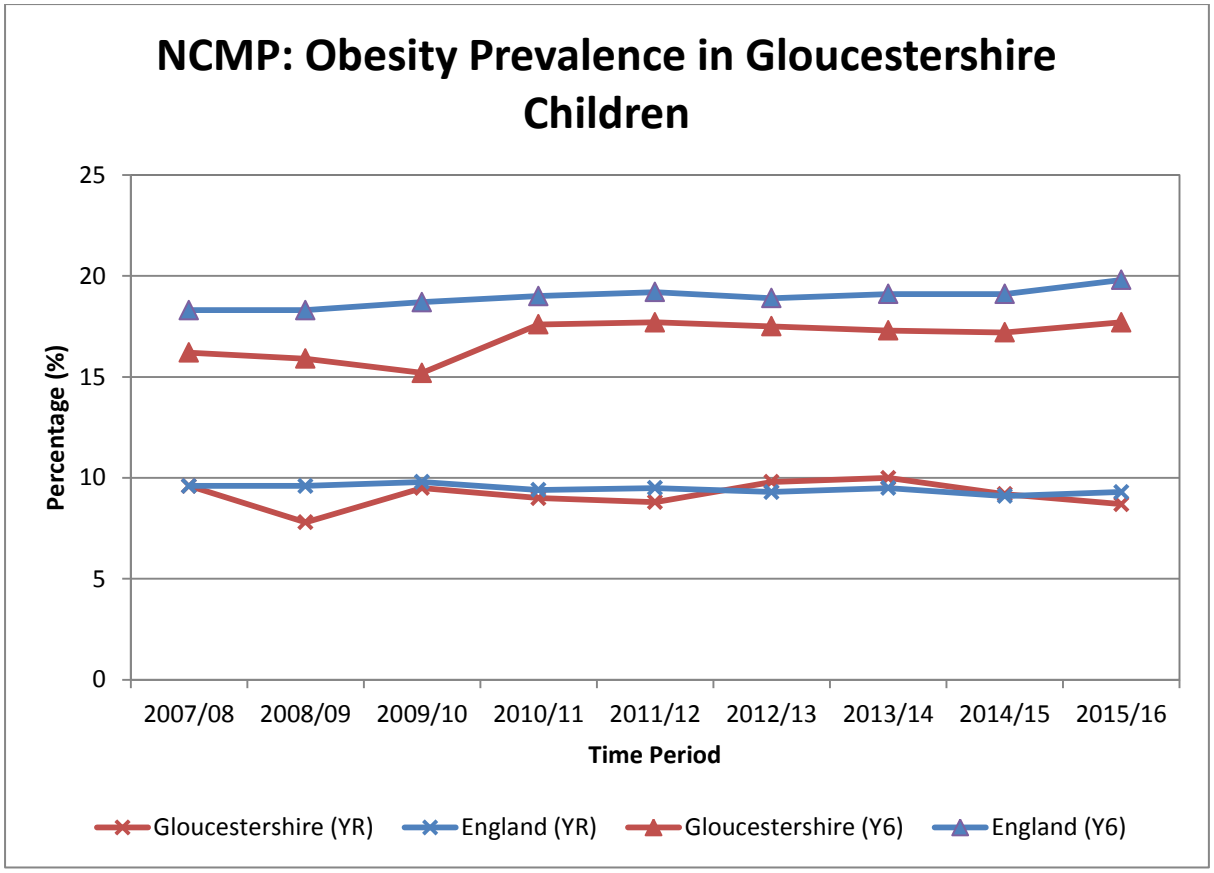


Figure 4 – Prevalence of obesity in Gloucestershire children in Reception and Year 6

Locally and nationally, children are more likely to be obese in year 6 rather than reception, see figure 3. Over the past 9 school years, obesity levels for Gloucestershire reception children have fluctuated slightly, but have generally remained less than 10% and this year (2015/16) is below the national average. For the same time period, obesity in Gloucestershire year 6 children has risen slowly from 15% in 2009/10 to 17.7% this year in line with the national trend. This data equates to approximately one in twelve children in Gloucestershire are obese in reception doubling to one in six by the time they reach year 6.

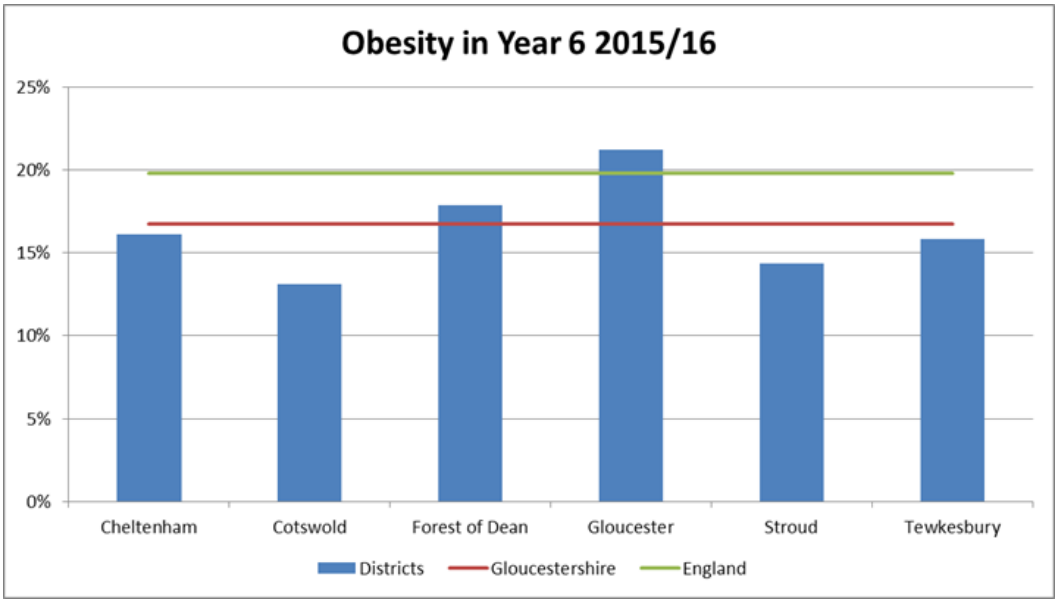


Figure 5 - Childhood obesity prevalence by District Source NCMP Data

There are differences in the prevalence of obesity within the districts of Gloucestershire. Gloucester and Forest have the highest levels of obese children with levels above the county average. Cotswold and Stroud have the lowest rates of obese children in year 6. This is consistent with the national picture linking obesity with deprivation. Obesity prevalence is strongly correlated with deprivation and is highest in the most deprived areas. Figure 8 below illustrates deprivation in five groups or quintiles for year 6 pupils only.

Deprivation

The Foresight report and others identify strong correlation of obesity with deprivation. There are significant inequalities in obesity prevalence for children, both girls and boys, and across different age groups. The pattern of socioeconomic inequalities is consistent across a

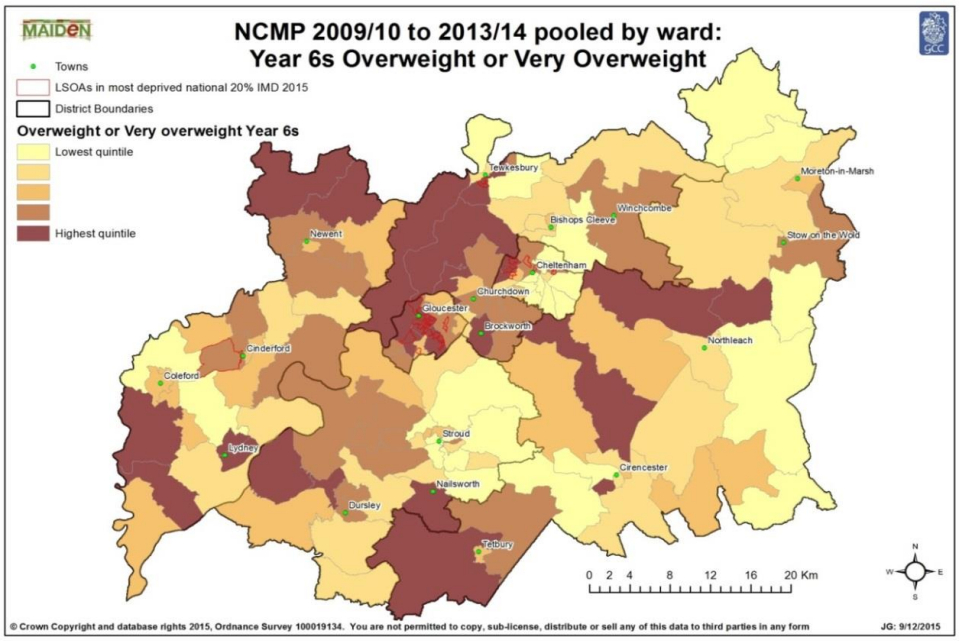


Figure 6 – Map illustrating NCMP 2009/10 to 2013/14 pooled data by ward

variety of different measures of deprivation using two different data sources: the National Child Measurement Programme (NCMP) and the Health Survey for England (HSE).

Figure 4 identifies areas of highest deprivation with areas of highest levels of excess weight. The wards known to have highest levels of deprivation are outlined in red which it can be seen are also areas with highest levels of excess weight; wards in Gloucester city, Cheltenham, Tewkesbury and Forest.

Gloucestershire is not significantly worse or better than its benchmarked peers in terms of deprivation quintiles during 2015-16 where 17.7% (more than 1 in every 6 children) of children 10-11 years old were classed as obese. See here.

However, Gloucestershire is significantly worse when compared against its statistical IMD15 neighbours for obese children at 4-5 years old but is similar to the England rate. See here.

Figure 6 shows the prevalence of obesity by deprivation quintile for year 6 pupils illustrating that the greatest number of obese children are in the areas of highest deprivation.

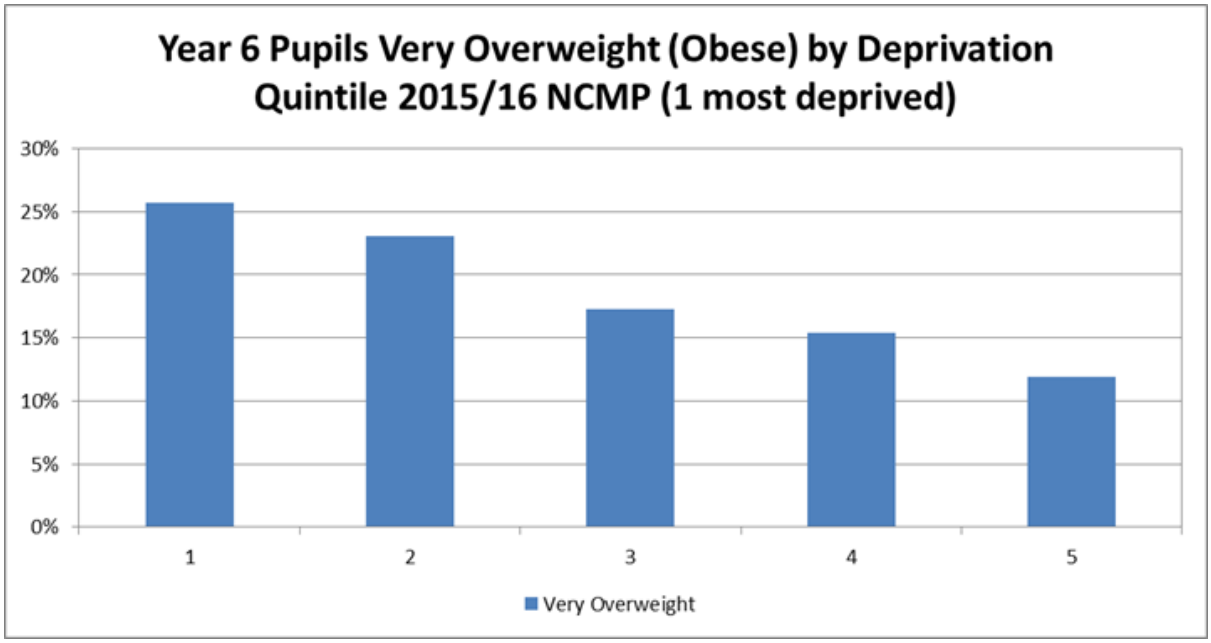


Figure 7 - Prevalence of obesity by quintile in Year 6 (aged 10–11 years) children, 2015/16

Ethnicity

National data indicates that Boys in Year 6 from all minority ethnic groups are more likely to be obese than White British boys, with boys of Bangladeshi, Asian Other, Pakistani and Any Other ethnic group having the highest prevalence. For girls in Year 6 obesity prevalence is highest for children from Black African and Black other ethnic groups.

In Gloucestershire, the prevalence of obesity by ethnic group among children in Year 6 also shows the highest proportion of very overweight children to be in the Black and Asian ethnic groups. See figure 7.

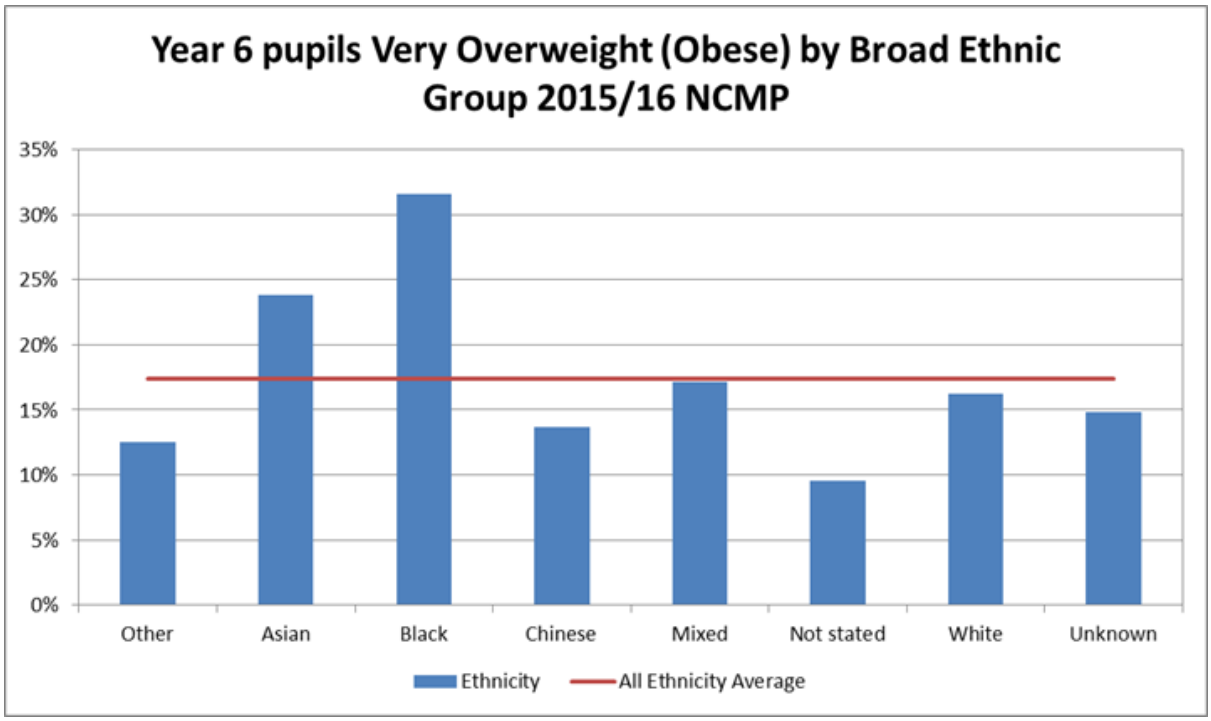


Figure 8 - Graph illustrating Year 6 children who are overweight or very overweight by ethnic group in Gloucestershire

There is no straightforward relationship between obesity and ethnicity. There is a continuing debate about the applicability of definitions of obesity across ethnic groups for adults and children. There is evidence that, for a given BMI, the average proportion of body fat differs between ethnic groups suggesting that ethnic specific thresholds may be needed. In children, this issue is further complicated by differences between groups in the rate of maturation up to and during adolescence. Some of these differences may also be due to the influence of factors such as deprivation.

Gloucestershire's Mental Health and Wellbeing Needs Assessment for children can be found here:

Appendix 3
Gloucestershire Need

6.4 ADULT OBESITY

6.4.1 National prevalence

Data collection on adult obesity is not as robust as children. At present, modelled national and regional data is available by the Health Survey for England and the Active People Survey.

One in four men is obese (24.7%) and one in four women is obese (24.9%). More recently the rise appears to be flattening off – but this still means that one in four adults in England is obese.

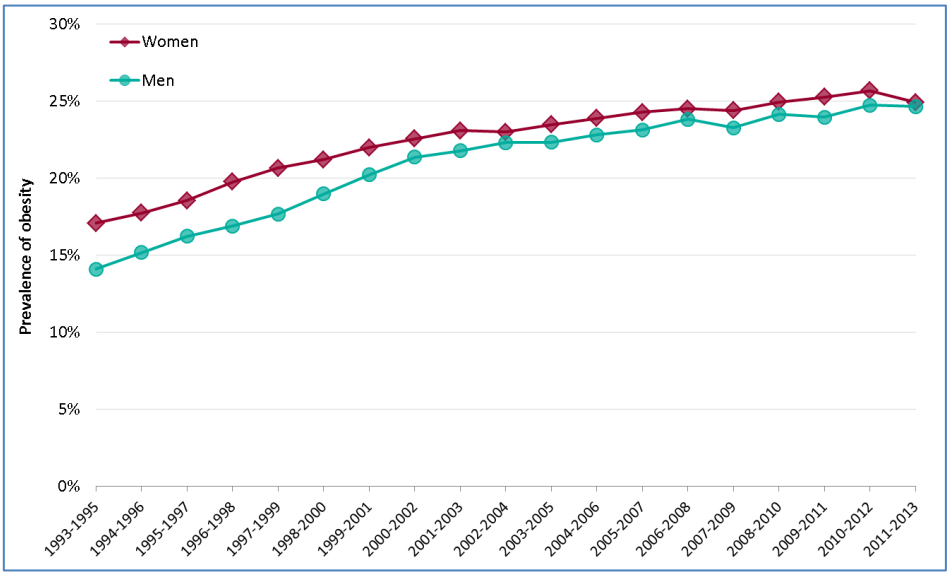


Figure 9 - Trends in obesity prevalence among adults from the Health Survey England 1993-2013 (3-year average)

Similarly, the Health Survey for England data also show that between 1993 and 2013, the prevalence of severe obesity has increased steadily, a trend that seems to have plateaued in recent years. Severe obesity was consistently higher among women (increasing from 1.4% in 1993 to 3.9% in 2013) than among men (increasing from 0.2% in 1993 to 1.6% in 2012).

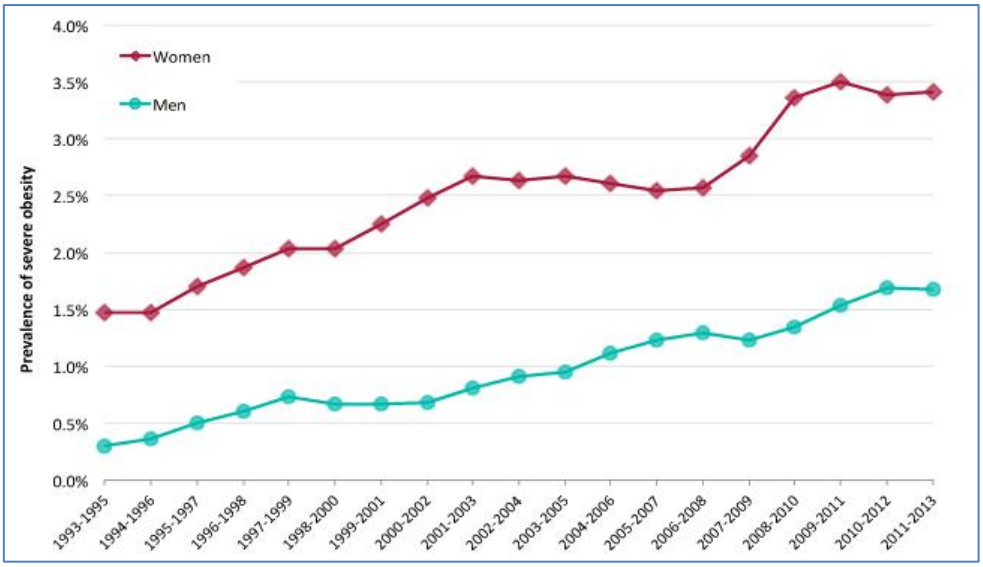


Figure 10 - Prevalence of severe obesity among adults 16+ Adult (aged 16+) obesity: BMI ≥ 40kg/m2 Health Survey for England 1993-2013 (3-year average)

Obesity does not affect all groups equally. For example, it is more common among older age groups, some minority ethnic groups, people with disabilities, people with mental health problems and people from more deprived areas, as illustrated by Figure 9:

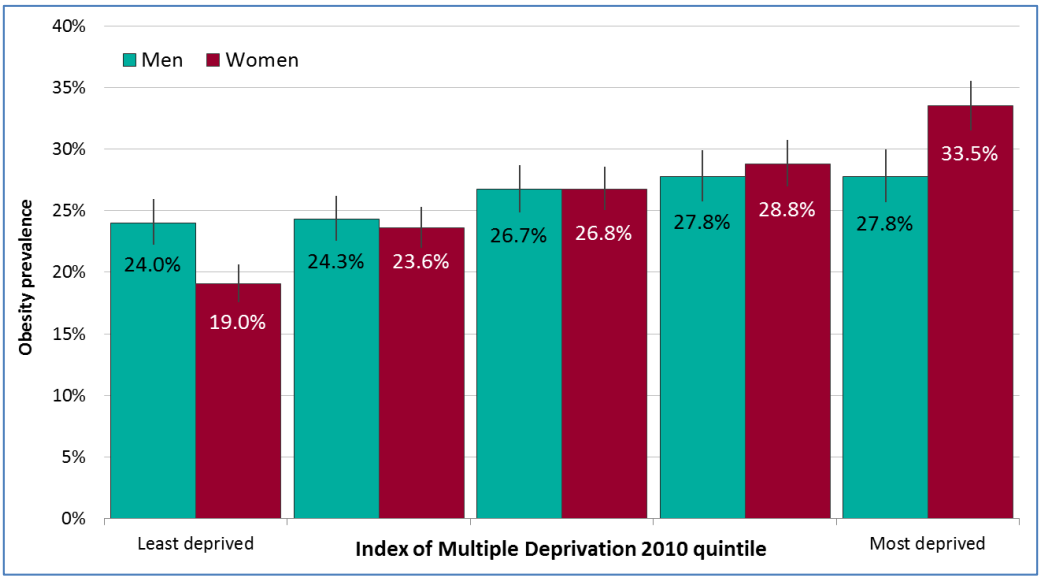


Figure 11 - Adult obesity prevalence by deprivation (Adult (aged 16+) obesity : BMI ≥ 30kg/m2) 95% confidence intervals[23]

More information and analysis is available in the Adult Obesity and Socioeconomic Status data factsheet, available to download at http://www.noo.org.uk/NOO_pub/Key_data.

[23] The analysis for this chart was produced using Health Survey for England data from the UK Data Archive: http://www.data-archive.ac.uk/.

The strong associations between lower socio-economic status (income, education, employment status and tenure) and comorbidity, having controlled for demographic characteristics, reinforces the need to concentrate health promotion and health policy efforts on reducing social inequalities rather than behavioural characteristics alone. [24]With regard to smoking, smokers have a lower risk rate of obesity (and related comorbidities) than ex-smokers relative to individuals that never smoked.

6.4.2 Local prevalence

In order to quantify obesity prevalence at local authority level Public Health England (PHE) used pooled data from the Health Survey for England 2012- 2014. PHE have performed extensive analysis to quality assure the data and by making comparisons with measured data from the Health Survey for England have developed a methodology to adjust self-reported height and weight measures to reduce the impact of inaccurate reporting.

According to this methodology 23.5% of adults (18 and over) in Gloucestershire are obese – using ONS 2014 population estimates this means 114,714 obese adults in our county.

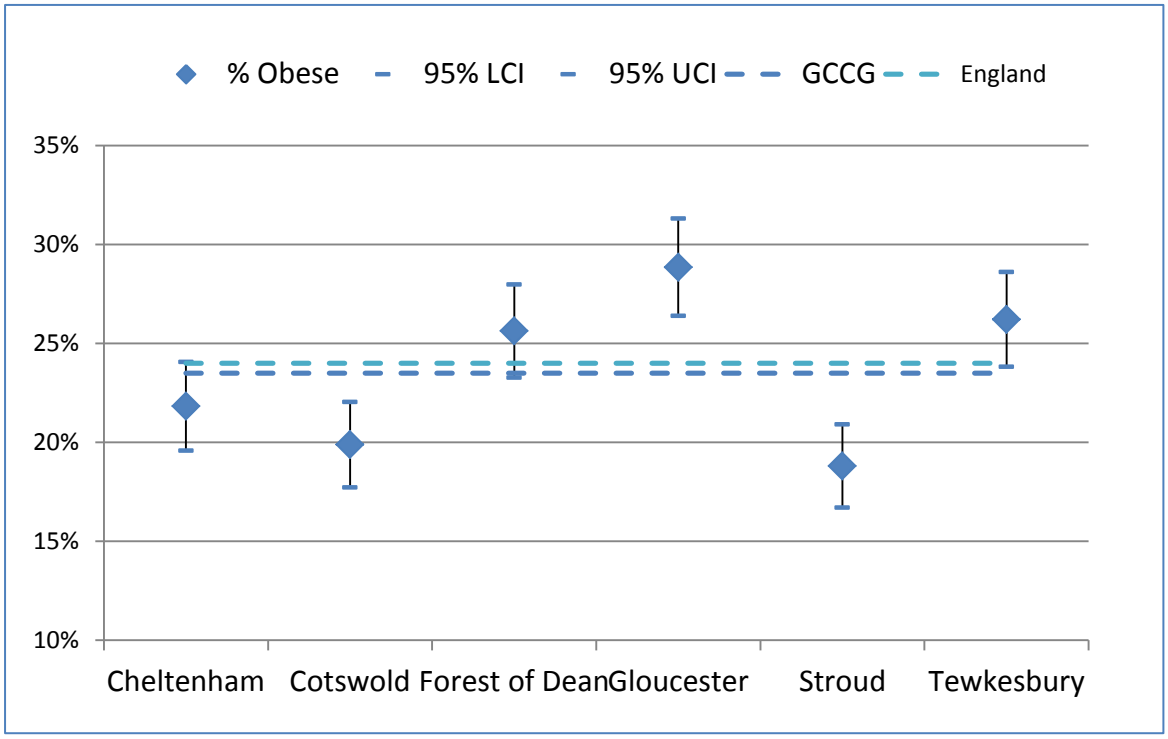


Figure 12 - % Obese (BMI > 30) Gloucestershire districts 2012-14

Gloucester has the highest prevalence, with 29% of adults obese – statistically significantly worse than both the national and the Gloucestershire average. 26% of adults are obese in both the Forest of Dean and Tewkesbury. There is significant local variance in obesity levels -

[24] Morrissey, K. (2015) A Multinomial Model for Comorbidity in England of Longstanding CVD, Diabetes, and Obesity. Health and Social Care in the Community.

the local authority area with the lowest prevalence is Stroud, with 19% of adults obese. This might mean a targeted, place-based approach to commissioning services needs to be considered in order to ensure the biggest impact in terms of health improvement.

As well as obesity, it is worthwhile looking at levels of excess weight (BMI 25 – 29.9), as weight has shown to increase with age, and this could be a predictor of future local obesity trends.

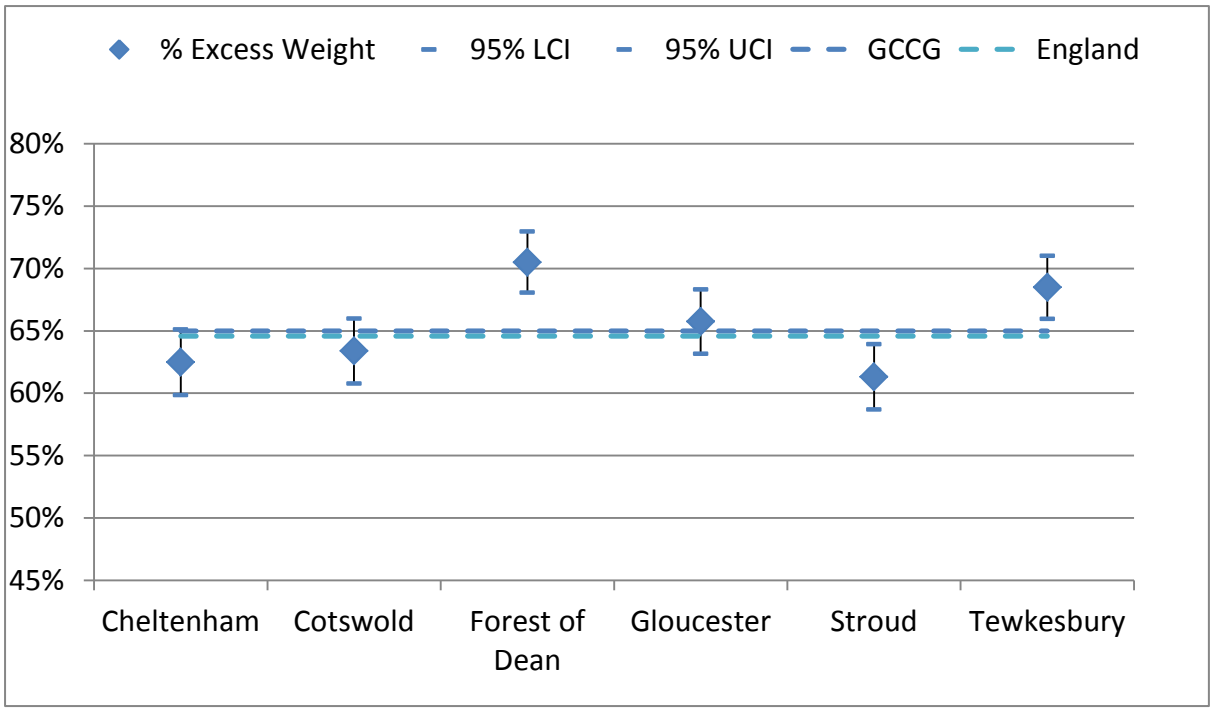
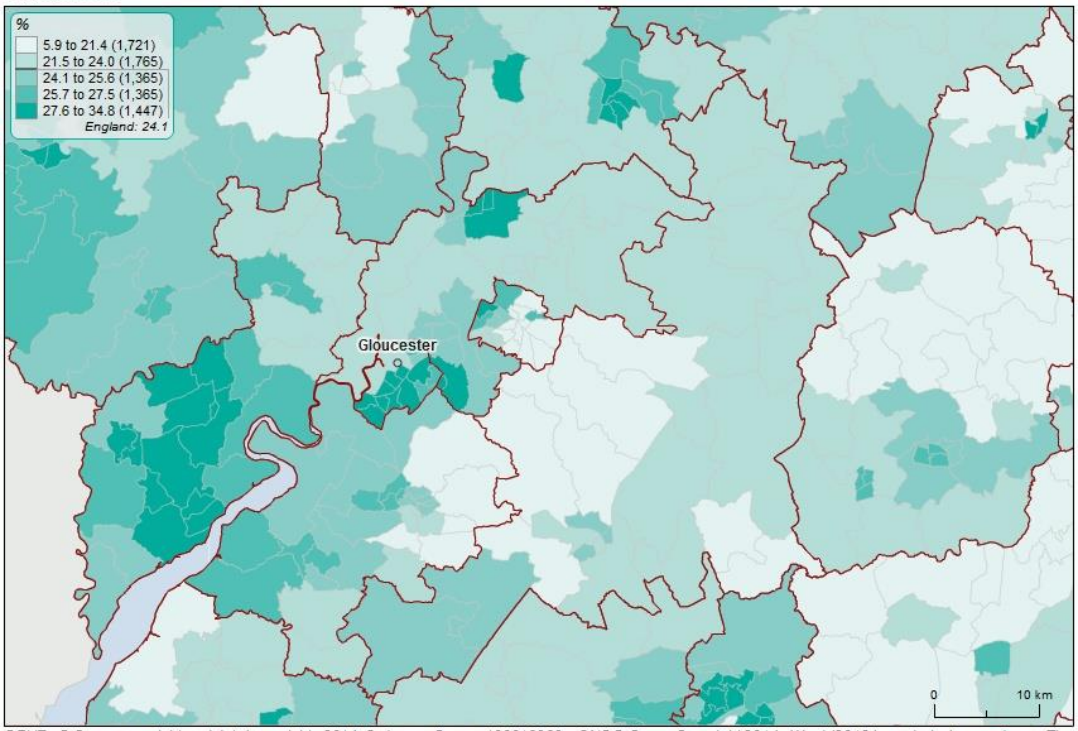


Figure 13 - Excess weight (BMI 25 – 29.9) Gloucestershire districts 2012-14

Even though Gloucester has the highest rate of obesity prevalence, the Forest of Dean (71%) and Tewkesbury (68%) have the highest percentage of adults with excess weight, both statistically significantly worse than the national and Gloucestershire average.

Sample sizes of national surveys such as the Health Survey England and Active People Survey do not normally allow for a reliable picture of adult obesity at the local level beyond district council level. PHE has produced the following modelled estimate, using pooled data:

Percentage of the population aged 16+ with a BMI of 30+, modelled estimate, 2006-2008 - *source: Public Health England, NHS IC © Copyright 2010*



©PHE - © Crown copyright and database rights 2014, Ordnance Survey 100016969 – ONS © Crown Copyright 2014 - Ward (2013 boundaries) — *Lower Tier Local Authority*

Figure 14 – Percentage of the population aged 16+ with a BMI of 30+

Some local data is also available from the Quality and Outcomes Framework (QOF), however this data are highly influenced by other factors, such as the proportion of registered patients who visit the practice over a 15 month period, the proportion of these patients that have their BMI measured by the GP, and how many of those identified as obese are correctly coded as such on the practice IT system. The data are also not age-adjusted. The data are therefore not considered representative of true prevalence, but broadly mirror the picture of local variance as outlined above.

The GP recorded prevalence of obesity in adults aged 16+ in 2014/15 was 8.9% in Gloucestershire (England 9%, Peers 8.8%) – a total population of 46,306[25]. There is a huge variation in the prevalence across GP practices ranging from 3.57% to 16.1, as against the national average of 9%. Out of the 27 practices with significantly high obesity rates, almost half (48%) are in Gloucester locality, 26% in Forest locality and 11% in Tewkesbury (Figure 13).

[25] See http://fingertips.phe.org.uk/diabetes#page/1/gid/1938132727/pat/110/par/ONS_5.07/ati/19/are/E38000062/iid/91036/age/1/sex/4

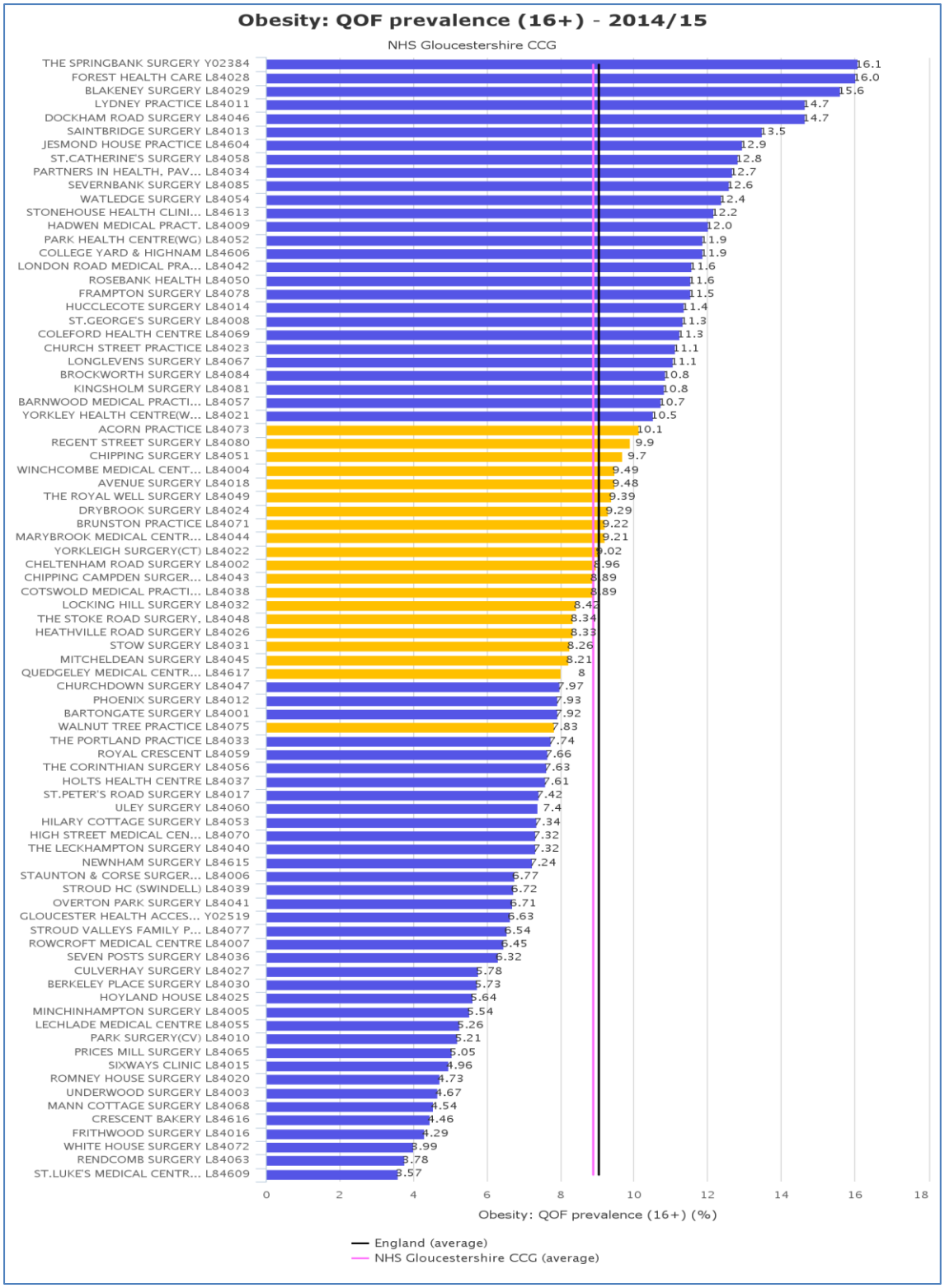


Figure 15: Prevalence (QoF) of Obesity in Gloucestershire Adults by GP Practice, 2014/15

6.5 PHYSICAL ACTIVITY

Physical inactivity is the fourth leading risk factor for global mortality accounting for 6% of deaths globally. People who have a physically active lifestyle have a 20-35% lower risk of cardiovascular disease, coronary heart disease and stroke compared to those who have a sedentary lifestyle. Regular physical activity is also associated with a reduced risk of diabetes, obesity, osteoporosis and colon/breast cancer and with improved mental health. In older adults physical activity is associated with increased functional capacities. The estimated direct cost of physical inactivity to the NHS across the UK is over £1.6 billion per year.

In 2011, the first UK-wide physical activity guidelines were published by the four nations' Chief Medical Officers [i]. The guidelines provide a clear, evidence-based set of recommendations on appropriate levels of physical activity across the life course to achieve a range of health benefits with knock-on gains for the NHS and society. The guidelines recognise that, as a nation, we are too inactive and spend excessive periods of time being sedentary, and challenge us to change our activity habits. Adults should aim to be active daily and are advised to achieve 150 minutes or more of at least moderate intensity activity each week, which will also contribute to achieving and maintaining a healthy weight.

For those adults who are already overweight or obese, physical activity brings important reductions in health risks – the more activity they do, the lower their overall risk of mortality and morbidity. NICE NG7 (2015) recommend for adults: 'over a week, activity should add up to at least 150 minutes of moderate-intensity activity, in bouts of 10 minutes or more'. Children and young people should take part in moderate- to vigorous-intensity physical activity for at least 60 minutes and up to several hours every day. Additionally it is recommended to minimise sedentary activity, for example by taking regular breaks at work and reducing screen time.

Obesity results from energy imbalance: too many calories in, too few calories burned. A number of factors influence how many calories people burn each day, among them, age, body size, and genes. But the most variable factor-and the most easily modified-is the amount of activity people get each day. Despite all the health benefits of physical activity, people worldwide are doing less at work, at home, and as they travel from place to place.

6.5.1 Physical Activity amongst Children

Physical activity is important for children and young people's healthy growth and development as well as helping to prevent a range of long-term medical conditions, including obesity. Between 2006 and 2012 there was an overall reduction in the proportion of pupils reporting they did the recommended levels of physical activity.

There is limited information available about the amount of physical activity carried out by children and young people. The Physical Education, School Sport and Young People's

(PESSYP) Survey was collected until 2010 and provided data at a local level on activity levels of children and young people in school with regards to achieving 2 or 3 hours of physical education each week. The most recent survey (2009/10) found that, in Gloucestershire, across Years 1-13, 54.9% of pupils participated in at least 3 hours of high quality PE and out of hour's school sport, which was similar to the national average. Participation levels were highest in Years 3-6 (63%), but were at their lowest in Years 12 and 13 (22%).

Overall, participation amongst boys (58%) was higher than amongst girls (51%), reflecting the trends observed at national level. 3 hours of high quality PE and out of hours school sport, which was similar to the national average. Participation levels were highest in Years 3-6 (63%), but were at their lowest in Years 12 and 13 (22%). Overall, participation amongst boys (58%) was higher than amongst girls (51%), reflecting the trends observed at national level.

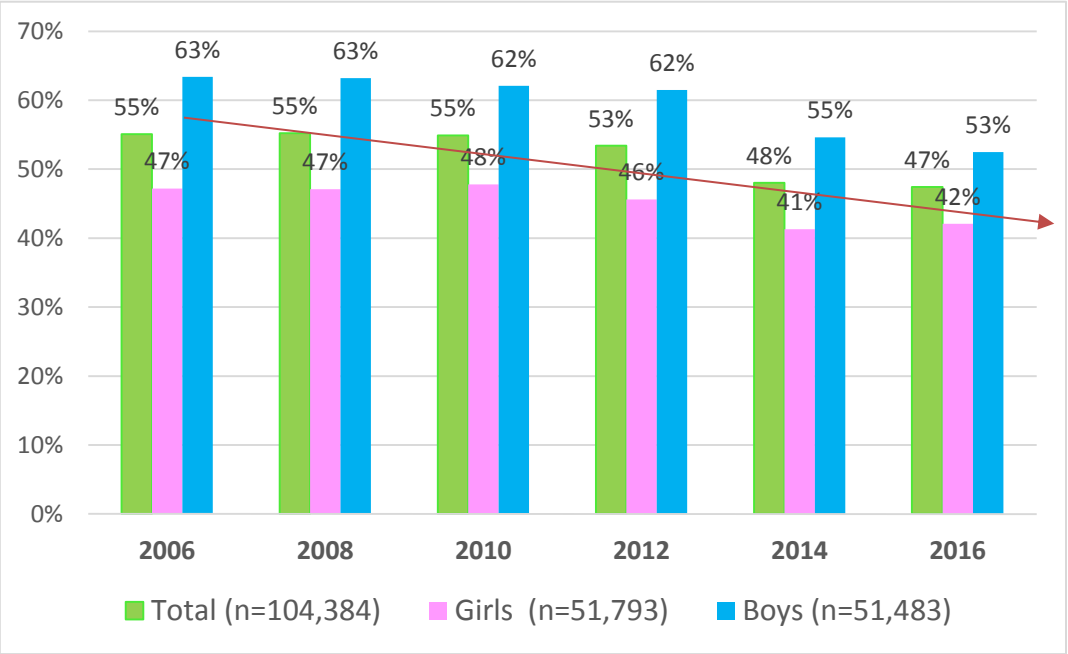


Figure 16 - % of children and young people who are physically active for 6 or more hours a week (year groups 4,5,6,8 and 10) from the Gloucestershire OPS survey

Data from Gloucestershire's online pupil survey (OPS)[26] is conducted every two years and completed by students in years 4, 5, 6, 8, 10 and 12. There were a total of 29,516 responses to the 2016 Online Pupil Survey. Using figures from the 2016 Gloucestershire school census, we estimate this survey captured approximately 73% of primary school children in years 4, 5 and 6 (13,768 responses) and 82% of secondary school pupils in years 8 and 10 (10,584 responses). There were 5,164 responses from young people in further education colleges/year 12.

[26] Gloucestershire schools Online Pupil Survey (OPS) 2016, www.fabresearch.com

In 2016[1] 64% of primary school pupils report that they do at least 4 hours of physical activity each week; this leaves nearly 9,000 children who do not. For 5-10s, active (outdoor) play is as important to health as school sports, but there is currently no clear usage data on free open access neighbourhood play spaces, sports areas, safe cycling routes, natural environment; or community-provided/paid-for access to supervised play, arts, cultural and sports activities.

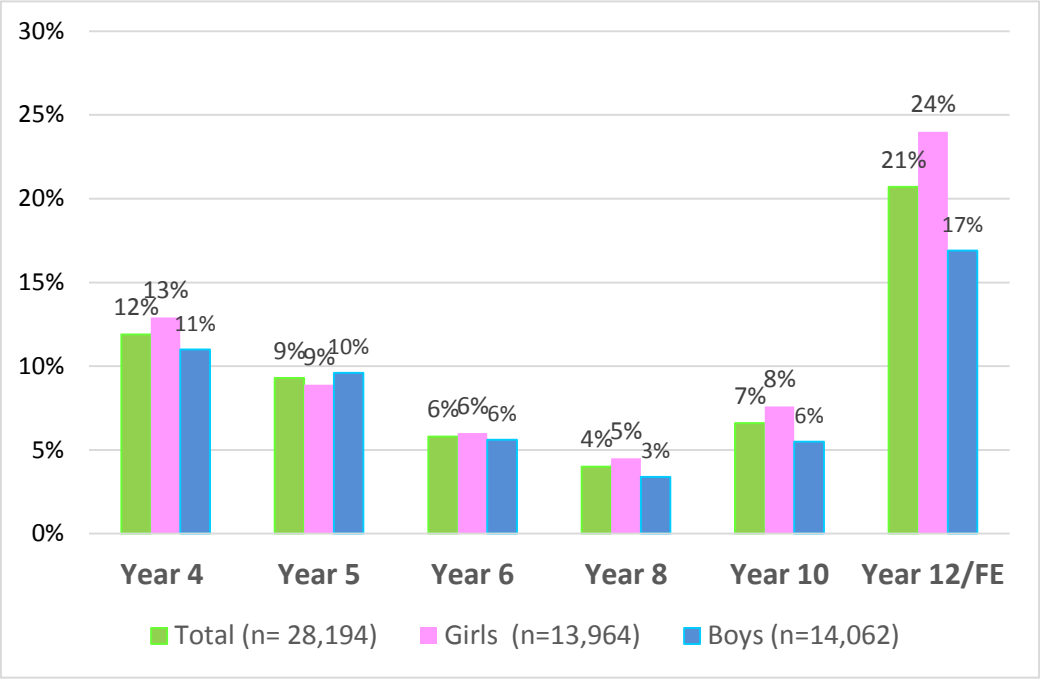


Figure 17 - % of pupils who do little or no physical activity (less than an hour a week)

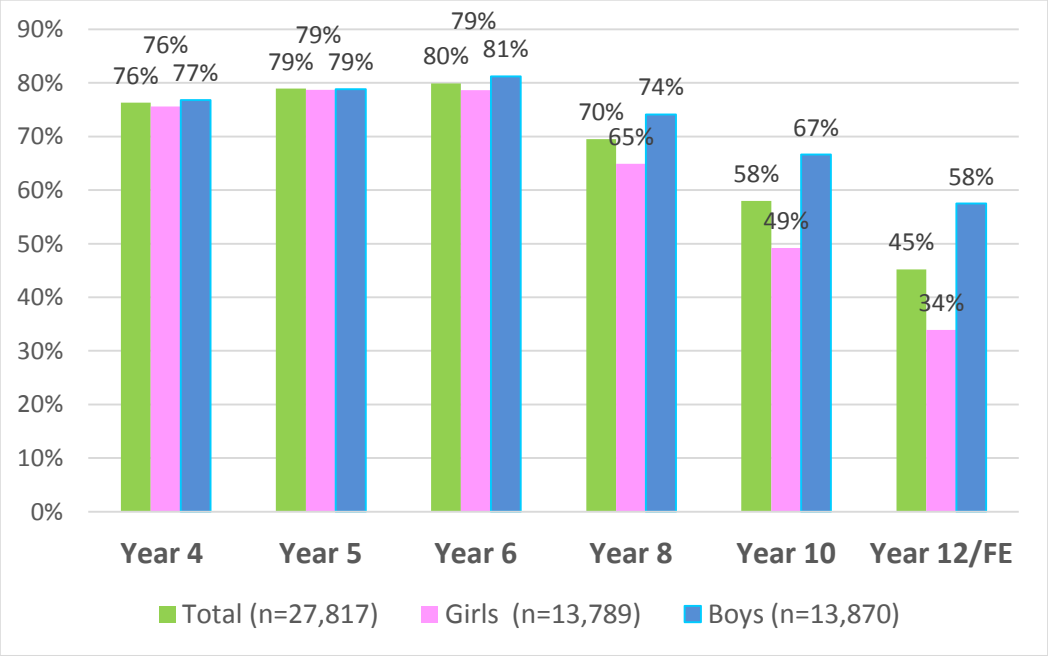


Figure 18 - % of pupils from the OPS2016 who think they do enough exercise to keep them healthy always or quite often.

6.5.2 Physical activity and participation in sports amongst adults

Nationally, results from the Active People Survey[27] 2014/15 show that 36% of adults (16+) played sport[28] at least once a week, with 18% taking part on 3 or more occasions. 57% did not play any sport in the 28 days prior to being surveyed. This compares to 38% adults in Gloucestershire who take part in sport at least once a week – that is 39.1% of men and 35.6% of women in the county.[29]

39% of adults in England in higher socio-economic groups (1-4)[30] played sport once a week, compared with 26% of those in lower socio-economic groups (5-8). The participation gap between higher and lower socio- economic groups has increased in recent years.

National trends see participation in sport decrease with age. Men (41%) are more likely than women (31%) to play sport at least once per week. Amongst adults (16+) with a long term limiting illness or disability, 17% played sport once a week. This is an increase from 15% in 2005/06.

Physical activity levels in Gloucestershire are on average higher than in England and broadly similar in five of the districts, with activity levels in Stroud higher than in the rest of the county:

2.13i - Percentage of physically active and inactive adults - active adults 2015 Proportion - %

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England	-	-	57.0	56.8	57.3
Gloucestershire	-	-	61.5	59.8	63.2
Cheltenham	-	-	60.2	56.0	64.4
Cotswold	-	-	60.3	56.0	64.5
Forest of Dean	-	-	60.3	56.1	64.5
Gloucester	-	-	61.0	56.8	65.2
Stroud	-	-	65.5	61.5	69.6
Tewkesbury	-	-	61.1	56.8	65.3

Source: Active People Survey, Sport England

Figure 19 – Percentage of physically active adults[31]

[27] See https://www.sportengland.org/research/about-our-research/what-is-the-active-people-survey/

[28] Defined as those participating in sport, of at least moderate intensity, for at least 30 minutes, Includes activities such as running, golf, swimming, team sports, racket sports, gymnastics, boxing, climbing and mountaineering, winter sports, archery, gym, and fitness activities or classes

[29] See Gloucestershire Mini Sport Profile on https://www.sportengland.org/our-work/partnering-local-government/local-sports-data/

[30] http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-3-ns-sec--rebased-on-soc2010--user-manual/index.html

Gloucestershire's physical inactivity levels (23.8%) are also better than the national average (28.7%), however there is significant local variance within the county, with only 19.1% of the population in Cheltenham reporting as physically inactive, compared to 27.4% in Cotswold, and 27% in Gloucester, closely followed by 26.1% of residents in the Forest of Dean stating they are physically inactive.

2.13ii - Percentage of physically active and inactive adults - inactive adults 2015 Proportion - %

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England	-	-	28.7	28.4	28.9
Gloucestershire	-	-	23.8	22.3	25.3
Cheltenham	-	-	19.1	15.7	22.5
Cotswold	-	-	27.4	23.5	31.3
Forest of Dean	-	-	26.1	22.3	29.9
Gloucester	-	-	27.0	23.2	30.9
Stroud	-	-	21.5	17.9	25.0
Tewkesbury	-	-	23.0	19.3	26.6

Source: Active People Survey, Sport England

Figure 20 – Percentage of physically inactive adults[32]

It is important to consider that the Active People Survey relies on self-reporting, which has been shown to be unreliable.

As part of the Health Survey for England adults were asked to recall how much physical activity they had done over the previous four weeks. Based on this self-report survey, 39% of men and 29%of women aged 16 and over met the Chief Medical Officer's (CMO) minimum recommendations for physical activity.

A sub-sample of adults then wore a device called an accelerometer for a week following the survey; this device provides an objective measure of physical activity. Based on the week of accelerometry, only 6 per cent of men and 4 per cent of women met the CMO's recommendations for physical activity.[33]

Therefore, the real level of physical activity in the county is likely to be significantly lower than shown in Figure 17 above. However, 46% of adults in Gloucestershire who are inactive, do want to take part in sport, demonstrating there is an opportunity to increase participation.[34]

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[31] The number of respondents aged 16 and over, with valid responses to questions on physical activity, doing at least 150 "equivalent" minutes of at least moderate intensity physical activity per week in bouts of 10 minutes or more

[32] The number of respondents aged 16 and over, with valid responses to questions on physical activity, doing less than 30 "equivalent" minutes of at least moderate intensity physical activity per week in bouts of 10 minutes or more

[33] Health Survey for England - 2008: Physical activity and fitness [NS] – see http://digital.nhs.uk/pubs/hse08physicalactivity

[34] See Gloucestershire Mini Sport Profile on https://www.sportengland.org/our-work/partnering-local-government/local-sports-data/

6.6 HEALTHY EATING

Obesity occurs when energy intake from food and drink consumption is greater than energy expenditure through the body's metabolism and physical activity over a prolonged period, resulting in the accumulation of excess body fat.

The Eatwell Guide defines the Government's advice on a healthy balanced diet. It is a visual representation of how different foods and drinks contribute towards a healthy balanced diet, which is essential to prevent excess calories from being consumed. Eating the right balance of food will give children and young people all the nutrients they need for healthy growth and development.

There are limited measures of eating habits available at a local level. Self-reported fruit and vegetable consumption is used as a proxy measure. Modelled estimates (see Figure 19 below) suggest that 57.3% of adults in Gloucestershire eat the recommended 5 portions of fruit and vegetables per day, which is significantly better than the England average (52.3%). However, the data suggests that there is significant variation between local districts, with only 52% of people sampled in the Forest of Dean reporting '5 a day', compared to 59.9% in Stroud.

2.11i - Proportion of the population meeting the recommended '5-a-day' on a 'usual day' (adults) 2015 Proportion - %

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England	-	-	52.3	52.1	52.5
Gloucestershire	-	-	57.3	55.0	59.5
Cheltenham	-	-	58.8	53.7	63.7
Cotswold	-	-	58.5	52.6	64.3
Forest of Dean	-	-	58.0	51.9	63.9
Gloucester	-	-	52.0	46.9	56.9
Stroud	-	-	59.9	54.6	65.0
Tewkesbury	-	-	57.4	51.3	63.3

Source: Sport England Active People Survey

Figure 21 – Proportion of adults meeting the recommended '5-a-day'

The Online Pupil Survey (OPS) suggests that the quality of children's diets deteriorates as they get older. The following chart shows older pupils were less likely than their younger counterparts to eat breakfast and girls were more likely to skip breakfast from year 5 onwards. Whilst the evidence does not associate skipping breakfast with obesity in children[35], if breakfast is not eaten food cravings later in the morning are more likely.

[35] C S Berkey, H R H Rockett, M W Gillman, A E Field and G A Colditz. Longitudinal study of skipping breakfast and weight change in adolescents. International Journal of Obesity (2003) 27, 1258–1266.

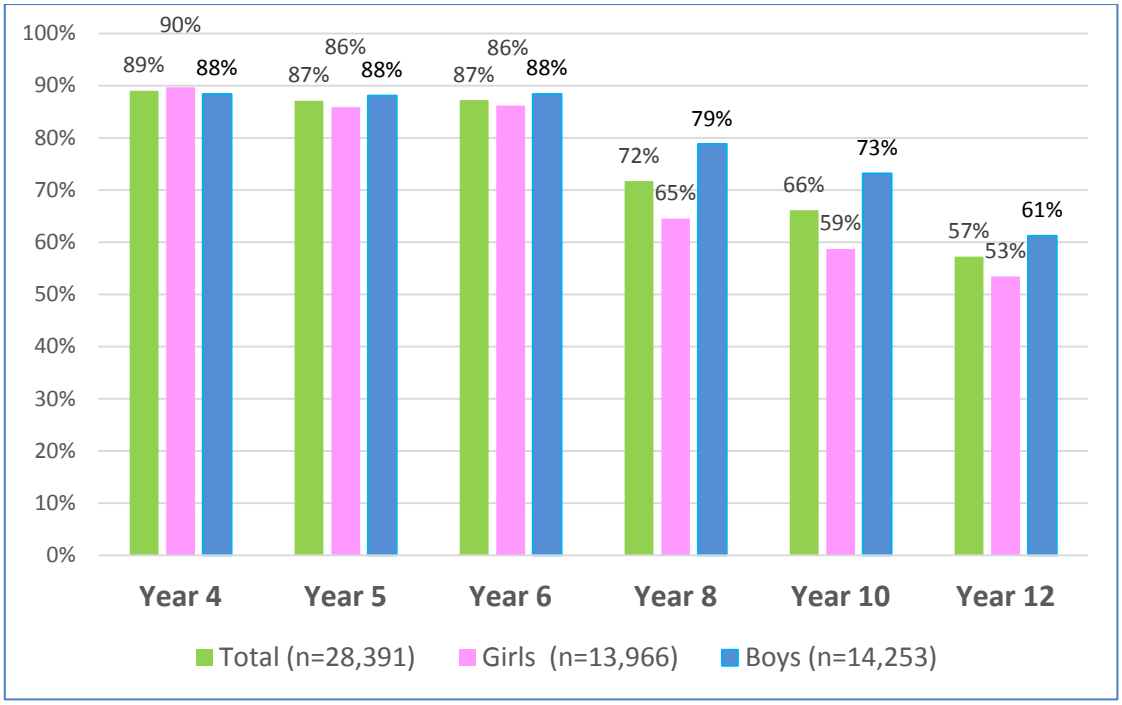


Figure 22 - OPS (2016) Percentage of pupils who eat breakfast every or nearly every morning

The number of children who eat the recommended portions of fruit and vegetables each day is no longer asked as part of the OPS but between 2006 and 2014 there was an overall reduction in the proportion of pupils who ate the recommended portions of fruit and vegetables each day. The question is no longer recognised as a good obesity correlate so pupils are asked more about snacking, fizzy drinks and energy drinks instead

Older pupils were also found to be more likely to snack on unhealthy food (e.g. crisps, sweets, biscuits and fizzy drink) than younger pupils. (*The OPS (2016) reports that 30% of girls and 37% of boys in year 4, increasing to 41% and 43% respectively in year 12*.) The OPS (2016) reports that 67% of girls and 72% of boys have unhealthy snacks at least once a day, increasing to 78% and 81% respectively. This is an improvement on the OPS (2014) where 81% of secondary pupils in years 8 & 10 snacked on unhealthy foods at least once a day compared to 79% in 2016. It should be noted that in 2012 and earlier surveys the definition of unhealthy snacks included fizzy drinks. This was changed in 2014 and 2016 when fizzy drinks and energy drink consumption were asked separately. However, overall the consumption of unhealthy snacks has remained fairly static in recent years, with older pupils continuing to consume more than younger primary phase pupils.

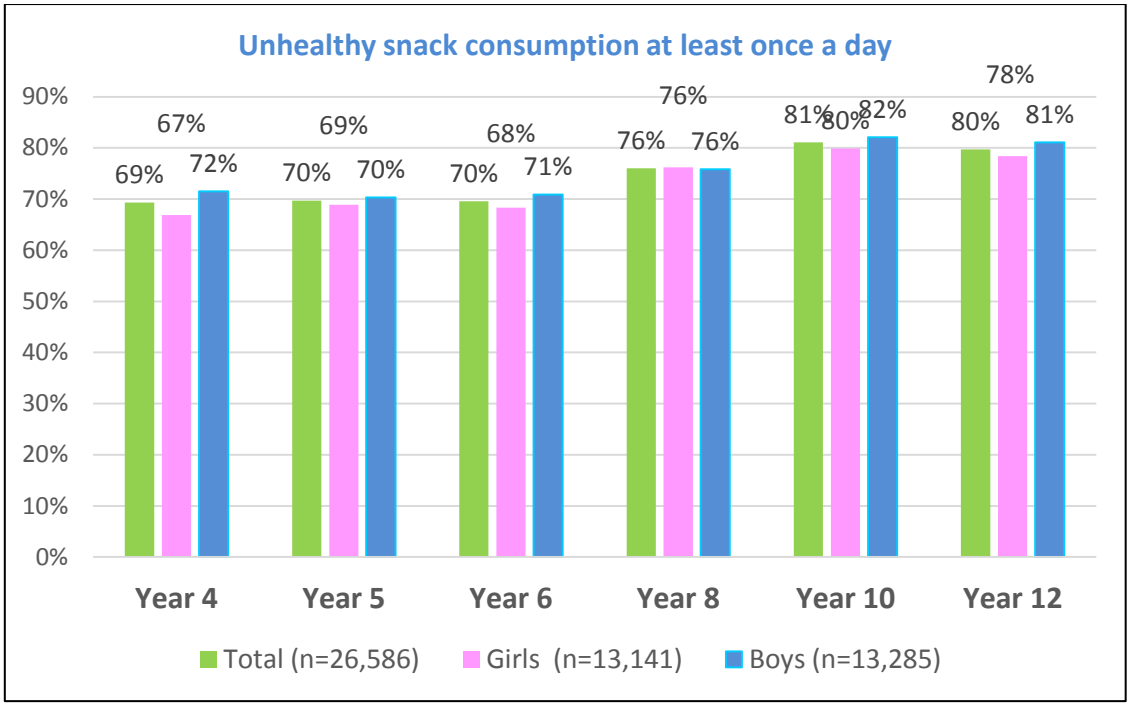


Figure 23: OPS (2016) Percentage of pupils who eat healthy snacks once a day or more frequently

The Online Pupil Survey also asked pupils about food at home. The perception was that the food at home enables them to eat more healthily than the food on offer in school; 87% of primary and secondary pupils felt they ate healthily 'usually' or' most of the time' at home, this has improved over time compared to when the survey began in 2006 and 82% said they usually/most of the time ate healthily at home.

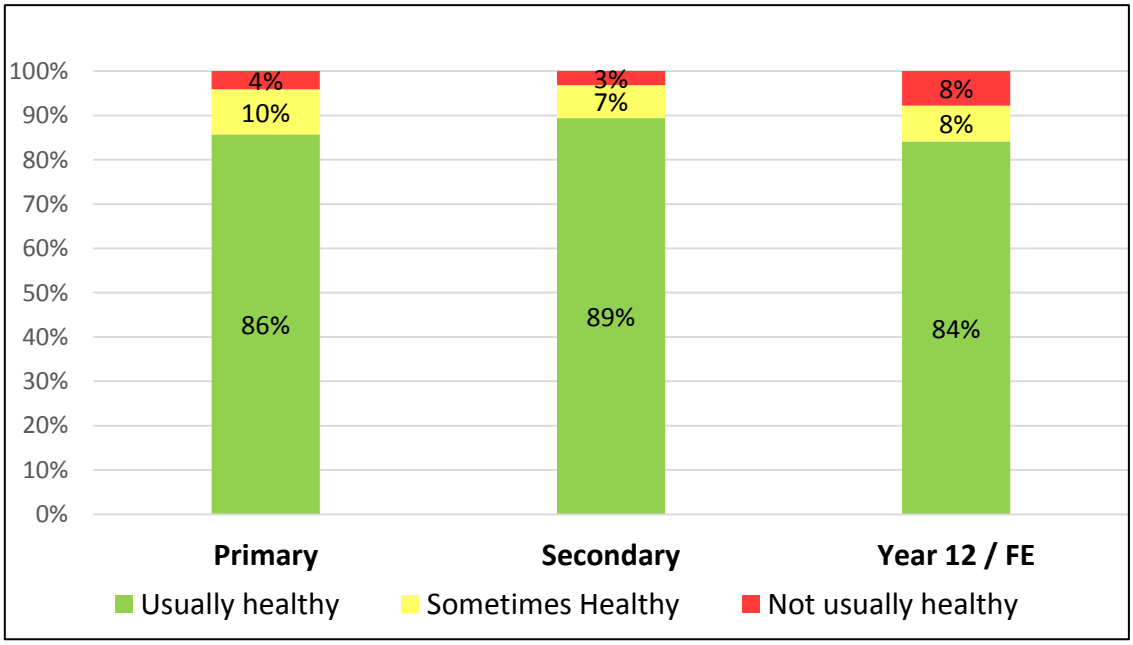


Figure 24: OPS (2016) How secondary pupil's perception on how healthy the food on offer at home has improved over time

Evidence has found that increased exposure to fast food outlets was generally associated with increased fast food consumption and marginally increased BMI.[36]

6.71 HEALTH INEQUALITIES

Research indicates that a relationship exists between the determinants of obesity and socioeconomic status. It has been shown that Individuals from lower socioeconomic backgrounds may have diets rich in low cost energy dense foods[37] participate less in sports and physical activity[38] and have lower weight control awareness. Energy dense foods often represent the lower-cost option to the consumer.[39]

Children from lower social classes are more likely to become overweight or obese than are children from higher social classes and are more likely to remain overweight or obese throughout early adulthood.[40]

Poor maternal nutrition is associated with deprivation and can lead to low birth weight. This is often followed by rapid 'catch-up' growth leading to adolescent obesity.

Risk factors for obesity which are associated with deprivation include unemployment, employment as an unskilled manual worker, limited educational achievement or residing in poor neighbourhoods with limited access to cheap and healthy food and sporting/play facilities. Different ethnic groups are associated with a range of different body shapes, and different physiological responses to fat storage. Therefore caution needs to be taken when considering the prevalence and health consequences of obesity within different ethnic groups.[41] This is of particularly importance for Asian groups as they have been found to being more prone to higher rates of obesity.

WHO ARE MOST AT RISK?

According to research, the following sectors of the population are at considerably higher risk of developing obesity, with an associated increase in the incidence and prevalence of related comorbidities.[42]

[36] Burgoine T, Forouhi NG, Griffin SJ, et al. Associations between exposure to takeaway food outlets, takeaway food consumption, and body weight in Cambridgeshire, UK: population based, cross sectional study. BMJ. Published online March 13 2014

[37] Lu N, Samuels ME, Huang K (2002) Dietary behavior in relation to socioeconomic characteristics and selfperceived health status. J Health Care Poor Underserved 213:241–57.

[38] Stamatakis E. Physical activity (2004). In: Sporston K, Primatesta P, eds. The Health Survey for England 2003, Cardiovascular Disease. London: The Stationery Office, 2004. –

[39] Drewnowski A et al 'Poverty and Obesity: the role of energy density and energy costs.' The American Journal of Clinical nutrition Jan 2004 Vol.79 no.1 p6-16

[40] Kinra S, Nelder R, Lewendon G. Deprivation and childhood obesity: a cross sectional study of 20,973 children in Plymouth, United Kingdom. J Epidemiol Community Health 2000;54:456 –60

[41] National Obesity Observatory (2011) Obesity and ethnicity. Association of Public Health

[42] Avenell et al (2004) Systematic review of the long term effects and economic consequences of treatments for obesity and implications for health improvement. Health Technology Assessment 8: 1-473

Children

- For genetic and/or environmental reasons from families where one or both parents are overweight or obese[43]
- Children living within households with the lowest level of household income have higher rates of obesity than children from households with the highest level of household income. Individuals from particular [44]

Black Minority Ethnic (BME) groups

- South Asian populations are at greater risk of ill health at lower BMI levels than European populations[45]

People living on a low income,

- Among women the proportion classified as overweight or obese varies with socioeconomic status (SES)44
- A higher percentage of women in the lower SES groups (29.1%) are overweight and obese, compared to women in the highest SES group (18.7%)

Older people

- Increasing age is associated with increasing prevalence in obesity up to the age of 64 years, when a decline in the prevalence begins.
- There is also a consistent trend, that the older you are the less physical activity you participate in.

P**regnancy**

- Women who are overweight or obese before they conceive have an increased risk of complications during pregnancy and birth. This poses health risks for the mother and baby.
- There is also evidence that maternal obesity is related to health inequalities, particularly socio-economic deprivation, inequalities within ethnic groups and poor access to maternity services.
- Maternal BMI status is also shown to relate to health inequalities, particularly for women who live in the areas of the most deprivation who are almost two and a half

[43] Perez-Pastor EM, Metcalf BS, Hosking J, Jeffery AN, Voss LD and Wilkin TJ. Assortative weight gain in mother–daughter and father–son pairs: an emerging source of childhood obesity. Longitudinal study of trios (EarlyBird 43)
[44] NOO (2012) Child Obesity and Socioeconomic Status
[45] NOO (2011) Obesity and Ethnicity

times more likely to be obese at the start of pregnancy than women who live in areas of least deprivation.[46]

People with a mental health condition

- There are bi-directional associations between mental health problems and obesity, with levels of obesity, gender, age and socioeconomic status being key risk factors[47]
- Those people with a diagnosis of schizophrenia or bipolar disorder have been identified as being at increased risk of greater levels of obesity and associated conditions, such as heart disease and diabetes.[48]

People with learning disabilities

- Literature reports that there is increased prevalence of obesity and overweight among people with learning disabilities.[49]

7.0 CONSEQUENCES OF OBESITY

7.1 HEALTH IMPACT

There is strong evidence to show that adult obesity is associated with a wide range of health problems which include type 2 diabetes, coronary heart disease, some types of cancer (such as breast cancer and bowel cancer) and stroke. Obesity can also impact on people's quality of life and lead to psychological problems, such as depression and low self-esteem. These are well documented with a summary found in **Appendix 1.**

Some examples of local data on obesity related harms are given below.

7.1.1 PREGNANCY

There is a higher Caesarean section rate in this group of women compared to women with a healthy BMI. There is also evidence to suggest that obesity may be a risk factor for maternal death: the Confidential Enquiry into Maternal and Child Health's report on maternal deaths in the 2003–2005 triennium showed that 28% of mothers who died were obese, whereas the prevalence of obesity in the general maternity population within the same time period was 16-19%.

[46] NICE (2008) Improving the nutrition of pregnancy and breastfeeding mothers and children in low-income households. March 2008, NICE.
[47] NOO (2011) Obesity and Mental Health
[48] Department of Health (2006) Choosing Health: Supporting the physical health needs of people with severe mental illness. DH: London
[49] Nocon, A. (2006) Background evidence for the DRC's formal investigation into health inequalities experienced by people with learning disabilities or mental health problems. Disability Rights Commission

The Maternity needs assessment can be found here:

Appendix 4
Maternity Heath Neec

7.1.2 DIABETES

Obesity is the most potent modifiable risk factor for Type 2 Diabetes accounting for 80-85% of overall risk. In England, obese adults are five times more likely to be diagnosed with diabetes than adults of a healthy weight.[50] Because of the impact of obesity on type 2 diabetes, the rising prevalence of obesity has led, and will continue to lead, to a rise in the prevalence of diabetes.

In Gloucestershire the estimated number of people aged over 16 who have non-diabetic hyperglycaemia (Pre-Diabetes) is 59,111 (prevalence 11.7%)[51] 90% of adults with diabetes have Type 2 diabetes, which translates into an estimated total of 33,890 people aged 16 and over in Gloucestershire with this condition (diagnosed and undiagnosed), and about 28,392 aged 17+ that are diagnosed. Gloucestershire's prevalence of diagnosed and undiagnosed Diabetes is predicted to overtake the national rate by 2030 if current trends in population change and obesity persist.

Though Type 2 Diabetes occurs mainly in adults aged 40 years and over, it is now becoming more common among children and young adults. Figure shows that Gloucestershire's distribution by age is as to be expected. The county however has a higher proportion of people with the condition in the older age bands compared with the England average which may be as a result of its ageing demography.

The Diabetes Health Needs Assessment can be found here

Enc 3. Diabetes
Healthcare Needs Ass

[50] PHE (2014) Adult obesity and type 2 diabetes
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/338934/Adult_obesity_and_type_2_diabetes_.pdf
[51] Health Survey for England data 2009 – 2013

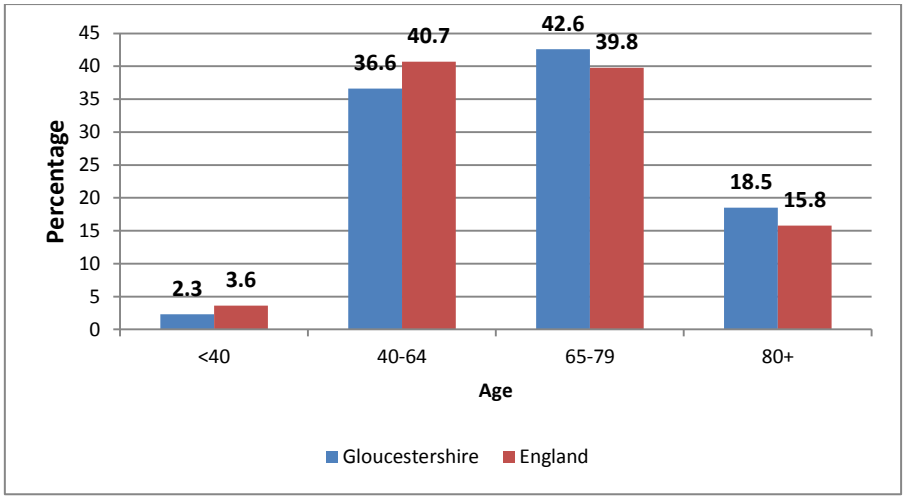


Figure 25 - Adults with Type 2 Diabetes in Gloucestershire by Age, 2014/15[52]

7.1.3 MUSCULOSKELETAL (MSK)

Evidence suggests that two in three obese adults will develop osteoarthritis, and that obesity in early adult life predicts osteoarthritis many years later. Obese people are more than twice as likely to develop osteoarthritis of knee and more than two out of three knee replacements and one in four hip replacements in middle-aged women in the UK are attributable to obesity. Obesity also increases the risk of other MSK conditions including gout (twice as likely and at a younger age), back pain (risk increases with rising body BMI).

Weight loss at every stage of life reduces the risk of developing osteoarthritis. For people with osteoarthritis, losing weight improves symptom and may slow progression. A combination of dietary restriction and exercise is the best strategy to improve osteoarthritis symptoms. Weight loss of 5kg over a decade in an average height woman (equivalent to a decrease of 2 BMI units) halves the risk of knee osteoarthritis

The MSK Health Needs Assessment can be found here:

MSK Needs Assessment final vs3

[52] **Source: National Diabetes Audit**

7.2 FINANCIAL CONSEQUENCES

Apart from the personal and social costs such as morbidity, mortality, discrimination and social exclusion, there are significant health and social care costs associated with the treatment of obesity and its consequences, as well as costs to the wider economy arising from chronic ill health.

7.2.1 GENERAL HEALTH CARE COSTS

In 2007 the NHS costs attributable to overweight and obesity were estimated to be £4.2 billion and projected to double to £10 billion per year by 2050.[53] The wider costs to society and business are estimated to be approximately £40 billion per year.[54] Based on these calculations NHS Gloucestershire was estimated to spend £149.1 million per annum in 2010, which was predicted to grow significantly in future decades. Most recent estimates show the estimated cost as risen to nearly £160 million per annum in Gloucestershire[55].

A breakdown showing the hospital costs of obesity related disease nationally for the year 2011 and 2012 in England are shown in Figure 27 below. NHS spending on these diseases is higher as ancillary costs such as those related to community care schemes and ambulance services were not estimated.

Disease area	All costs (£million)					
	Primary prescribing and pharma services	A & E attendance	Outpatients	Admissions	Total	Cost attributable to obesity (£m)
CHD	16%	829	301	499	1629	266
Diabetes	47%	866	55	101	1,025	482
Stroke	6%	32	461	483	985	59
Hypertension	36%	899		10	909	327
Osteoarthritis	12%	451	206	14	736	88
Breast cancer	11.4%	134	434	57	634	72
Kidney cancer	11.4%	80	239	48	385	44
Total					6,334	1,338

Table 3: The hospital costs of obesity related disease for the year 2011/12 (£M)

Table 5 – Hospital cost of obesity[56]

In 2013/14, Gloucestershire CCG spent a total of £11,501,128 on diabetes (£1,918,716 per 100,000 population), with 70.1% of this on primary prescribing and 11.3% on scheduled care

[53] Tackling Obesities: Future Choices – Project Report 2nd Edition. Government Office for Science. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/287937/07-1184x-tackling-obesities-future-choices-report.pdf

[54] Local Government Association, Public Health England. Social care and obesity. A discussion paper. London: Local Government Association; 2013

[55] Commissioning Tier 3 & Tier 4 services for Morbid Obesity - NEXT STEPS, South West Specialised Commissioning Information Pack, PHE & NHS England, May 2016

[56] https://www.nice.org.uk/guidance/ph53/evidence/economic-modelling-report-431715709 p.28

(outpatients).[57] The Gloucestershire Primary Care CES estimates that prescribed medicines and related testing account for approximately 75% of total spend on Diabetes. (see Gloucestershire Diabetes needs assessment).

7.2.2 PRESCRIBING

NHS Gloucestershire CCG spent a total of £8.2 million on prescriptions for diabetes items between April 2012 and March 2013. This was equivalent to £267.52 per adult with diabetes, in line with the national average (see http://www.yhpho.org.uk/diabetescommunityhealthprofiles/CCGprofiles13/11M_Diabetes%20Profile%202013.pdf)

NHS Gloucestershire CCG also spent a total of £880,000 on prescriptions for Orlistat over the past five years:

Financial year	Total cost of Orlistat prescriptions
2011/12	£268,679.28
2012/13	£143,058.89
2013/14	£204,741.44
2014/15	£141,780.65
2015/16	£121,004.65

Table 6 – Costs of obesity medications (Orlistat)

The variation in cost, namely the large reduction in 2012 was due to a national shortage in Orlistat. This was followed by an increase once the shortage was resolved, but not back to pre-shortage levels. Then the prescribing usage trend went on a downward trend. This could be explained by the team of prescribing support pharmacists working with GP practices in recent years to review patients on Orlistat to ensure they are losing the required weight in line with NICE recommendations, and where not suggesting discontinuing.

7.2.3 MATERNITY

A lower segment caesarean section (LSCS) procedure costs in the region of 30% more than that of a normal birth, therefore having significant financial implications[58]

[57] 2013/14 CCG programme Budgeting Benchmarking Tool https://www.england.nhs.uk/resources/resources-for-ccgs/prog-budgeting/

[58] Dignon, A. Truslove, T. (2013) Obesity, pregnancy outcomes and caesarean section: a structured review of the combined literature (online) Available at https://www.rcm.org.uk/learning-and-career/learning-and-research/ebm-articles/obesity-pregnancy-outcomes-and-caesarean (Accessed on 21 July 2016)

7.3 WIDER SOCIETAL COSTS

On top of the costs to health and social care, obesity imposes a considerable wider economic burden through reduced productivity, increased sickness absence and increased sickness benefit claims.

Estimates of the indirect costs (those costs arising from the impact of obesity on the wider economy such as loss of productivity) over the same time period ranged between £2.6 billion[59] and £15.8 billion.[60] Modelled projections suggest that indirect costs for 2015 could be as much as £27 billion by 2015.[60]

Workplace is likely to be one of the key contributing factors towards these economic costs. On average, obese people take 4 extra sick days per year.[61] In an organisation of 1000 employees who work the national average week of 39.1 hours[62] and are paid the national average hourly wage of £15.52, this equates to more than £126,000 a year in lost productivity. National reports have estimated that the total impact on employers is £5.2 billion. Of this, £3.7 billion, or more than two-thirds, comes from decreased productivity in the workplace rather than outright absenteeism.[63] There are no local data on the wider economic costs of obesity in Gloucestershire.

7.3.1 Social Care Costs

There is a lack of data on the social care costs of obesity in England. However, there is an important link between obesity and social care. Obesity is a contributory factor to the development of long term conditions such as diabetes and cardiovascular disease. Diabetes is known to double the risk of admission to a care home[64] and may account for up to one in four residents[65]. Residents with diabetes have an increased risk of disability[66], pressure sore development[67,] and hospital re-admission[68].

[59] National Audit Office. Tackling Obesity in England. London: The Stationery Office, 2001.
[60] Butland B, Jebb S, Kopelman P, et al. Tackling obesities: future choices – project report (2nd Ed). London: Foresight Programme of the Government Office for Science, 2007.
[61] Harvey et al (2010) Obesity and sickness absence: results from the CHAP study. Occupational Medicine
[62] Office for National Statistics (2011) 2011 Annual Survey of Hours and Earnings (SOC 2000)
[63] Dobbs (2014) Overcoming obesity: An initial economic analysis. McKinsey Global Institute
[64] Tsuji J, Whalen S, Finucane TE (1995). Predictors of nursing home placement in community-based long-term care. JAGS 43; 761-766 cited in 'Good clinical practice guidelines for care home residents with diabetes. A revision document prepared by a Task and Finish Group of Diabetes UK. January 2010
[65] Sinclair AJ, Gadsby R, Penfold S et al (2001). Prevalence of diabetes in care home residents. Diabetes Care 24 (6); 1066-1068 cited in cited in 'Good clinical practice guidelines for care home residents with diabetes. A revision document prepared by a Task and Finish Group of Diabetes UK. January 2010
[66] Ferrucci L, Guralnik JM, Pahor Met al (1997). Hospital diagnoses, Medicare charges, and nursing home admissions in the year when older persons become severely disabled. JAMA 277 (9); 728-34
[67] Berlowitz DR, Young GJ, Hickey EC et al (2001). Clinical practice guidelines in the nursing home. Am J Med Qual. Nov-Dec; 16 (6); 189-95 cited in 'Good clinical practice guidelines for care home residents with diabetes. A revision document prepared by a Task and Finish Group of Diabetes UK. January 2010

In addition, severe obesity can result in physical and social difficulties which impact on social care. Increasing obesity prevalence along with the growing needs of an ageing population, and the rise in non-communicable diseases associated with obesity present significant challenges and cost implications to both the health and social care systems.

Adults with severe obesity may have physical difficulties which inhibit activities of daily living and this can have resource implications for social care services including:

- Housing adaptations such as specialist mattresses, doors, toilet frames, hoists and stair lifts
- Specialist carers (trained in manual handling of severely obese people) for people who are house bound and have difficulties caring for themselves
- Provision of appropriate transport and facilities (such as bariatric patient transport and specialist leisure services)

For further information on the links between social care and obesity can be found here

Further analysis and investigations to be undertaken to look at weight status and social care.

8.0 VOICE AND FEEDBACK

8.1 GENERAL PUBLIC

Gloucestershire County Council commissions a number of services to encourage and support individuals, families and communities to adopt healthy lifestyles, including helping people lose weight. In order to gain local views on future provision of lifestyles information and support, a formal consultation was undertaken between December 2015 and March 2016.

There was general support for the following design principles for healthy lifestyles services:

- More emphasis on helping individuals and communities to help themselves – supporting 'self-care'
- More emphasis on primary prevention e.g. helping people to avoid becoming overweight or obese in the first place
- Focusing on the first 1001 days of life i.e. offering healthy weight information and support from conception to the second birthday (for mother, baby and the wider family)

[68] Duffy RE, Mattson BJ, Zack M (2005). Co-morbidities among Ohio's nursing home residents with diabetes. J Am Med Dir Assoc 6 (6); 383-389 cited in 'Good clinical practice guidelines for care home residents with diabetes. A revision document prepared by a Task and Finish Group of Diabetes UK. January 2010

- Lifestyles support should be targeted towards those with greatest capacity to benefit (i.e. those whose health outcomes are likely to be poor)
- Lifestyles information and support should be embedded across front-line services where possible.

Further information about this consultation can be found here.

In 2014 NHS Gloucestershire CCG consulted widely with members of the public in Gloucestershire on *Joining Up Your Care*, the Five Year Strategic Plan for the Gloucestershire Health and Care Community. The key themes emerging from this engagement exercise, which can also be applied to the work on the obesity agenda, are as follows:

- Having the right information and knowledge to ensure people are supported to manage their conditions and to live healthier lives; including information about all of the services available (both statutory and non-statutory).
- Empowerment was a key message; the importance of self-management, particularly for people with one or more long term condition and the need for patients and their families/carers to be involved in care plans and decision making.
- Stakeholders acknowledged the role of the wider health community and the need for a joined up timely approach across the system, supporting partnership working both with and complementary to health and social care services. This includes making the best use of the voluntary sector and community pharmacists.
- It was understood that a 'one size fits all' approach was not appropriate, with a consideration of the differing needs our population i.e. urban v rural. The importance of our local population as individuals was clear, this included understating the need for parity of esteem and the importance of the role of carers in providing joined up care that meets the needs of individual patients.

Some examples of the feedback received from this consultation can be found in **Appendix 2**

8.2 SERVICE USERS OF EXISTING SERVICES

8.2.1 TIER 2 - FAMILY WEIGHT MANAGEMENT PILOT

Engaging parents in childhood obesity interventions has been a challenge in the past both nationally[69] and in Gloucestershire. Some of the reasons for this were explored in a study of a family based intervention provided in Cheltenham (see Appendix 2). Parents were interviewed about their opinions of the intervention. A father of a child who attended the intervention had positive feedback found the peer support the group provided useful;

[69] Skelton JA, Irby MB, Beech BM, Rhodes SD. Attrition and family participation in obesity treatment programs: clinicians' perceptions. Academic pediatrics. 2012;12(5):420-8.

"It is good that we can go along and I can speak to other parents who are trying to change things, also *my child* can make friends with other kids the same who may not be fantastic at football and feel really bad, but they can play on the same level." - father of a child who attended the intervention.

However, a grandmother of a child who was recommended for the intervention had concerns about the child's perception of the group:

"The thing is, he doesn't look fat … hmm … obese, so if we go and he thinks, 'do I look like the others?' then that wouldn't be nice, don't you think?" - grandparent of a child who did not attend the intervention.

8.2.2 TIER 2 – SLIMMING WORLD

In July 2014, approximately 500 participants were invited to take part in a survey to help commissioners evaluate the Weight Management Programme, resulting in a return of 349 (70%) completed questionnaires.

Overall, the satisfaction level with the programme was very high with 91% of participants saying they would recommend the service to a friend or family member who wanted to lead a healthier lifestyle. There were lots of suggestions about how the programme could be improved, with some common themes emerging, such as needing more links with or more information about exercise programmes or educational material, and some issues with the format of the meetings not suiting all groups, such as men. A summary of feedback can be found in Appendix 3.

8.2.3 TIER 3 – SPECIALIST WEIGHT MANAGEMENT SERVICE

In 2014/15, 97% of patients reported finding the service useful on their end of treatment questionnaire, with 61% of patients giving the highest satisfaction rating possible. It is interesting to note that satisfaction ratings are higher in patients who have 1:1 treatment compared to those on the group pathway with 61% of patients on the individual treatment pathway giving the service the highest rating for usefulness compared to 57% of respondents from our group programme. During the period of 2014-15, the service received no complaints or expressions of concern.

In 2015/16 Patient satisfaction (based on feedback from patients who completed the end of treatment questionnaire) continued to be high with 97% of patients reporting finding the service useful on their end of treatment questionnaire, with 69% of patients giving the highest satisfaction rating possible, an increase of 8% compared to the previous year.

Specific feedback received from patients included the following:

- "I answered my own questions, sorted my own problems and sorted my eating out. I had the tools, myself, all the time. (…)Without SWMS I would still be morbidly

obese, just getting on with it, instead, I am making big improvements all the time. I am happier, slimmer, and actually enjoying life, I walk, listening to music, no mobile phone, no distractions, except for nature."

- "My whole life has changed - I am more outgoing and confident. I am able to enjoy life to the full whereas before I just existed. Since I have been on SWMS I am doing an NVQ course for a diploma, volunteered for election work, been on a variety of educational courses, joined a Pilate's class, converted a spare bedroom into a gym and halved my blood glucose sugar levels by half within the last year."
- "I can do so much more things, walking, running, fitting in the bath, buying smaller clothes. I ran the Race for life 10k in 2014 as well as a 5k race called Cheltenham challenge. Now to think 2 years ago I'd be doing that I would have laughed as I couldn't walk 200metres without stopping because of pain and being out of breath"
- "SWMS has helped me to change the way I think about food and my habits have changed. I no longer obsess about food and swing between dieting and overeating. My weight loss has been steady and consistent. The SWMS team do amazing work, they are so supportive and I would thoroughly recommend this service to anyone with a weight problem."

8.3 PROFESSIONALS

A review of the adult weight management pathway was undertaken in Gloucestershire in July 2015 (see appendix 3) and professionals were consulted to explore their awareness of the weight management pathway; weight management services available in Gloucestershire; and gain their feedback on implementation and subsequent changes to the pathway and referral criteria provided.

It was found that GP Practice awareness of the pathway was good but there was a lack of awareness about the pathway amongst other groups, particularly Community Pharmacies and hospital staff and a significant amount of confusion about changes in criteria for second referral. It was also reported that there was a lack of clarity about how patients should move through the pathway and referral criteria. GP Practice staff felt that having something to offer patients "for free" had made it much easier for them to raise the issue of weight with their patients. Commissioners and service providers identified the potential benefits of having a hub which provides information about all local lifestyle services.

In December 2015 a stakeholder workshop was held to discuss the development of a Gloucestershire Healthy Weight Strategy and 3-year Delivery Plan (April 2016 – March 2019), over 60 representatives from key stakeholder organisations attended. The main points that were raised by stakeholders were;

- A need to review and create a more collaborative, seamless healthy weight care pathway for adults from tiers 1-4 with measurable outcomes.
- There is no child healthy weight care pathway and lack of weight management services at tiers 2 and 3.
- More focus is needed on maternity and prevention of obesity during and before pregnancy.
- focus on prevention of obesity, consider how communities can help themselves and each other
- Workforce development should focus on
    - clinician skills in raising the issue of obesity and facilitating behaviour change (motivational interviewing)
    - links with mental health
    - reducing stigma and discrimination
- In Schools focus is required on
    - engaging all CYP in physical activity
    - provision of healthy food
- NHS and public sector staff should role model healthy behaviours.
- The built environment and the workplace infrastructure was felt to be both a barrier and an opportunity to promote a health weight i.e. bike storage facilities, active travel, showers etc.
- Commissioners should stipulate certain requirements regarding a healthy workplace when re-letting contracts and encourage use of health impact assessments
- Develop better understanding of how we can use social media and new technologies e.g. apps, remote monitoring
- Joined up and whole system approach between organisations and agencies – possibly to address obesity and wellbeing more generally
- A forum for professionals to seek peer to peer advice
-

9.0 WHAT WORKS, CURRENT PROVISION AND GAPS ACROSS THE LIFE COURSE

As stated in Section five the causes of obesity are complex and despite over a decade of national and local intervention to encourage healthy lifestyles, child obesity levels have continued to rise, particularly among our most disadvantaged communities.

Approaches to addressing obesity can be broadly categorised into three areas; behaviour, environment and physiological (See Figure 12). Approaches used to influence individual behaviour generally involve the provision of information, motivational messages or empowering individuals to make healthy choices. Individual approaches need to be balanced alongside wider interventions that help to make healthier choices easier e.g. encouraging people to cycle to work is of limited value of there are no cycle paths on route.

A balanced also has to be found for prevention of obesity at population level, whilst helping those who are already at risk of serious health consequences due their weight.

The evidence base on effective action to tackle obesity remains weak, and skewed towards individual level downstream approaches (trying to manage the consequences of obesity rather than more upstream approaches, which attempt to solve the real problems underpinning obesity). Much of the existing evidence base on obesity fails to take adequate account of the complex nature of the obesity system

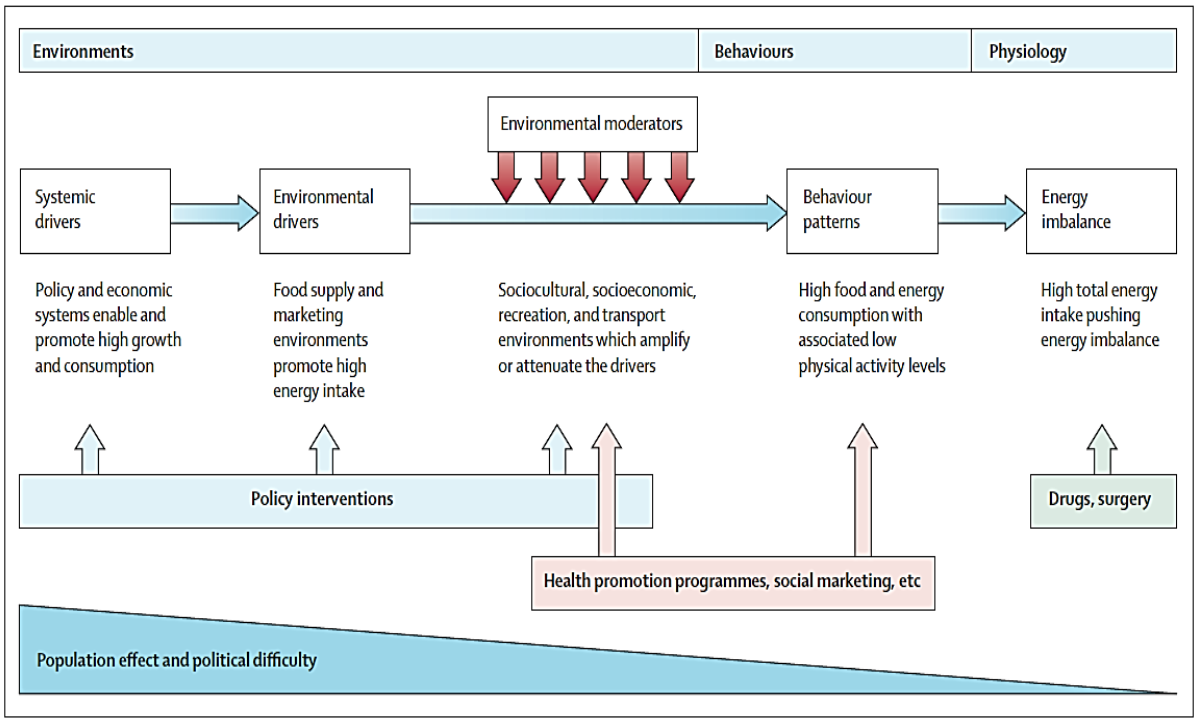


Figure 26 - A framework to categorise obesity determinants and solutions[70]

When looking to develop a whole systems approach to obesity it is important to consider the role of different organisations in influencing the determinants of health and support individual behaviour change. The Nuffield Council 'intervention ladder' outlines a range of potential approaches which could be used to promote positive lifestyle changes such as healthy weight (see Figure 13). The options range from the least intrusive into people's lives (such as just providing information) to the most intrusive (eliminating people's choice about what they do through legislation).

An example of an intervention that sits towards the top of the ladder is the 'sugar tax' that was recently proposed in the Government's Child Obesity Plan. The reformulation of food is another example, where the intervention where it restricts choice for the public and

[70] Swinburn et al 2011, Lancet, see http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)60813-1/abstract

ultimately have greater impact on population health. The intervention ladder is useful, as it can assist local policy makers and commissioners to understand the influence and role they have influencing people's behaviour. Some examples are listed below:

Information, education and guidance

There are many ways in which parents, families and children themselves can be supported and encouraged to lead healthier lives through information, education and guidance. This can include brief interventions, online information to help people find local services. Organisations across the county can play a pivotal role in these interventions

Restricting choice

The environment around us has increasingly led to individuals making unhealthy choices the default, or easiest choice. Restricting the built environment and developing an infrastructure that promotes healthy eating and encourages physical activity can be important to promote healthy living. This could include restricting the number fast food outlets near schools, or developing communities where active travel is priorities over other forms of transport. Local authorities can play a major role in these population approaches as they are responsible for planning, transport and licensing.

Regulation

Regulation has saved many lives, for example through product safety, the introduction of seat belts on the road and the requirements for fire-safe furnishings in the home. The recent 'sugar tax' on the soft drinks industry is a good example of this. Other initiatives where evidence suggests a positive impact on obesity, is the restriction to market and advertise high sugar food and drink products to children and adults across all media[71]. Other programmes include the reformulation of food. Nearly all of these approaches require intervention by the Government.

[71] PHE (2015) Sugar Reduction The evidence for action. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/470179/Sugar_reduction_The_evidence_for_action.pdf

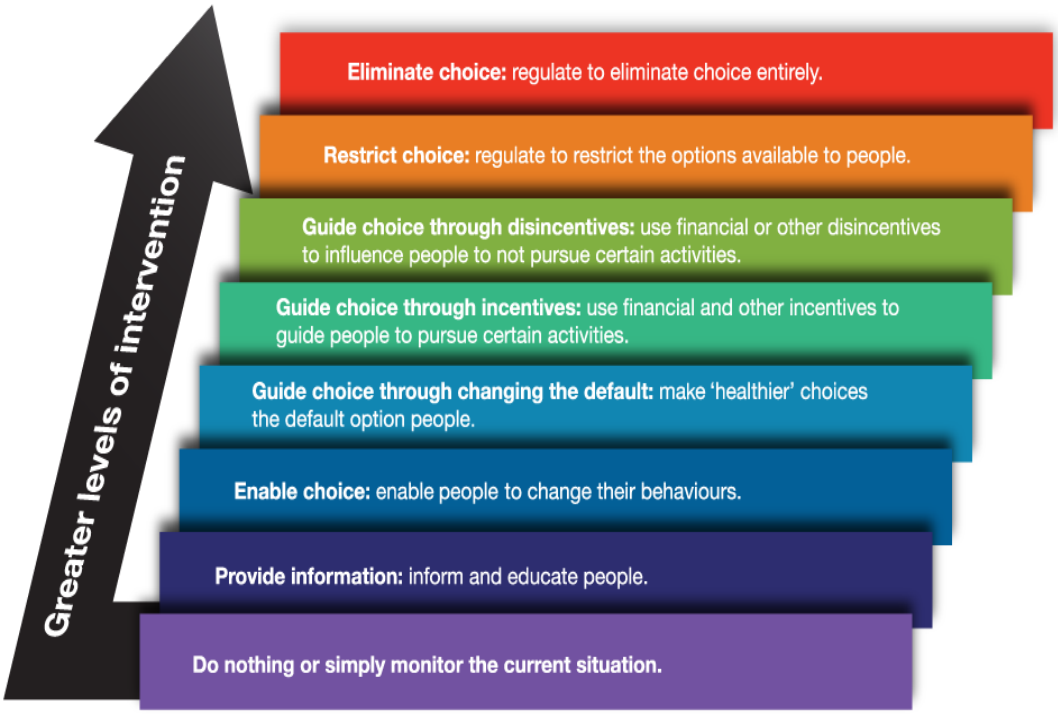


Figure 27 – Nuffield ladder of Interventions

Within the UK, a four-tiered approach is adopted to achieve and maintain healthy weight for both adults and children and young people: the Obesity Care Pathway (see Figur2 12below). As the severity of excess weight increases, a higher tier of intervention is required and advocated. The majority of weight management services for children and young people in the UK are delivered at Tier 2 level.

Current services and interventions to tackle obesity can be categories into four tiers (see figure 13):

- Tier 1 - Universal based prevention and early intervention
- Tier 2 - Self-help, community and primary care initiatives
- Tier 3 - Specialist services for individuals who makes no progress at Tier 2 or who has an urgent health need to lose weight
- Tier 4 – Surgery

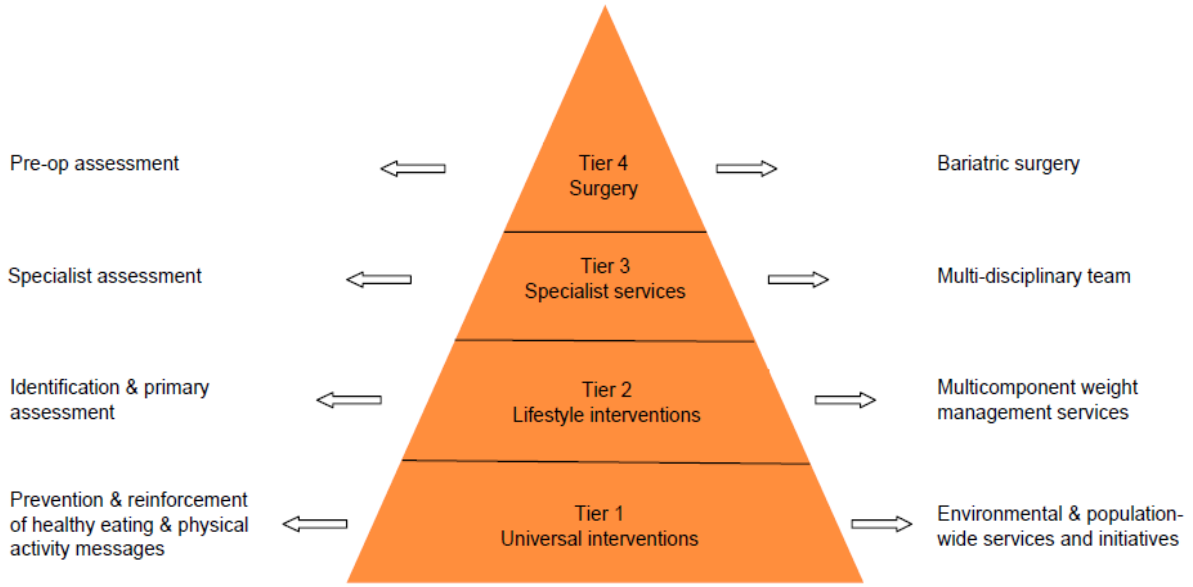


Figure 28 - Hierarchical model illustrating the difference tiers that can be adopted in tackling obesity[72]

Combining a tiered approach with a lifecourse approach we are able illustrate and summarise the range of preventive and treatment interventions across Gloucestershire (see Figure 14). Interventions and services at the top of the pyramid are targeted at people who are already obese with those at the bottom being preventative interventions which are largely universally applied to the general population. This model provides a visual summary of current service provision in Gloucestershire. It is important to note that the diagram is for illustrative purposes rather than a detailed map – and that though accurate at the time of publishing, there are some imminent changes associated with the procurement of a new Integrated Healthy Lifestyles service by Gloucestershire County Council. The diagram shows that there are clear gaps in weight management services for pregnant women and children.

Obesity is widely recognised as a wicked issue with evidence suggesting that it will not be resolved through technical responses but requires a joint approach from multiple agencies with a long term perspective. It is an issue that affects all people in all industry, business and service and is a collective, system wide responsibility. The mobilisation of a community cannot be managed by a single organisation and a social contract needs to be entered into and committed to. Indeed this is not a project to be rolled out but a challenging journey to be lived.

[72] Department of Health (2013) Developing a specification for lifestyle weight management services *Best practice guidance for tier 2 services*

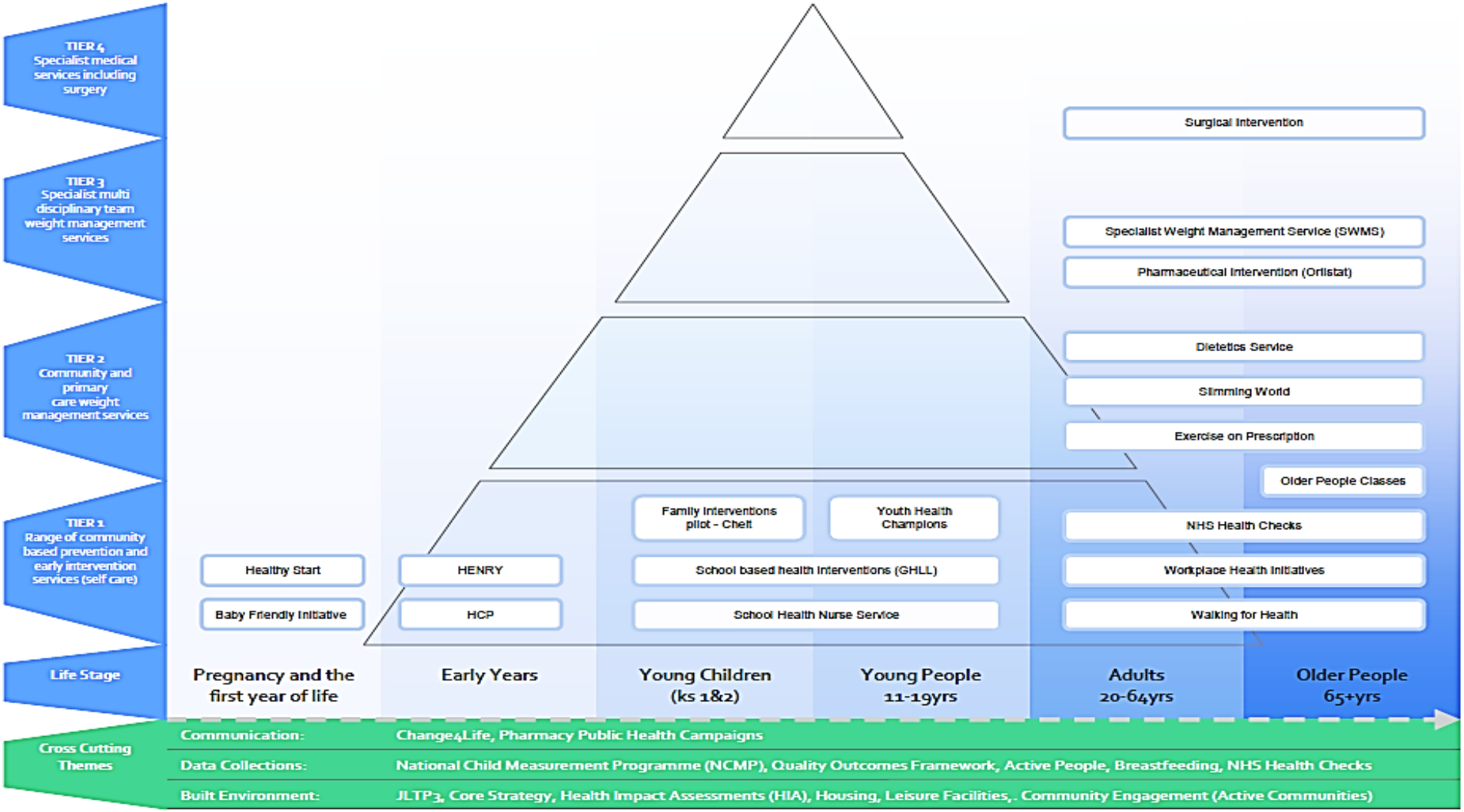


Figure 29 – A pyramid pictorially reflecting the different level of healthy weight interventions from universal through to individual

9.1 MATERNITY AND EARLY YEARS

9.1.1 NICE guidance

NICE guidance on the management of obesity and behaviour change, and the Foresight report, identify pregnancy as a critical period to address obesity in a woman's life course and to initiate behaviour change. However, caution is required to avoid compromising foetal growth.

NICE also refers to the management of obesity during pregnancy in its guidance on maternal and child nutrition and in its clinical guidelines for antenatal care, diabetes in pregnancy, and intrapartum care. Overall, these guidelines consider obese women to be among the high risk groups that require additional screening, intervention and monitoring.

9.1.2 Current Provision in Gloucestershire

In Gloucestershire our Maternity Services Specification requires 100% of pregnant women accessing antenatal care to have their BMI calculated and recorded at the booking appointment. Women with a BMI over 30 are considered for birth at a consultant unit and if the BMI is greater than 35 women are recommended to birth in a consultant unit. 7% of births are to women with a BMI over 35 and approximately 20% of women have a BMI over 30. The localities where a greater percentage of women have a BMI over 30 are the Forest, Gloucester, South Cotswolds and Tewkesbury.

The Integrated Healthy Lifestyles Service due to start in January 2017 will provide a targeted programme of healthy lifestyles support for women with highest needs during pregnancy and the first year after delivery. This will include, where applicable:

During pregnancy:

- Information and support to avoid excess weight gain during pregnancy (targeting obese women)
- General health advice for pregnancy on diet (including Healthy Start scheme), nutrition and food safety, alcohol, physical activity and emotional wellbeing.

After delivery:

- Infant feeding including encouragement to breastfeed and access Healthy Start
- Weight reduction / return to healthy weight (for mothers)
- Healthy lifestyles information and support to reduce the risk of obesity among the children of obese mothers.

In addition, the Provider will assess the need for and availability of food skills support among vulnerable families e.g. those accessing the Gloucestershire Families First Programme. This might include, feeding a family on a budget and cooking skills. The Service

will take steps to facilitate access to current provision by families in greatest need. In the event of significant gaps in provision, the Provider will work with the Council and Key Stakeholders to identify sustainable ways to meet needs.

The Baby Friendly Initiative (BFI) is a global accreditation programme of UNICEF and the World Health Organization. It is designed to support breastfeeding and parent-infant relationships by working with public services to improve standards of care. Health Visiting teams in Gloucestershire promote breastfeeding in the communities and have reached BFI stage 3 accreditation. This involves mothers feeling supported with their feeding, given useful and accurate information by the health visitor and that parents are supported to recognise the importance of relationships and how to build these.

Potential Gaps

- No maternal obesity pathway currently exists
- Midwives to provide more hands on advice and support for pregnant women to maintain an healthy weight within existing service delivery
- Training for midwives in motivational interviewing, knowledge and skills to provide additional screening, intervention and monitoring of weight during pregnancy

9.2 CHILDREN AND YOUNG PEOPLE

TEIR 1 – UNIVERSAL PREVENTION AND EARLY INTERVENTION PROGRAMMES

Tier 1 services are described as “activities to help prevent everyone, regardless of their weight, from becoming overweight or obese” (NICE ph47). NICE (2012) recommend a similar model described as a ‘Sustainable community-wide approach’ to obesity prevention that involves a set of integrated services and actions delivered by the many organisations, community services and networks that make up the local system (See appendix 4)

These universal services help raise awareness of the importance of maintaining a healthy weight and develop and promote services, facilities and policies that enable children, young people and their families to eat more healthily and be more physically active.

Because many children and adults are overweight, they are perceived as the 'new normal'. As we are used to seeing people as a bit 'heavier' they may appear a normal weight, however they may still have a high fat diet and be at increased risk of illness. Indeed, Ipsos Mori reported that 51% of parents failed to identify a child as being very overweight[73]

[73] National Child Measurement Programme, Assessing parents ability to identify child obesity, Findings from a national omnibus survey, October 2010

In small communities in France a whole system approach to achieving healthy weight has been achieved. Ensemble Prévenons l'Obésité Des Enfants (EPODE, *Together Let's Prevent Childhood Obesity*) is the largest global childhood obesity prevention programme. A local project manager nominated in each EPODE community by the local authority is trained and coached in using social marketing and organisational techniques aiming to instil healthy eating and physical activity while avoiding stigmatisation with a local project coordinator. The project manager is also provided with tools to mobilise local stakeholders at all levels across the public and the private sectors, through a local steering committee and local networks.

Critical components of this methodology include political commitment, sustainable resources, support services and a strong scientific input – drawing on the evidence-base – together with evaluation of the programme. Since 2004, the EPODE model has been implemented in more than 500 communities in six countries through community-based interventions[74]. In 8 French towns children aged 5-12 between 2005-2009 who implemented the EPODE methodology, report a decrease of 9.12% in overweight and obesity against a national picture of stabilisation of overweight and obesity. They also report similar evidence in Belgium where there was a decrease of 22% in comparison with a control population. More recently it has been demonstrated that EPODE methodology has the capacity not only to reduce obesity prevalence but also to decrease health inequities[75]

Because many children and adults are overweight, they are perceived as the 'new normal'. As we are used to seeing people as a bit 'heavier' they may appear a normal weight, however they may still have a high fat diet and be at increased risk of illness. Indeed, Ipsos Mori reported that 51% of parents failed to identify a child as being very overweight[76]

Tackling obesity and its causes is high on the public health agenda and it is clear that there is no simple solution. Public Health England (PHE) recognises that cross-sector, system-wide action is required to change the status quo and supports co-ordinated action across a life-course and place-based approach. This includes supporting the local delivery of evidence-based, effective and sustainable weight management (WM) services, as recommended by the National Institute for Health and Care Excellence (NICE), which individuals and families can access if they are above a healthy weight.

An obesity care or weight management pathway represents the various routes through local services that an individual child or young person might follow to help them manage their weight. Such a pathway spans both prevention and treatment, offering services at different

[74] Borys J, Le Bodo, Y. Jebb, S. Seidell, J. Summerbell, C. Richard, D. De Henauw, S. Moreno, L. Romon, M Visscher, T Raffin, S and Swinburn B (2012) EPODE approach for childhood obesity prevention: methods, progress and international development. Obes Rev. 13(4): 299–315.

[75] Borys J, Richard P, Ruault du Plessis H, Harper P, Levy E. (2016) Tackling Health Inequities and Reducing Obesity Prevalence: The EPODE Community-Based Approach. Annals of Nutrition and Metabolism 68(suppl 2):35-38

levels or 'tiers'. Children and young people may move between these services as their need changes.

In Gloucestershire there are services available to engage and enable citizens to make healthy choices and prevent ill health and provide early help through healthy eating and being physically active. This section will provide an overview of what is currently on offer for children, young people and families whilst acknowledging that there is good work going on in communities that are not mentioned in the scope of this document. There are gaps in this provision which will also be identified based on evidence.

Current Provision in Gloucestershire

The National Child Measurement Programme (NCMP) measures the height and weight of children in reception class (aged 4 to 5 years) and year 6 (aged 10 to 11 years) to assess overweight and obesity levels. This data can be used at a national level to support local public health initiatives and inform the local planning and delivery of services for children. The measurements are analysed by the SCHOOL NURSING team who identify those children who are overweight or obese. A letter is sent to these families explaining the measurements and the potential impact on health in 2014-15, 852 Intervention letters sent (Y6 boys 303, Y 6 girls 261, Rec boys 141, Rec girls 147). The family is asked to contact the service and if agreed, the School Nurse will work with the family on areas identified through a lifestyles assessment. In 2014-15, only 4 parents requested support – (2 were given telephone support & 2 Home visits and healthy Living Assessments carried out, small areas for change identified and parents given opportunity to contact School Nurse in future if required.)

The School Nurses are trained in the HENRY core skills so adopt a holistic approach when working with families. There will some opportunistic contacts with families and school staff that are not measured.

NCMP Case Study

Following her 10 year old son being found as overweight through NCMP measurements in school, parent N received a letter from the school nursing service inviting her to contact them if she wanted support. N had previously visited her GP as she was concerned about her son's weight but had been told that he needed to exercise more and that there was nothing wrong. Her son was active, walked to school, played some sport in school and had restricted screen time. N felt that there were other issues but this was not explored.

The School Nurse (SN) visited N and did a thorough family lifestyles assessment. N felt that her son and the rest of the family activities were understood and generally lifestyle choices were healthy. However, she explained that her son did not play much sport as he seemed to have some issues with his feet. The SN wrote a referral letter to their GP who re-examined him and referred to podiatry. The podiatrist found son had short, tight ham strings and recommended rugby. Son now plays regularly. Parent felt that she had been listened to and encouraged to continue with healthy lifestyle choices. She felt involved with the care plan and when she was given advice she didn't agree with was not judged. The SN followed up the meeting with 2 phone calls and N was pleased with intervention she had received.

The YOUTH HEALTH CHAMPION is an initiative which enables young people to act as "health advisors" to their peers. The aim of the scheme is to reach out and educate about health in order to help peers make healthy choices. Pupils are recruited in year 9 for their ability to motivate, inspire and lead others – not on educational attainment. During this time they work towards achieving an accredited award in Understanding Health Improvement.

HEALTH VISITING teams currently provide universal promotion of breastfeeding and introduction of weaning at 6 months. Healthy eating and exercise is a standard benchmark for all universal contacts, so it is discussed with the family at the antenatal contact, new birth visit, 6-8 week review, 12 month contact and 2 year review. The UK Baby Friendly Initiative is based on an accreditation programme of UNICEF and the World Health Organization. It is designed to support breastfeeding and parent-infant relationships by working with public services to improve standards of care. The Health Visiting Service is accredited at Baby Friendly Initiative Level 3 so teams are fully trained in skills and knowledge to ensure best practice around breastfeeding is implemented and that standards are implemented for all pregnant women and new mothers.

HV teams are trained in HENRY core skills so promote and support healthy nutrition and physical activity for families and the under 5s, some are accredited trainers for the evidence

based group family programmes. These trainers act as HENRY HV champions who are work in partnership with Children's Centres and parents to provide groups, information and referral pathways for HENRY in their localities so the resources and staff get to the right family at the right time in the right place..

GLOUCESTERSHIRE HEALTHY LIVING AND LEARNING (GHLL)[77] support schools to review their community need with regard to health and wellbeing. They provide an accreditation when the school can demonstrate that it has provided two interventions that have had a positive impact on the health of its pupils. Many schools are implementing activities and strategies associated with healthy eating and improved physical activity.

FACTS4LIFE is a service that is commissioned by Gloucestershire CCG that focuses on changing attitudes in school children by moving the focus of control from medical expects to individuals. The aim is help children and their families take greater responsibility for their health.

In addition ACTIVE GLOUCESTERSHIRE has been commissioned by Gloucestershire CCG to offer all schools training to implement the "mile a day" concept first pioneered by St Ninians primary in Sterling. Churchdown Primary amongst others has successfully implemented it and Active Gloucestershire have generated interest from other schools to understand more about the process and its application.

Potential Gaps

- Working as a whole system to improve healthy weight including planning, housing, environments and education teams
- Embedding this public health priority in all clinical practice, making gaining and maintaining a healthy weight everyone's business
- Poor engagement with families on uptake of healthy weight services
- Lack of co-ordination whole-school approaches to promote healthy eating and physical activity i.e. Gloucestershire Healthy Living and Learning

TIER 2 – COMMUNITY AND WHOLE FAMILY WEIGHT MANAGEMENT PROGRAMMES

In children, a BMI centile ≥ 91st is associated with health and psychosocial problems within childhood itself and may put individuals at a greater future health risk of type 2 diabetes, Coronary Heart Disease, hypertension and some forms of cancer. It also contributes to increased social care costs. Department of Health (2013) recommends Lifestyle weight management services to support and enable children between 2 and 18 years of age with a

[77] Gloucestershire Healthy Living and Learning http://www.ghll.org.uk/

BMI centile at or above 91 to reach or maintain a healthier BMI.[78] It is recommended that tier 2 services sits within an existing care pathway and links to tier 1 interventions aimed to prevent unhealthy weight and tier 3 interventions to support those with greater needs.[30]

The 'Healthy child programme for 5–19 year olds' also recommends that overweight or obese children should be referred to appropriate weight management services to help them achieve and maintain a healthier weight.[79]

Many lifestyle weight management programmes aim to maintain the growing child's existing weight in the short term, as they grow taller. This is an appropriate short-term aim, because it will result in an improved BMI over time, and is often described as 'growing into their weight'. Young people who are overweight or obese and are no longer growing taller will ultimately need to lose weight to improve their BMI. However, preventing further weight gain while they gain the knowledge and skills they need to make lifestyle changes may be an appropriate short-term aim. These changes then need to become firmly established habits over the long term.

Public Health England undertook a mapping exercise to explore the provision of tier 2 weight management services for children and young people and adults across England, and to understand how these services are delivered. Information was collated on weight management services from 73% of upper tier and unitary local authorities and 18% of CCGs in England. In relation to tier 2 children services, respondents from 56% of local authorities reported having a service in their local area.[80]

Examples of Tier 2 service provision in England

National programmes have been adopted over recent years such as Mind, Exercise, Nutrition, Do it; MEND, Getting Our Active Lifestyles Started; GOALS or Families for Health, all being multicomponent community-based child and family based healthy weight programmes.

Rotherham currently provides “More Life Clubs” delivered by leisure centres for children over 85th centile aged 8-17years. The intervention comprises of 12 weekly sessions of diet, physical activity and behaviour change and must be attended by the child/young person with their parent or carer. Children and families can refer themselves or referrals are received from schools and health professionals. This tier 2 service is set within Rotherham’s Healthy Weight Framework which has been recognised by NICE as the national benchmark.

[78] DH (2013) Developing a specification for lifestyle weight management services
Best practice guidance for tier 2 services
[79] DH (2009) Healthy Child Programme from 5 to 19 years old
[80] PHE (2015) National mapping of weight management services

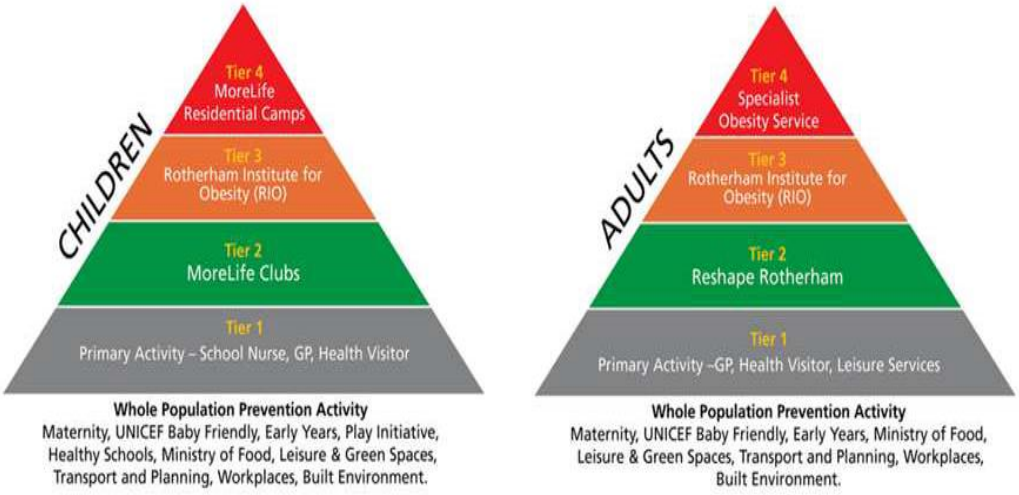


Figure 30 - Rotherham Healthy Weight Framework

Bristol provides a Tier 2 service known as "Alive 'N' Kicking" which is available across the local area focusing on the most deprived wards. Individuals may self-refer although primary care referrals are encouraged. The service offers group or 1:1 sessions, dependent on family preference and assessment in conjunction with the Alive 'N' Kicking team. 1:1 work with children and families is based around weekly healthy eating and physical activity sessions with a lifestyle coach. Group sessions are provided for children and their families across three age groups of 2-4, 5-11 and 12-16 years.

Session content is age specific but may include a 12-week programme: Understanding weight gain and having the confidence to change, understanding food labelling, portions etc and family physical activity. Families are followed up after 12 weeks as a minimum.

Wolverhampton provides "Fun4life" for 8-16 year olds, a weight management programme delivered by Walsall Council Sport and Leisure Development Services and works in partnership with NHS Walsall and under the guidance of Carnegie Weight Management, UK Leaders in this field. This 12 week programme requires young people to be accompanied by their parent or carer and includes fun skilled based sports, education sessions, monitoring and individual goal setting. "Make It Count" is Wolverhampton's 12-week programme for 4-7 year olds and also uses a whole family approach to increase physical activity levels and knowledge of healthy eating.

Current Provision in Gloucestershire

Not dissimilar to the programmes listed above, a pilot family-based childhood obesity intervention programme "Eat Well, Play Well, Start Well" was funded by the Local Authority for two years in Gloucestershire. The programme ran in Hester's Way, Cheltenham where the NCMP results showed show that 12.1% of reception-age children in Hester's Way are obese (compared to 7.3% in Cheltenham overall) and 26.0% of children in year 6 are obese

(compared to 14.7% in Cheltenham overall) in 2010/11. This 8 week programme for involved a weekly two-hour session of physical activity and healthy eating advice and support tailored according to the needs of the families. It is a targeted programme for overweight or obese 7-11 year olds and their families. This intervention was not well attended despite referrals to the programme from GPs, School Nurses and Social Workers so the pilot has not been continued substantively. Reasons for lack of engagement were explored in a study carried out by public health, see section 7.2

Potential Gaps

- A family and/or community weight management service that is fully integrated within a Healthy Weight Framework

TIER 3 – SPECIALISED WEIGHT MANAGEMENT SERVICES

Specialist weight management services (sometimes called tier 3 services) usually refer to clinical treatments provided by specialist services. This may include the use of drugs. These services could be for children or young people with severe or complex obesity, or with other special needs. (NICE ph47). Tier 3 obesity services offer support from clinicians, specialist dietician, psychologist and exercise specialists and are a prerequisite for patients seeking Tier 4 services such as bariatric surgery.

A lack of provision of Tier 3 obesity services in some parts of the country was highlighted by the Royal College of Surgeons[81] pointing out that it risked leaving obese patients unable to access vital services they need to help control their weight.

There is a lack of service provision nationally at Tier 3, which has raised questions about where children and young people should access care. Should they attend Tier 2 services, which are not specifically designed for CYP with severe obesity, or do they miss out on weight management services altogether? And would a community-based programme or a clinically based one be best suited for CYP with severe obesity and/or complex needs?

When Tier 3 services are provided, they are often administered in a clinical setting, predominantly within hospitals and specialist obesity units, for example the Rotherham Institute for Obesity.[82] These clinical services are mainly delivered by a multi-disciplinary team over a non-specified amount of time and at differing intensities.[83]

[81] Royal College of Surgeons (2014) https://www.rcseng.ac.uk/news/launch-of-commissioning-guide-for-weight-loss-programmes#.V7cLTssUVdg
[82] Rotherham Institute for Obesity - http://www.rotherhaminstituteforobesity.co.uk/
[83] Royal College of Surgeons England (2014) https://www.rcseng.ac.uk/news/launch-of-commissioning-guide-for-weight-loss-programmes#.V7cLTssUVdg

Examples of Tier 3 service provision in England

Self-Help, Independence, Nutrition and Exercise (SHINE) is a community-based weight management programme for CYP aged 10–17 years with severe obesity provided in **Sheffield**. Delivery is based on a psychosocial intervention model using a stepped care approach. Referrals to SHINE include CYP with complex needs with a BMI ≥99.6th centile, with or without comorbidities. CYP with complex needs also include those with psychosocial issues such as self-harm, bereavement, bullying, binge eating disorder, child sexual exploitation, depression and anxiety.[84] Psychosocial issues have previously been shown to underlie or exacerbate obesity.[85]

SHINE offers a three-phase psychosocial intervention programme as follows:

- Phase One – Assessment: signposting using a stepped care approach.
- Phase Two – Stabilisation: prevention of deterioration of the condition; intervention.
- Phase Three – Maintenance: sustaining change.[86]

In **Bristol** the Care of Childhood Obesity (CoCo) clinic offers multidisciplinary assessment and care over a period of 12-18 months at Bristol Royal Hospital for Children. Typically families will attend the hospital for approximately 4-5 sessions in 12 months. Referral is required from a health professional who following assessment finds that child has a BMI >40 and on or above the 98th centile, has complex co-morbidities, safeguarding issues around weight management or is considered would benefit from pharmacological intervention or consideration for bariatric surgery.

Current Provision in Gloucestershire

There is no dedicated Tier 3 weight management service in Gloucestershire, however the children's endocrinology team and dietetic department will accept referral from health professional for children and young people who have excess weight. The service does not have a psychosocial element as recommended by NICE and referrals often wait 6 months for a first appointment.

Potential Gaps

- A multidisciplinary specialist weight management service that is fully integrated within a Healthy Weight Framework

[84] Girardi A, Babul S, Rajabali F, Pike I (2013) Bullying, Suicide, and Self-Harm Among Individuals Who Are Overweight: An Evidence Review. Provincial Health Services Authority, Vancouver, BC, Canada. Available at: http://bit.ly/1Nv10aU

[85] Nieman P, Leblanc CM (2012) Psychosocial aspects of child and adolescent obesity. Paediatr Child Health 17: 205–8

[86] Sharman K, Nobles J (2015) Bridging the gap: SHINE – a Tier 3 service for severely obese children and young people. British Journal of Obesity 1: 158–63

TIER 4 - SURGERY

Surgical intervention is not generally recommended in children or young people. However, bariatric surgery may be considered for young people only in exceptional circumstances, and if they have achieved or nearly achieved physiological maturity. A full medical evaluation, including genetic screening or assessment should be performed before surgery to exclude rare, treatable causes of obesity.[87]

If surgery is assessed as necessary, it should be undertaken only by a multidisciplinary team with the necessary paediatric expertise. Care should be coordinated around the child or young person and their family's needs and all young people should have had a comprehensive psychological, educational, family and social assessment before undergoing bariatric surgery. [31]

Currently in Gloucestershire:

There is no bariatric surgery performed on children or young people.

8.3 ADULTS

The need to change the current environment we live in that discourages obesity related behaviour has been identified as being important. Whole population solutions that address the key drivers behind the 'obesogenic' environment such as transport, food and housing are more likely to be effective and sustainable. Support for individuals to achieve or maintain a healthy weight will continue to be important; however the priority should be for policies to reverse the obesogenic environment nature of these environments.

Weight loss significantly improves obesity-related comorbidities and reduces mortality. The benefits if weight loss is profound. There is good evidence to suggest that weight reduction in overweight and obese individuals can improve physical, psychological and social health. Moderate weight loss of between 5-10% of body weight in obese individuals is associated with a number of health benefits such as a reduction in blood pressure and a reduced risk of developing type 2 diabetes and coronary heart disease.

Mortality	• More than 20% fall in total mortality • More than 30% fall in diabetes-related deaths • More than 40% fall in obesity-related cancer deaths
Blood Pressure (in hypertensive people)	• Fall of 10mmHg systolic blood pressure • Fall of 20mmHg diastolic blood pressure
Diabetes **(in newly diagnosed people)**	• Fall of 50% in fasting glucose

[87] NICE (2014) Obesity: identification, assessment and management CG 189

Lipids	• Fall of 10% of total cholesterol • Fall of 15% of low density lipoprotein (LDL) cholesterol • Fall of 30% of triglycerides • Increase of 8% of high density lipoprotein (HDL) cholesterol
Other benefits	• Improved lung function, and reduced back and joint pain, breathlessness, and frequency of sleep apnoea • Improved insulin sensitivity and ovarian function

Table 7 – Benefits for patients losing 10kg body weight[88]

NICE modelling[89] has shown that lifestyle weight management interventions that help people lose weight and then maintain the weight loss in the long term can be cost effective. Their modelling has shown that if the original weight loss achieved by attending a lifestyle weight management programme were to be maintained for life, most of these interventions would be cost effective. That is, provided they cost less than £500 per person and on average, participants lost more than 1 kg in weight. This is true for all age groups and both sexes.

Whilst excess intake of food has been identified as the primary driver for the obesity epidemic[90], it is important to recognise that physical activity can play an important role in support people to maintain or achieve a healthy weight. The Chief Medical Officer currently recommends that adults undertake 150 minutes (2.5 hours) of moderate activity per week, in bouts of 10 minutes or more. The overall amount of activity is more important than the type, intensity or frequency.[91]

TIER 1 – PREVENTION AND EARLY INTERVENTION SERVICES

There are a plethora of services and activities that exist across Gloucestershire aimed at supporting people to maintain and achieve a healthy weight. Many of these are provided or commissioned by local authorities, voluntary and the private sector. These consist of leisure and cultural services, physical activity and exercise groups, and healthy eating classes (see table 8).

[88] Department of Health (2008) Healthy Weight, Healthy Lives: Toolkit for Developing Local Strategies. London, Department of Health

[89] https://www.nice.org.uk/guidance/ph53/evidence/economic-modelling-report-431715709

[90] Scarborough P, Burg MR, Foster C, et al. Increased energy intake entirely accounts for increase in body weight in women but not in men in the UK between 1986 and 2000. Br J Nutr 2011;105: 1399–404.

[91] Department of Health, 2011. Start Active, Stay Active: A report on physical activity for health from the four home countries' Chief Medical Officers see: http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/152108/dh_128210.pdf

Tier of Intervention/Service	Composition	In-county Examples
Whole population prevention activity	Includes measures to address wider social, economic and environmental determinants of obesity	Leisure Centres/Activities, Green Spaces, Transport & Planning, Built Environment
Tier 1	Range of community-based prevention and early intervention services (self-care)	Walking for health, workplace health initiatives, NHS Health Checks, brief intervention in primary care

Table 8 – Summary of Universal and Tier 1 intervention

Current Provision

The COMMUNITY HEALTH TRAINERS promote health awareness and support individuals to make healthy changes to their lifestyle such as being more physically active, losing weight and eating more healthily. Of the 376 clients seen during the year 2014-15, 95% wanted to talk about weight loss or healthy eating resulting in 71% increasing their physical activity and 49% increasing their fruit and vegetable consumption.

NHS HEALTH CHECKS is a nationally mandated service that every upper local authority across England has commissioning responsibility for. The service which is commissioned locally by Gloucestershire County Council and delivered through primary care has as its eligible population people aged 40 to 74 years who are not on any disease register. This service is expected to serve as one source of referral for the NHS Diabetes Prevention Programme. For this to be a robust source of case finding, performance of health checks need to be optimal, which is not currently the case. A key requirement of NHS Health Checks is for health professionals to assess people's BMI and provide support where appropriate.

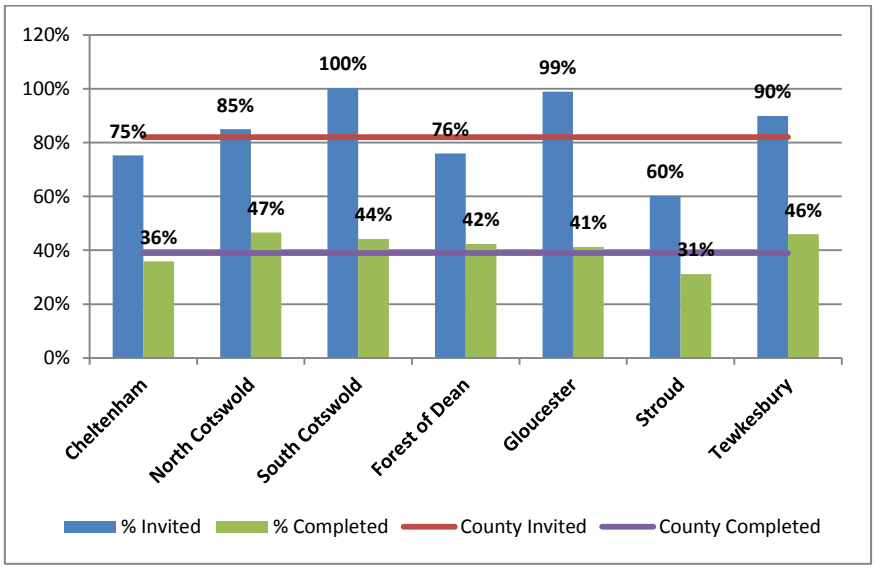


Figure 31 - Invitation and Completion of NHS Health Checks in Gloucestershire by GP Locality, 2015/16

The NATIONAL WORKPLACE WELLBEING CHARTER has recently been commissioned by NHS Gloucestershire CCG to support and accredit 40 organisations against the national workplace wellbeing charter standards. This includes targeting the large public sector organisations (i.e. LA's, NHS Providers) which has the potential to reach 17,000 employees from the public sector alone. Each organisation will receives a bespoke support package including resources, action planning and expert advice from an experienced health@work consultant who is hosted by the Local Enterprise Partnership. The programme is supported by Active Gloucestershire who advice local businesses on how they can increase their employees physical activity levels

Many of our Local Authorities across the county provide EXERCISE ON PRESCRIPTION PROGRAMMES to their local communities. These generally involve a 1-1 lifestyle consultation followed by a 12-week activity programme that usually takes place at a local leisure centre. Eligibility criteria for these schemes vary, however most schemes require individuals to be inactive and/or have a long term condition (Inc mental health). Evidence on the impact of exercise on referrals on people's health and wellbeing is mixed.

Gloucestershire currently has one of the largest SOCIAL PRESCRIBING in the country with over 1400 individuals accessing the service each year. The scheme is open to all 81 GP Practices in the county and accepts referrals from system partners, such as community nurses and social workers. The programme aims to provide holistic support to patients and improve their overall health and wellbeing. Gloucestershire is also part of a national cultural commissioning programme which is looking to develop capacity within the VCSE to support individuals across the spectrum of self-care i.e. from universal health and wellbeing to supporting individuals with long term conditions. This includes two feasibility pilots being undertaken in Gloucester and the Forest of Dean using arts and culture to reduce stigma in obesity and increase patients self-esteem.

A range of services are provided are provided via the VOLUNTARY AND COMMUNITY SECTOR. These include HEALTH WALKS that are often co-ordinated and led by volunteers in the community. LEISURE AND CULTURAL SERVICES also provide a vast array of recreatinal and physical activity opportunities for individuals and communities to increase their activity levels. This is supported by a vibrant SPORT CLUBS across the county.

The LOCAL SUSTAINABLE TRANSPORT FUND is a nationally funded programme that is primarily aimed at supporting economic growth across the county, reducing carbon emissions, and promoting active and sustainable modes of travel. This is being achieved by implementing a range of infrastructure improvements such as junction improvements, measures to reduce traffic speeds in central areas and promotion of walking, cycling, car

sharing, and use of public transport along with support for car clubs and electric car charging points.

Potential Gaps

- Working as a whole system to improve healthy weight including planning, housing, environments and education teams
- Improve availability and access to local community services such as exercise on prescription, health walks etc.
- Information on weight management and local community services is currently fragmented.

TIER 2 – COMMUNITY WEIGHT MANAGEMENT PROGRAMMES

Current NICE guidance[92] recommends that overweight and obese adults are referred to a lifestyle weight management programme and that:

- programmes may particularly benefit adults who are obese (that is, with a BMI over 30 kg/m2, or lower for those from black and minority ethnic groups) or with other risk factors (comorbidities such as type 2 diabetes)
- where there is capacity, access for adults who are overweight should not be restricted (that is, for people with a BMI between 25 to 30 kg/m2, or lower for those from black and minority ethnic groups) or with other risk factors (comorbidities such as type 2 diabetes)
- there should be no upper BMI or upper age limit for referral.

Current Provision

Gloucestershire County Council Public Health team are the lead commissioners for the Tier 2 weight management service commissioned from SLIMMING WORLD. This is the largest provider of weight management support outside Primary Care. It is a service for adults aged 18+ individuals who have a BMI of =>30, =>28 if co-morbidity issues, =>27.5 if South Asian, Chinese, Black African or Black African

All health care professionals can refer into the service. A referral form is completed by the professional, and then handed to the patient. It is the patient's responsibility to contact Slimming World to arrange attendance. All individuals are offered 12 sessions with Slimming

[92] National Institute for Health and Care Excellence (NICE). Diet, nutrition and obesity. https://www.nice.org.uk/guidance/lifestyle-and-wellbeing/diet--nutrition-and-obesity
NICE guidelines [CG189] Obesity: identification, assessment and management of overweight and obesity in children, young people and adults https://www.nice.org.uk/guidance/cg189
NICE guidelines [PH53] Managing overweight and obesity in adults – lifestyle weight management services. http://www.nice.org.uk/guidance/ph53

World with the first including an initial assessment. Completion is achieved when 10 or more of the 12 sessions have been attended.

Previously there was the opportunity to immediately re-refer. In December 2014 the criteria were changed and there now needs to be a 6 month break from the last session attended for a 2nd referral to be granted. Other referral criteria remain exactly the same with the exception of there being a 5% weight loss. If the individual has self funded since the first referral then there needs to be 3 month break since the last attended session of the self-funding attendance. The reason for no immediate 2nd referral is because of the volume of activity through the service and its popularity; this has had an impact on the budget for this service.

The service has enjoyed a lot of success since it was piloted for a year from September 2013, with appreciable weight loss in participants as follows:

- Overall, 63% of people achieved weight loss
- 19% achieved 3% weight loss
- 36% achieved 5% weight loss
- 9% achieved 10% weight loss

The access rate[93] is highest for Forest Locality (**Error! Reference source not found.**), which eems appropriate given the fact that Forest of Dean District has levels of excess weight significantly higher than the national average when compared with other local authorities in the county. It is interesting however to see that the access rate for Tewkesbury Locality is lower than that of Stroud and Berkeley Vale. This would benefit from further exploration especially in light of Stroud District having a significantly lower rate of excess weight, whilst this is higher for Tewkesbury district. Such an exploration would enable us assure ourselves that there is optimal access to this service in the areas with higher need.

Locality	Total Referrals	Access Rate
Forest	1,367	21.7
Gloucester City	3,443	20.3
Stroud and Berkeley Vale	2,250	18.9
Tewkesbury	756	17.7
Cheltenham	2,284	14.8
South Cotswold	861	14.8
North Cotswold	335	11.5

[93] Number of referrals per 1000 population

Table 9 - Slimming World Referrals and Access Rate by GP Locality, April 2014 to Date

With most of the referrals being from White British Ethnic Group (93.1%) and only 1.1% from Black and 0.7% from Asian groups, the service should explore improved targeting of the service to these population groups given their higher risk profile. 87.5% of those who attended Slimming World were female. Age range was 16-90 years; mean 50 years. Men referred were on average slightly older than women (mean age men 56 years, females 49 years) and their mean start BMI slightly higher (males 37.7, females 37.1). 9.1% (565) had a BMI under 30. 10% had a disability.

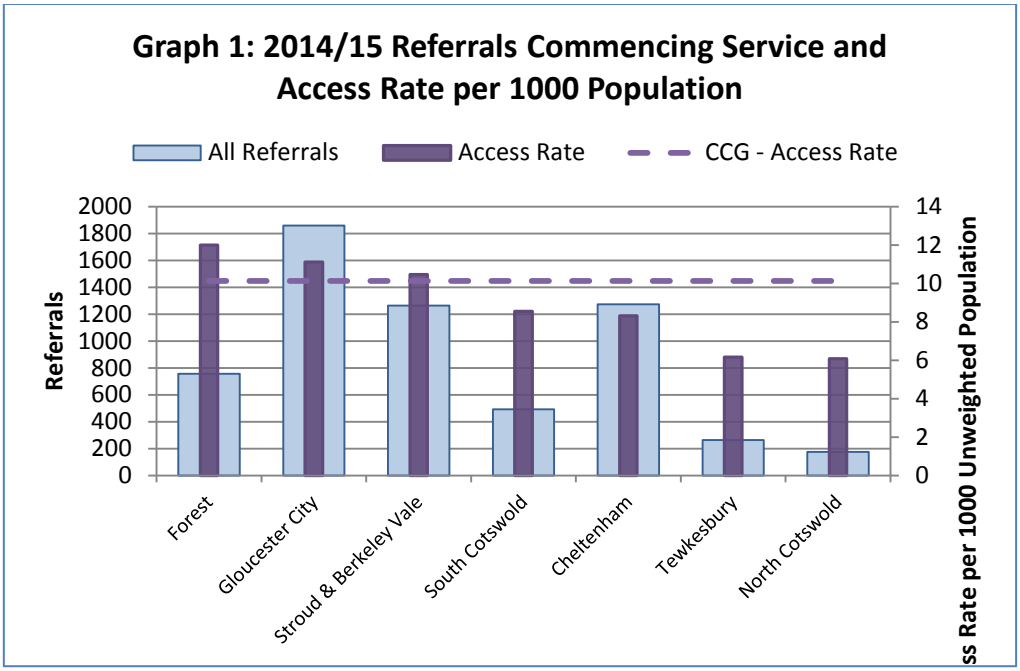


Figure 32 - 2014/15 Referrals commencing service and access rate per 1000 populatio n (n=6077)

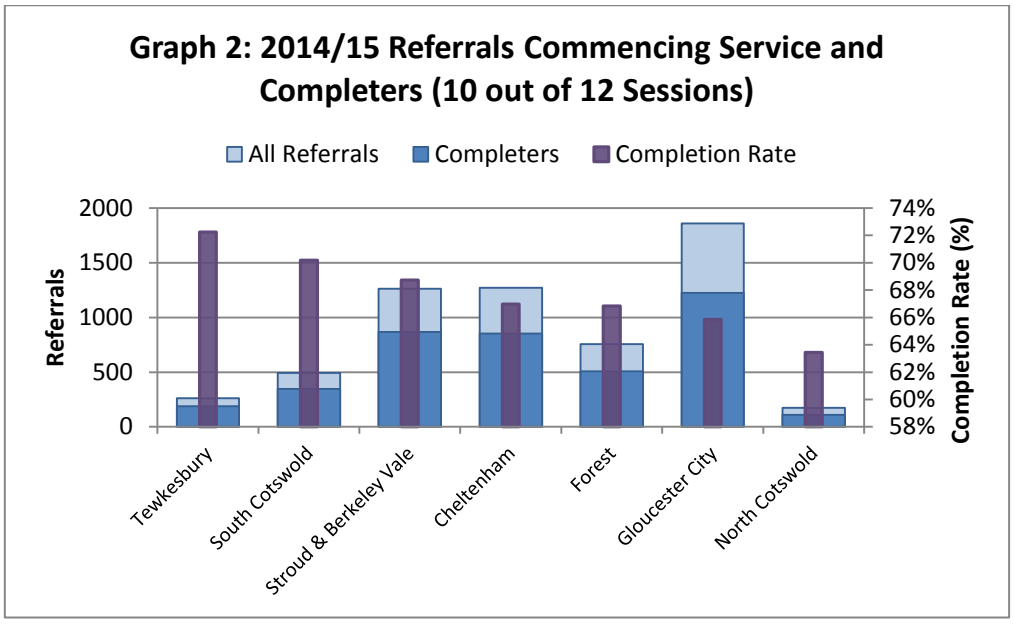


Figure 33 - 2014/15 referrals commencing service and completers (10 out of 12 sessions)

Further analysis on the Tier 2 Slimming World service can be found here:

It's important to recognise that the PRIVATE AND COMMUNITY SECTOR also provide an array of services that support individuals who are obese. This consists of commercial weight management programmes such as WEIGHT WATCHERS and COMMUNITY LED SELF-HELP GROUPS that take place within village halls or local leisure centres. This may include exercise on prescription programmes. There is also a growing ONLINE presence and MOBILE APPS that provide ongoing support for those who are obese.

Potential Gaps

- Lack of ongoing support for those patients/service users who achieve could weight loss at 12-weeks (particularly for those with chronic disease)
- Improve the data quality of adult obesity in primary care to ensure that progress can be monitored against the local obesity plan
- Ensure high quality and consistent evaluation of all weight management, diet and physical activity interventions (including pilot programmes) that support future commissioning decisions
- Accurate data on the number of patients attending Tier 2 and who have a long term condition

Pharmaceutical intervention - Orlistat

Current NICE guidance/evidence[94] suggests considering pharmacological treatment only after dietary, exercise and behavioural approaches have been started and in adults who meet one of the following criteria:

- a BMI of 28 kg/m2 or more with associated risk factors
- a BMI of 30 kg/m2 or more. [2006]
- Continue orlistat therapy beyond 3 months only if the person has lost at least 5% of their initial body weight since starting drug treatment
- Make the decision to use drug treatment for longer than 12 months (usually for weight maintenance) after discussing potential benefits and limitations with the person.

[94] https://www.nice.org.uk/guidance/cg189/resources/obesity-identification-assessment-and-management-35109821097925

- Monitor the effect of drug treatment and reinforce lifestyle advice and adherence through regular review. Consider withdrawing drug treatment in people who have not reached weight loss targets

Team of prescribing support pharmacists working with practices and some of their work in recent years has included reviewing patients on this product to ensure they are losing the required weight in line with NICE recommendations, and where not proving successful, they suggest discontinuing, which seems to be reflected in the usage graph below (i.e. dip in 2011/12 due to national shortage, then prescribing went back up, but not to pre-shortage levels, then a downward trend due to – possibly – prescribing support pharmacists suggesting to discontinue

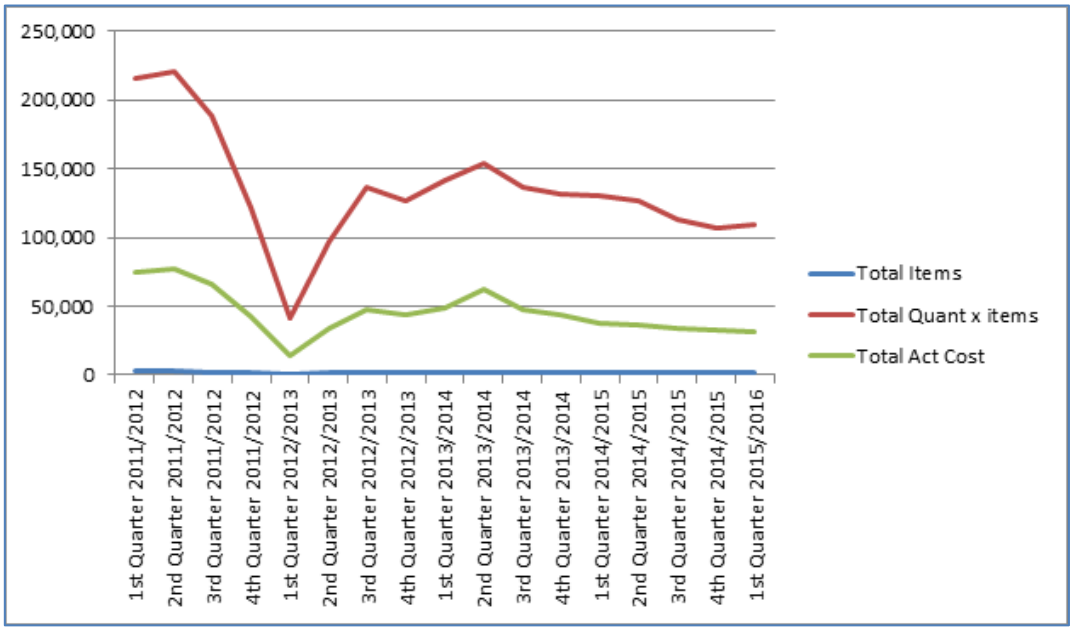


Figure 34 – Total items (orlistat) prescribed and cost over the last four years

TIER 3 – SPECIALIST WEIGHT MANAGEMENT SERVICE

Current NICE guidance[95] suggests that Tier 3 services should be considered if:

- the underlying causes of being overweight or obese need to be assessed
- the person has complex disease states and/or needs that cannot be managed adequately in tier 2 (for example, the additional support needs of people with learning disabilities)

[95] National Institute for Health and Care Excellence (NICE). Diet, nutrition and obesity. https://www.nice.org.uk/guidance/lifestyle-and-wellbeing/diet--nutrition-and-obesity
8 NICE guidelines [CG189] Obesity: identification, assessment and management of overweight and obesity in children, young people and adults https://www.nice.org.uk/guidance/cg189
9 NICE guidelines [PH53] Managing overweight and obesity in adults – lifestyle weight management services. http://www.nice.org.uk/guidance/ph53

- conventional treatment has been unsuccessful
- drug treatment is being considered for a person with a BMI more than 50 kg/m2
- specialist interventions (such as a very-low-calorie diet) may be needed
- surgery is being considered.

Although much high-grade evidence exists with respect to the clinical management of patients with obesity there was little evidence at a system level on how services should be organized to achieve the best patient outcomes in the most cost-effective manner. Evidence shows that Tier 3 services have been shown to be effective in

- Weight loss
- Improvements in HbA1c (diabetes)
- Improving depression scores
- Improving quality of life
- Improving outcomes for bariatric surgery [969798]

The NHS Commissioning board issued a document on Clinical Commissioning Policy; complex and specialised obesity surgery in April 2013, which also discussed the role of Tier 3 specialised weight management services. It states that the treatment of obesity should be multi-component. Specialist (Tier 3 or Tier3/4) weight management programmes should include medical assessment of patients, treatments and lifestyle changes such as improved diet, increased physical activity, behavioural interventions, low and very low calorie diets, pharmacological treatments, psychological support and the consideration of referral for bariatric surgery if clinically appropriate. The staff within the team must have specialist Obesity qualifications (e.g. SCOPE certification) and training. Facilities should include the capacity to work from an appropriately equipped site, with specialised medical equipment and the ability to enable access to the appropriate level of physical activity. Only once patients have successfully completed a minimum of 6 months of intensive obesity management can they be referred for bariatric surgery under NICE guidelines, and a year or longer is recommended. The six months spent in pre-assessment at a surgical centre can count towards the year.

NHS England estimates that a total of 10,784 people aged 18 and over would be needing Tier 3 services in Gloucestershire, with about 3,921 of these currently in contact with GP services.[99] The county however currently has 400 patients per year in Tier 3 services. It is

[96] Morrison DS, Boyle S, Morrison C et al (2012) Evaluation of the first phase of a specialist weight management programme in the UK National Health Service: prospective cohort study. Public Health Nutr 15: 28–38

[97] *Wright F, Boyle S, Baxter K et al (2013) Understanding the relationship between weight loss, emotional well-being and health-related quality of life in patients attending a specialist obesity weight management service. J Health Psychol 18: 574–86*

[98] *Jennings A, Hughes CA, Kumaravel B et al (2014) Evaluation of a multidisciplinary Tier 3 weight management service for adults with morbid obesity, or obesity and comorbidities, based in primary care. Clin Obes 4: 254–66*

[99] Commissioning Tier 3 & Tier 4 services for Morbid Obesity - NEXT STEPS, South West Specialised Commissioning Information Pack, PHE & NHS England, May 2016

therefore recommended that the ongoing review of adult weight management services specifically explore optimal access to Tier 3 services.

Current provision

Gloucestershire's Tier 3 Specialist Weight Management Service is provided by Gloucestershire Hospitals NHS Foundation Trust and based in Gloucester Royal Hospital. It is a multidisciplinary service designed and delivered by dieticians and health psychologists. Referred patients are initially assessed by a Dietician and/or a Psychologist, a 12-month treatment plan is agreed and patients are subsequently followed up for a further 12 months

Criteria for the Tier 3 service are:

- Individuals who have not been successful with weight loss or maintenance of weight loss from Tier 1 or Tier 2
- Individuals with BMI ≥ 40 with co-morbidities
- Individuals with BMI ≥ 50 with or without co-morbidities

Note this is higher than NICE recommended BMI ≥35kg/m2 for those with co-morbidities.

For Tier 4, patients must be successful at Tier 3 in achieving or maintaining 5% or 10% body weight loss (depending on co-morbidities) AND have a BMI ≥40kg/m2 with serious co-morbidity which will be improved by bariatric surgery OR BMI ≥50kg/m2 without serious co-morbidity. Patients must have been in treatment (and actively engaged) in Tier 3 for a minimum of 6 – 12 months, before they will be considered for surgery.

Referral is via a health professional. The service works closely with departments within the hospital including the Diabetes and Respiratory Teams and the Lymphedema, Physiotherapy and Pain Management Teams.

Financial Year	Total referrals	Accepted	Rejected	Opted-in	Still to opt in	Did not respond or opted out
March 2015 April 2016	610	528	75	352	32	151
March 2014 April 2015	535	505	30	342	13	150

Table 10 - Numbers of referrals to SWMS in the last two financial years

Whilst, overall referrals to the service have increased by 14.2%, the number of referrals rejected for not meeting the entry criteria for the service have also increased to 12% of total referrals. This compares with 5.6% rejected in 2014-15, indicating the need to continue

working with referrers to inform them about who to refer to the service. The number of patient's opting in to the service remains consistent with last year's figures, with 67% of accepted patients opting in in both years, this is broadly consistent with other Tier 3 services who share outcomes.

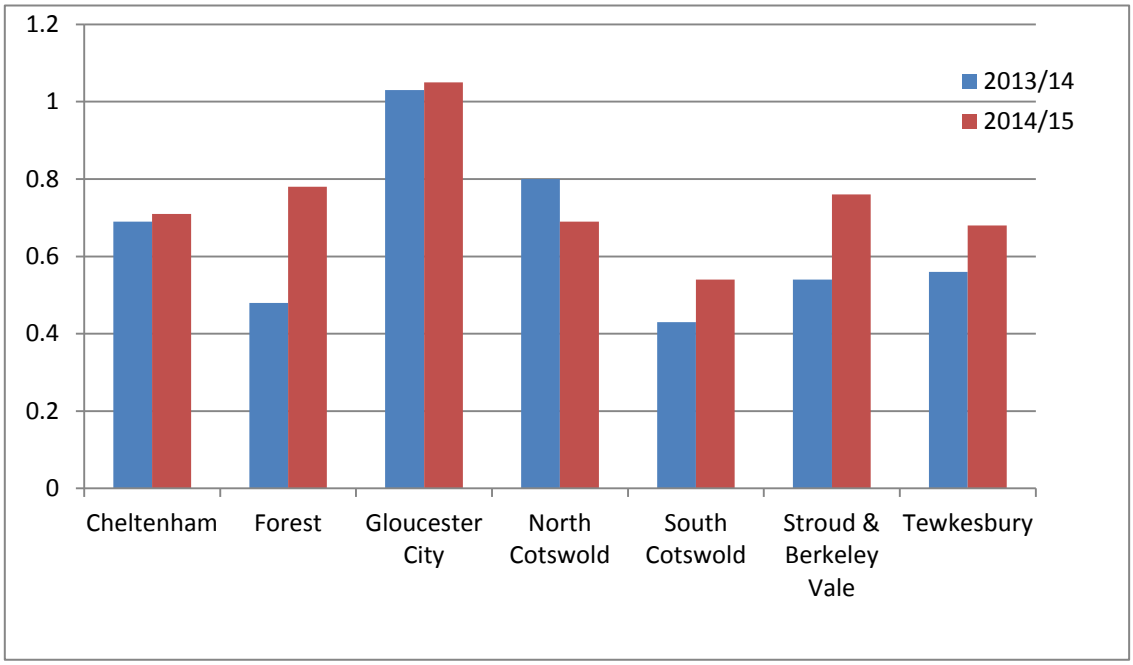


Figure 35 - Access rate to SWMS by CCG locality 2013/14 – 2014/15

Locality	Total Accepted Referrals			2014/15 Total Referrals (Tiers 2 & 3)	Access Rates per 1000 Population		
	SWMS (Tier 3)		SW (Tier 2)		SWMS (Tier 3)		SW (Tier 2)
	2013/14	2014/15	2014/15		2013/14	2014/15	2014/15
Cheltenham	105	109	1272	1381	0.69	0.71	8.32
Forest	30	49	751	800	0.48	0.78	11.95
Gloucester City	173	175	1860	2035	1.03	1.05	11.11
North Cotswold	23	20	175	195	0.80	0.69	6.08
South Cotswold	25	31	493	524	0.43	0.54	8.55
Stroud & Berkeley Vale	65	92	1263	1355	0.54	0.76	10.46
Tewkesbury	24	29	263	292	0.56	0.68	6.17
Total	445	505	6077	6582	0.70	0.80	9.60

Table 11 – Referrals by locality

Table 11 shows total accepted referral numbers to Slimming World (Tier 2) and the SWMS (Tier 3) weight management services for each Gloucestershire CCG locality, with the total number of referrals made in 2014/15 and the access rate per 1000 population for the two services. The access rates for 2013/14 are based on unweighted population sizes at census date March 2014; 2014/15 rates are based on census date March 2015.

From this table Gloucester City appears to have the highest access rate for the SWMS in 2014/15, with 1.05 accepted referrals per 1000 population. South Cotswold appears to have the lowest access rate at 0.54 per 1000. North Cotswold is the only locality which appears to have a slightly lower access rate to the SWMS in 2014/15 compared to 2013/14, whilst all other localities appear to have shown a slightly increased rate.

Forest of Dean appears to have the highest access rate for the Slimming World service in 2014/15, with 11.95 accepted referrals per 1000 population. North Cotswold appears to have the lowest access rate at 6.08 per 1000.

BMI	Total	% of total referrals
30 to 34.99*	8	1.31
35 to 39.99*	51	8.36
40 to 44.99	185	30.33
45 to 49.99	131	21.48
50 to 54.99	104	17.05
55 to 59.99	49	8.03
60 to 64.99	14	2.30
65 to 69.99	8	1.31
70 and over	7	1.15
Error	1	0.16
Not known	51	8.36
Under 30*	1	0.16
Total	610	

*Please note referrals below the BMI entry level for the service include rejected referrals, post-surgery from elsewhere and patients asked to be seen on exceptional medical grounds.

Table 12 - BMI breakdown of total referrals 1st April – 31st March 2016

Outcomes (from SWMS Annual Report 2015/16)

Weight loss outcomes (total pathway):

- At 6 months 73% of patients have lost weight with 46% losing more than 5%
- At 12 months 73% of patients have lost weight with 21.84% losing more than 10%

- 75% of patients lose weight in the first four treatment appointments

Other clinical outcomes:

Statistically significant improvements were also seen in:

- Perceived health improvement
- Anxiety and depression (PHQ-9 and GAD-7 scores)
- Quality of life
- Self-efficacy
- Emotional eating
- Cognitive restraint
- Perceived control over weight
- Perceived confidence in being able to maintain weight
- Physical activity

Improvements were also reported in structure and speed of eating, and food choices (reduction in 'unhealthy' snacks).

Service user satisfaction

- Of the patients who completed an end of treatment questionnaire, 97% reported finding the service useful and 69% giving the highest satisfaction rating possible. Satisfaction ratings are higher in patients who have had individual treatment compared to group treatment.

Awards and commendations

- The team were nominated and shortlisted in the GHFT Staff Awards in the Health Ambassadors Category
- The service won the 2016 Advancing Healthcare Unite the Union Award for Working Together.

Potential Gaps

- Referral pathways for patients who are denied surgery or fertility treatment as a result of their weight.
- Maternity / pregnancy pathway
- Centralised service only available at GRH – higher access rate in Gloucester might mean those having to travel further opt out
- Gender split – 68% of referrals female, 32% male – expect more women, but could do more to ensure men opt in
- Service model not suitable for Learning Disabilities
- Long-term follow up (beyond 24 months)

TIER 4 – BARIATRIC SURGERY

Severe and complex obesity services (Tier 4 – surgery for weight management) are defined as specialised services and currently commissioned by NHS England. Current NICE guidance[100] suggests Tier 4 bariatric surgery as a treatment option for people with obesity if all of the following criteria are fulfilled:

- They have a BMI of 40 kg/m2 or more, or between 35 kg/m2 and 40 kg/m2 and other significant disease (for example, type 2 diabetes or high blood pressure) that could be improved if they lost weight.
- All appropriate non-surgical measures have been tried but the person has not achieved or maintained adequate, clinically beneficial weight loss.
- The person has been receiving or will receive intensive management in a Tier 3 service
- The person is generally fit for anaesthesia and surgery.
- The person commits to the need for long-term follow-up.

NICE guidance also stresses the importance of long-term follow-up for people who have had bariatric surgery, suggesting a follow-up care package for a minimum of 2 years within the bariatric service. This should include:

- monitoring nutritional intake (including protein and vitamins) and mineral deficiencies
- monitoring for comorbidities
- medication review
- dietary and nutritional assessment, advice and support
- physical activity advice and support
- psychological support tailored to the individual
- Information about professionally-led or peer-support groups.

After discharge from bariatric surgery service follow-up, NICE recommendations outline the need to ensure that all people are offered at least annual monitoring of nutritional status and appropriate supplementation according to need, as part of a shared care model of chronic disease management.

In Gloucestershire the current access criteria for adult Tier 4 surgery are:

- Age 18 and over
- Morbid/severe obesity has been present for at least five years
- Very obese/morbidly obese individuals : BMI > 50

[100] Obesity: identification, assessment and management (CG189)https://www.nice.org.uk/guidance/cg189/chapter/1-recommendations#surgical-interventions

- Those who have successfully engaged with Tier 3 service for 6 - 12 months (depending on co-morbidities, with patients with Diabetes, sleep apnoea or BMI>50 on the shorter pathway) and have:
    - BMI of 40 or more
    - BMI between 35 and 40 in the presence of other significant disease
- Revision surgery

Gloucestershire patients are able to access Tier 4 service from GHNHSFT, North Bristol NHS Trust of Musgrove Park Hospital Taunton, depending on BMI/complexity

Evidence

Surgical intervention has been shown to be more effective than non-surgical options after a person has received intensive non-surgical treatment. Weight loss is more likely to be maintained in the longer term. Surgery has been shown to result in improvements in co-morbidities, such as diabetes and hypertension, and in health-related quality of life.[101] Impact on quality of life: There is good evidence for improved quality of life after bariatric surgery. This includes increased employment, reduction in sick leave and reduction in requirement for social security support.

Commissioning Intentions for 2016/2017 have indicated that these services will be devolved to CCGs during 2016/2017 although no firm date has been established. Data around numbers of patients in Gloucestershire receiving weight loss surgery and the cost of these procedures currently sits with NHS England (although it is expected to be shared with CCGs shortly). Gloucestershire CCG has identified a commissioner to oversee this transfer and work is currently being undertaken, in liaison with the commissioner for Tier 3 services, to understand current provision, highlight service issues and explore the interface between Tier 3 and Tier 4 services.

Groups known to be at a greater risk of obesity and its complications who have a greater need for bariatric surgery include;

- People from more deprived areas
- Older age groups
- Some black and minority ethnic groups
- People with disabilities

These groups are also less likely to access healthcare services. Currently available information (to NHS England) does not allow an assessment of access based on local need.

[101] *Colquitt JL, Pickett K, Loveman E, Frampton GK* Surgery for weight loss in adults.. *Cochrane Database Syst Rev. 2014 Aug 8; 8:CD003641. Epub 2014 Aug 8*

Modelled data undertaken by NHSE England indicate that approximately 2,588 adults (18+) may be eligible for surgery. [102]

A NICE minimum benchmark was recommended for use in planning services because bariatric surgery provision was very low in 2006. The aim was to encourage a modest uplift in service provision across the country. Commissioners were to;

- Aim to treat 1.6% of the eligible and willing population (2006)
- Aim to provide surgery at the rate of 10/100,000 of population within 5 years i.e. 2011/2012
- Plan for an annual growth rate of eligible population by 5%.

NICE Assumptions used in estimating population benchmark for bariatric surgery services https://www.nice.org.uk/proxy/?sourceUrl=http%3a%2f%2fwww.nice.org.uk%2fusingguidance%2fcommissioningguide s%2fbariatric%2fassumptions.jsp)

[102] Commissioning Tier 3 & Tier 4 services for Morbid Obesity - NEXT STEPS, South West Specialised Commissioning Information Pack, PHE & NHS England, May 2016

APPENDIX 1: SUMMARY OF HEALTH CONSEQUENCES OF OBESITY

MUSCULOSKELETAL SYSTEM

- 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.

CIRCULATORY SYSTEM

- Raised BMI increases the risk of hypertension (high blood pressure), which is itself a risk factor for coronary heart disease and stroke and can contribute to other conditions such as renal failure.
- The risk of coronary heart disease (including heart attacks and heart failure) and stroke are both substantially increased.
- Risks of deep vein thrombosis and pulmonary embolism are also increased.

METABOLIC AND ENDOCRINE SYSTEMS

- The risk of Type 2 diabetes is substantially raised: 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. Diabetes currently affects nearly 200 million people worldwide and International Diabeted Federation predict that this will increase to over 330 million by 2025, with a massive burden in developing countries. Worldwide, the number of people with diabetes has tripled since 1985.
- There is a greater risk of dyslipidemia (for example, high total cholesterol or high levels of triglycerides), which also contributes to the risk of circulatory disease by speeding up atherosclerosis (fatty changes to the linings of the arteries).
- Metabolic syndrome is a combination of disorders including high blood glucose, high blood pressure and high cholesterol and triglyderide levels. It is more common in obese individuals and is associated with significant risks of coronary heart disease and Type 2 diabetes.

CANCERS

- The risk of several cancers is higher in obese people, including endometrial, breast and colon cancers.

REPRODUCTIVE AND UROLOGICA PROBLEMS

- Obesity is associated with greater risk of stress incontinence in women.
- Obese women are at greater risk of menstrual abnormalities, polycystic ovarian syndrome and infertility.
- Obese men are at higher risk of erectile dysfunction.

- Maternal obesity is associated with health risks for both the mother and the child during and after pregnancy.

RESPIRATORY PROBLEMS

- Overweight and obese people are at increased risk of sleep apnoea (interruptions to breathing while asleep) and other respiratory problems such as asthma.

NON-ALCOHOLIC FATTY LIVER DISEASE

- The term 'non-alcoholic fatty liver disease' (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. If left untreated, it may progress to severe forms such as non-alcoholic steatohepatitis (NASH), fibrosis and cirrhosis. It has also been linked to liver cancer.
- Obesity is an important risk factor for the condition: over 66% of overweight people, and over 90% of obese individuals are at risk of NAFLD [1]. As levels of obesity have risen, so has the prevalence of NAFLD.
- There is a lack of high quality data related to the prevalence of NAFLD in the UK. This is due to a number of factors including variations in diagnostic criteria, the invasive nature of diagnosis, and the lack of symptoms in people with mild forms of the condition.
- Approaches to tackling the condition focus on weight reduction through a combination of diet and physical activity, but there is no specific evidence-based treatment for NAFLD.
- Scientific understanding of the condition is limited, and there is a lack of high quality data on it. The impact of rising obesity levels on the prevalence and severity of NAFLD is not known, nor are the natural history or optimal management of the condition. There is a lack of scientific consensus on just how significant a threat to health NAFLD presents. In order to explore these issues in more detail we held an initial expert workshop in October 2013, and are continuing to develop this work in PHE and with external partners.
- Improvements in outcomes from NAFLD will require better data collection through primary and secondary care, death certification, and transplant registers, as well as research into the causes and treatment of the condition.

GASTROINTESTINAL DISEASE

Obesity is associated with:

- Increased risk of gastro-oesophageal reflux
- Increased risk of gall stones

PSYCHOLOGICAL AND SOCIAL PROBLEMS

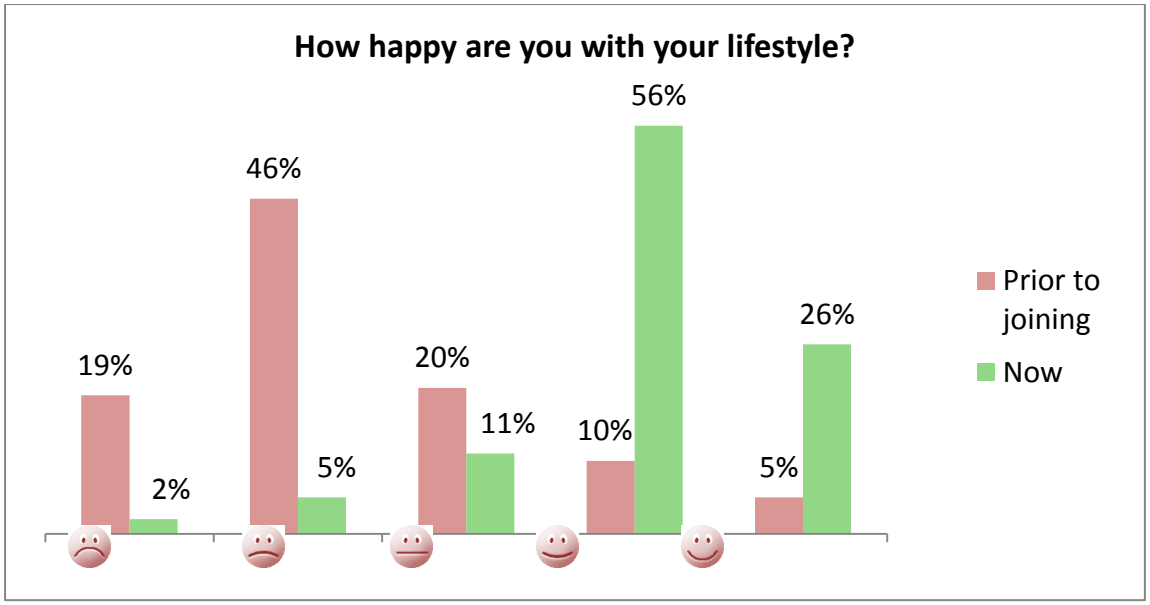
- Overweight and obese people may suffer from stress, low self-esteem, social disadvantage, depression and reduced libido.

APPENDIX 2 – QUOTES FROM JOINING UP YOUR CARE CONSULTATION

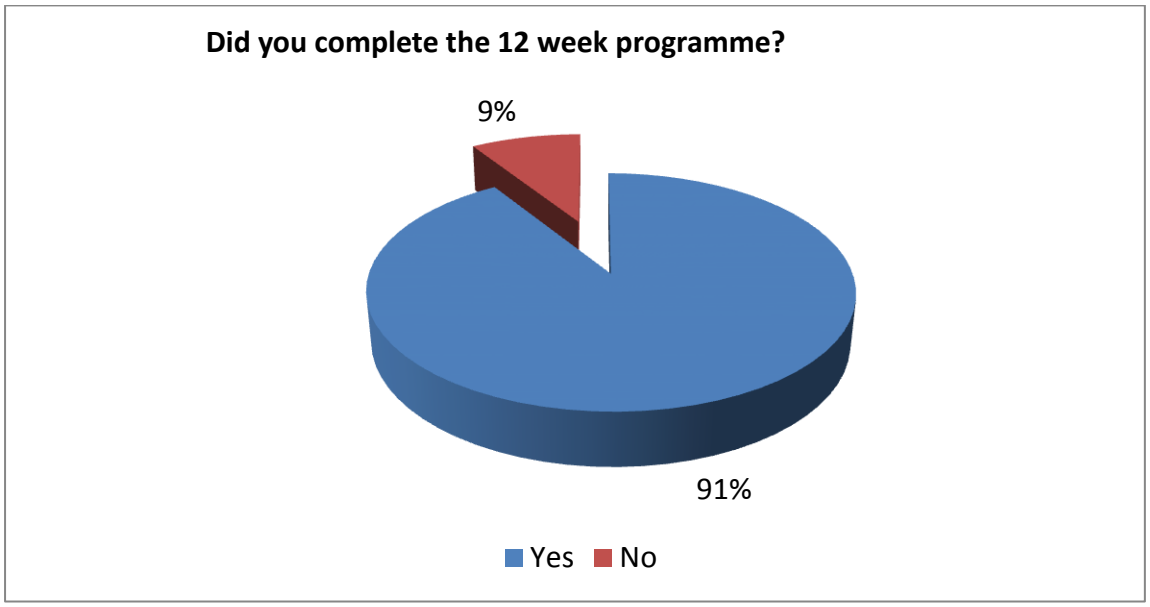
- "I think you need to look into funding more community based exercise classes, diet classes and more health walk in the evening and weekends so working people can attend to promote primary prevention." p.24
- "You should consider working more holistically with employers to influence what happens in workplaces - more exercise, stress management, healthier eating. Getting major local employers including both private and public sector on board could have a big impact." p.24
- "County and District/Town Councils need to take responsibility to encourage healthy lifestyles through local planning e.g. Restricting the number of fast food outlets, licensing hours, vending machines in sports facilities, etc." p.27
- "Local communities could use suitably trained volunteers to provide education and coaching/mentoring in healthy living but they need guidance." P.27
- A directory of services (very local) is required to help direct and divert patients to community/voluntary services/groups/activities. P.27
- District, Town and Parish Councils operate local initiatives which support health and wellbeing. There are opportunities to develop this work in partnership with health and social care.p.27
- "A shared vision and approach focussed on improving health literacy, helping and supporting people in making good choices, good networking and using all the local assets and expertise. We all need to make it easy, fun and normal to make the right choices and join in with the right things." p.31
- "Evidence shows that people often want to change their lifestyles but lack the knowledge and interpersonal tools to succeed. Culture change within local communities is vital as lifestyle choices are often greatly affected by expected social norms. Again communities will need support via local and national Government initiatives to bring about the long-term health benefits required e.g. local affordable access to physical activity initiatives." p.31

APPENDIX 3 – SUMMARY OF PATIENT FEEDBACK FROM SLIMMING WORLD PILOT

Participants were asked to reflect on how happy they were with their lifestyle now, compared to before they joined the Slimming World "on referral" programme. Results showed a significant positive shift:



The majority of participants responding to the survey had completed ten or more sessions of the 12 week programme:



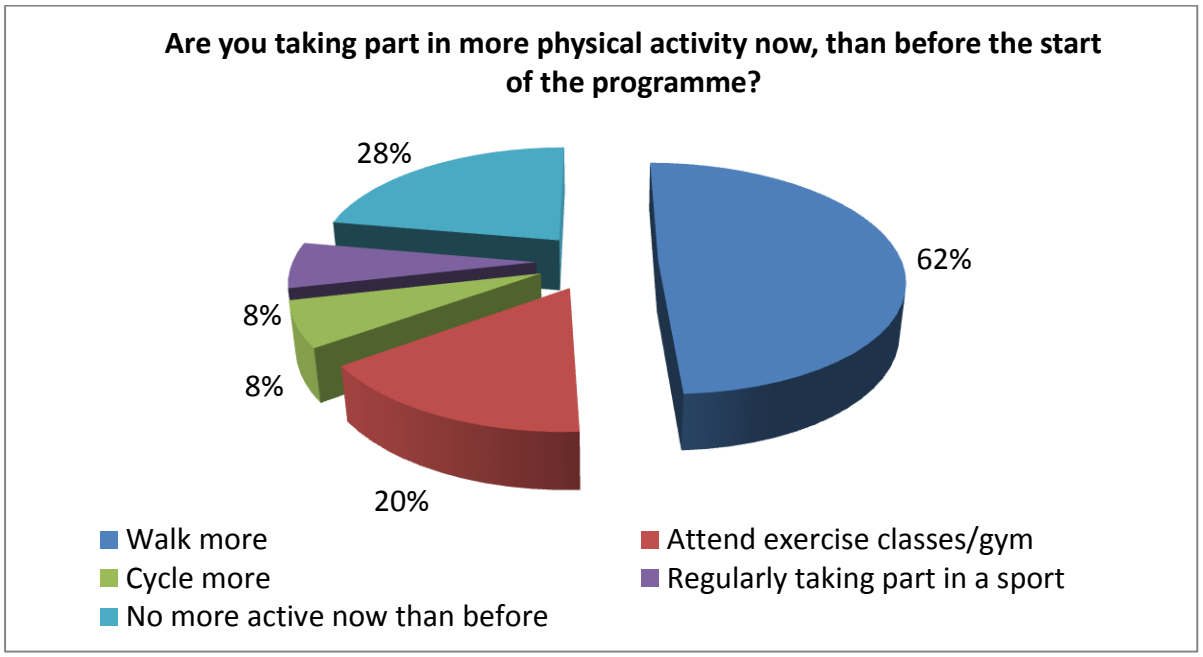
The main reason given for not completing the course was personal/family circumstances. The free text responses supporting this question suggest that challenges around work commitments, time and location of the meetings and lack of support/approach of the Slimming World Consultant also played a significant part in drop-out rates. A small number of participants did not like the lack of privacy during the group sessions and would have preferred more 1:1 time with the Consultant.

Almost all of the participants - 96% - reported a weight loss during the 12 week programme. Those who didn't lose weight cited the reasons for this as:

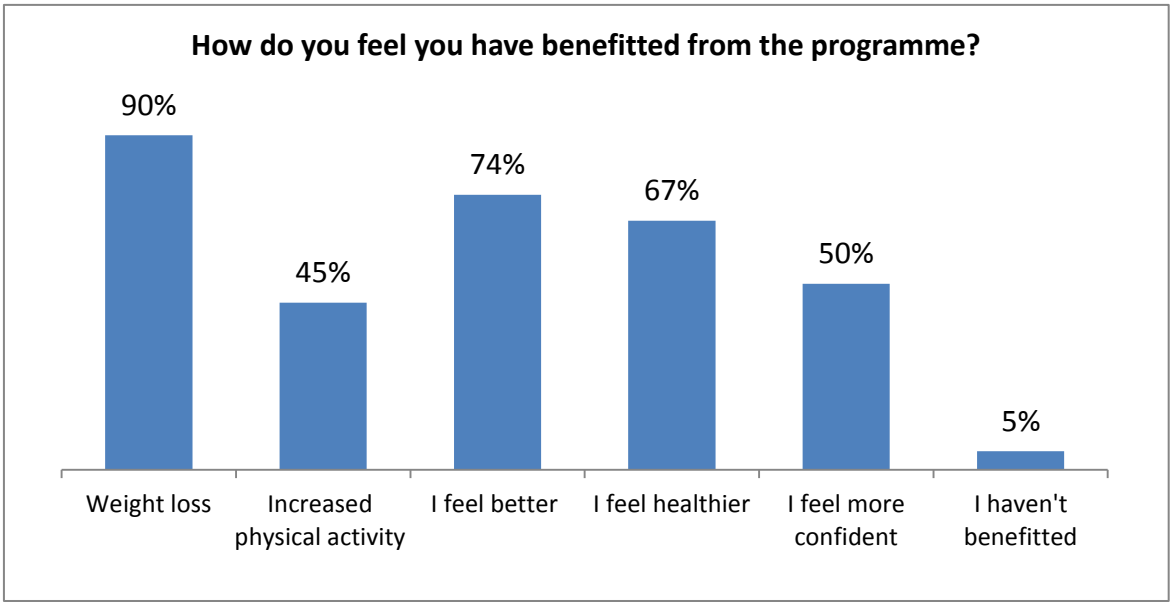
- personal circumstances;

- "I didn't get on with the programme"; and/or
- "It wasn't the right time for me to take part".

A similar number of participants reported that they were continuing to take steps to try and lose weight, or maintain weight loss. A significant number of participants also reported an increase in physical activity compared to when they started the programme:



Participants were asked to tell us how they felt they had benefitted from the programme.



They were given a range of options to choose from and asked to indicate all that applied.

In addition, participants were encouraged to feed back in more detail about any other benefits experienced. A sample of the responses is given below, with a full list included in Appendix 3.

- Massive benefits from attending the weekly support group enabling me to witness the great weight losses other members have made. My blood sugars are lower than they have been for many years.
- I have made friends and socialise with others, I have some “me” time once a week at class.
- I now fully understand why I have put weight on in the past.
- 12 weeks ago I was using a walking stick sometimes to help me walk, but so much better now and far less pain killers.
- I feel so much better about myself - and it was brilliant to be able to buy a dress off the peg and NOT in the 'fat' section!!
- I suffer from rheumatoid arthritis and losing weight has a beneficial effect on my joints.
- My sparkle is coming back....

Additional comments:

- My husband is beginning to change his eating habits, i.e. cutting down on fast food and sugar.
- We do more as a family, one because my mental health has improved but also my energy levels.
- Slimming World meals are so good, the rest of the family sometimes never knew it was a low fat meal.
- We have really cut down on all of the fattening foods. We are eating a lot more fruit and veg. The children have become my diet police and stop me eating the wrong food

APPENDIX 4 - AN EXPLORATION OF BARRIERS TO ACCESSING A FAMILY-LED CHILDHOOD OBESITY INTERVENTION: A HEALTH POLICY REPORT

MSc Project Report

2014-2015

An exploration of barriers to accessing a family-led childhood obesity intervention: a health policy report

Supervisor: Lorraine Williams

Candidate number: 108047

Word count: 8764

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Submitted in part fulfilment of the requirements for the degree of MSc in Public Health [Public Health]

September 2015

AN EXPLORATION OF BARRIERS TO ACCESSING A FAMILY-LED CHILDHOOD OBESITY INTERVENTION

A HEALTH POLICY REPORT

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EXECUTIVE SUMMARY

AIMS

Use literature review and stakeholder interviews to explore barriers preventing families attending the childhood obesity intervention “Let’s All Get Active” in Cheltenham, UK.

METHODS

Fishbein’s Integrative Model of Behavioural Prediction(1) was used as a framework to understand factors acting as barriers to attendance. A systematic literature search of Medline, CINAHL and PsycINFO was conducted, looking for original research papers on barriers to attendance at family-led childhood obesity interventions, excluding quantitative outcomes. Eleven included papers were reviewed, quality appraised, and themes coded as per Fishbein’s framework. Five in-depth interviews were also conducted iteratively with stakeholders involved in recruiting to the intervention. The interviews were transcribed, thematic content analysed, and coded as per Fishbein’s framework.

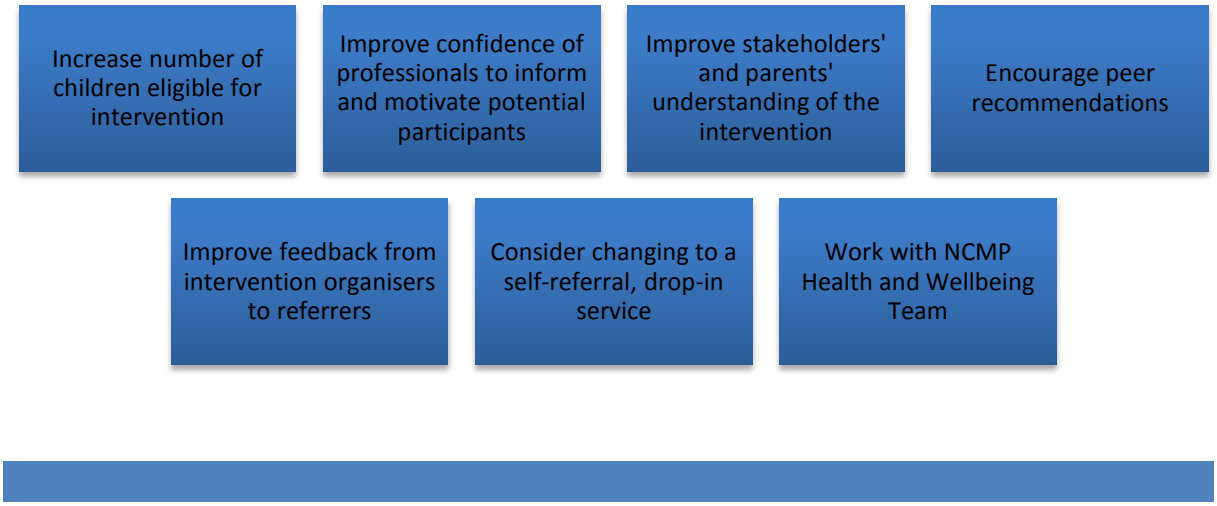
FINDINGS

Attitudes to the intervention and perceived societal norms seemed to be the main factors contributing to families not attending interventions.

LIMITATIONS

Only one author was able to quality appraise and code the papers, and review and code the interviews. Families who had declined to attend the intervention could not be interviewed for pragmatic reasons.

RECOMMENDATIONS


Increase number of children eligible for intervention
Improve confidence of professionals to inform and motivate potential participants
Improve stakeholders' and parents' understanding of the intervention
Encourage peer recommendations
Improve feedback from intervention organisers to referrers
Consider changing to a self-referral, drop-in service
Work with NCMP Health and Wellbeing Team

ACKNOWLEDGEMENTS

ACKNOWLEDGEMENT OF ACADEMIC SUPPORT

I would like to thank all those who have supported me in producing this project.

Project development: The project idea arose from discussions with my Public Health Training Scheme Educational Supervisor, Sola Aruna, and Academic Supervisor, Paul Burton, both from the South West Public Health Training Programme. Sue Weaver, a lead commissioner in Public Health at Gloucestershire County Council provided information about the intervention and contact details for the organiser. The intervention organiser provided contact details for the referrers interviewed.

Contact, input and support: I had three meetings with my project supervisor to discuss the initial plans for the project and provide updates on its progress. My supervisor read a full draft and provided comments prior to submission.

Literature review and interviews: The literature review and the interviews were all planned and conducted independently. I transcribed the interviews myself.

INTRODUCTION

Childhood obesity is a well-recognised and worsening problem around the world. In the UK, data from 2013-14 estimates that 22.5% of reception age children are overweight or obese and 9.5% are obese. By year 6 this increases to 33.5% and 19.1% respectively. Obesity prevalence is higher in children from the most deprived areas. (2) So far no nationwide intervention has made a significantly impact on the upward trend in these numbers. NICE guidance issued in 2013 recommends making available "family-based, multi-component lifestyle weight management services" as part of the approach to preventing and managing childhood obesity. (3)

Naturally the success of complex interventions such as these in improving rates of childhood obesity in a population is contingent not only on overcoming barriers to making lifestyle changes, but also ensuring that families can and do access the interventions.

As a result of an identified local need and the NICE guidance, a family-based childhood obesity intervention pilot was set up in Cheltenham, England in 2015 but there were significant difficulties in recruiting sufficient families to run the pilot programme. This resulted in the initial pilot being delayed and only running with 2-3 families rather than the 8 families planned. The reasons for the difficulties in recruitment were unclear and so ways to increase the number of families attending the intervention were not known.

ABOUT THE PILOT INTERVENTION

Cheltenham is a city in Gloucestershire, a relatively affluent area of England, but with areas of greater deprivation such as Hester's Way. Data from the National Child Measurement Programme (NCMP) in 2010/11 show that 12.1% of reception-age children in Hester's Way are obese (compared to 7.3% in Cheltenham overall) and 26.0% of children in year 6 are obese (compared to 14.7% in Cheltenham overall). (4) As a result of this disparity Hester's Way was chosen as the location for a new family-based childhood obesity intervention in the community, "Eat Well, Play Well, Start Well".

The pilot intervention was to be funded for two years by Cheltenham Borough Council and supported by the Public Health department at Gloucestershire County Council. It was structured as an 8 week programme, run outside school hours but during term time, involving a weekly two-hour session of physical activity and healthy eating advice and support tailored according to the needs of the participants. It was targeted at 7-11 year olds who were overweight or obese and their families including siblings. Referrals into the intervention were to be made by school nurses, pastoral support workers, paediatric dieticians, the National Child Measurement Programme (NMCP) team, General Practitioners, or any other professionals who came into contact with the children and felt they could benefit.

Children attending the first block of 8 weeks with their families would then have the option to attend for a second block of formal support without their parents and on graduating from the second week block would be moved onto an organised activity club, ideally run by parents or community groups, with less formal support but opportunities to continue to socialize with the group.

The organiser of the intervention sought to make contact with as many local stakeholders as possible, including paediatric dieticians at the local hospital, community Public Health nurses, the pastoral teams at local primary schools and the NCMP team for Gloucestershire. Potential referrers were invited to a session introducing the programme and motivational interviewing techniques. Despite this preparation and raising of awareness among the potential referrers in the community, the programme struggled to recruit families. The goal for the pilot programme was a minimum of 5 referred children, and a maximum of 20 children to attend. In reality the pilot was delayed in order to increase recruitment, 8 families were signed up of whom 2 attended from the start and one further family attended 2 sessions. The remaining five families never attended a session despite organisers' best efforts.

AIMS AND OBJECTIVES

The literature around childhood obesity provides much information on attrition from family-based childhood obesity interventions (5, 6) but little about barriers that prevent families from engaging in the first place, or ways that these barriers can be overcome.(7)

This report aims to search the literature to determine barriers to initial attendance experienced in other similar interventions, to interview professionals referring into the Cheltenham intervention as to the barriers they have perceived, and to use this information to provide recommendations on improving recruitment of families into the intervention.

METHODS

LITERATURE SEARCH

Medline, CINAHL and PsycINFO were the databases searched. The search strategy used intentionally broad terms due to the wide variety in terminology for family-based childhood obesity interventions of interest. The search strategy is listed in full in Appendix 1 and the PRISMA flow chart is show in Figure 1. The search was limited to Human and English Language and Clinical Query of "Qualitative (best balance of sensitivity and specificity).

For papers to be eligible for inclusion in the literature review they needed to be original research looking at barriers to access or attendance to interventions for children with obesity. The intervention needed to be family-based (school-based interventions with children only were excluded), targeting children under the age of 18 and articles providing only quantitative outcomes like change in BMI were excluded. Articles were not excluded if they explored reasons for attrition but also included families who failed to attend any intervention sessions (and so relevant to the policy question).

The search of Medline, CINAHL and PsycINFO, in July 2015, produced 3136 papers after removal of duplicates. Titles and abstracts were screened and 55 papers were read in their entirety. Papers were included if they looked at interventions that would fit into the NICE recommendations for interventions for childhood obesity, even if they were only focused on one aspect (like physical activity, or nutrition education). Papers were excluded if:

- they looked only at attrition **after** first attendance at an intervention;
- if the intervention only included children, not families;
- if the only focus of the paper was barriers and facilitators of making a successful lifestyle change;
- if the activity was preventative (i.e. including normal weight children);
- if they were one-to-one interventions (not group-based)

These criteria were both for pragmatic reasons (to limit the included number of papers due to limited time for the review) and to make the findings most relevant to the policy question. Barriers are likely to be different if interventions included only children, or were not group-based, for any number of reasons. For example, the potential embarrassment or stigma that children might experience could differ depending on whether adults are present or whether they are with peers; or the different logistic barriers if the intervention was only among children and on school time versus out of hours and potentially requiring additional transportation and child care arrangements.

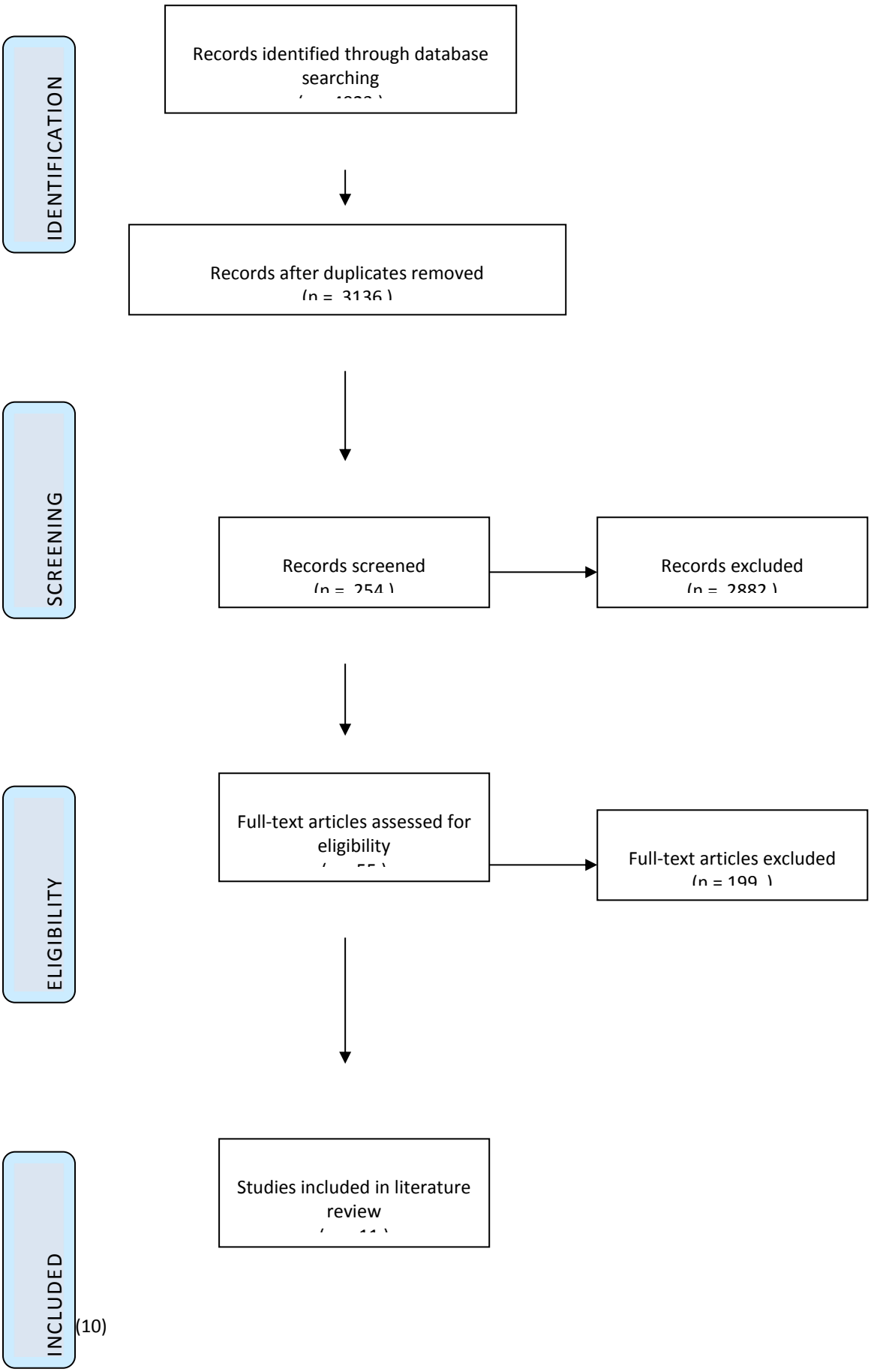
The final 11 papers were read and appraised for quality and relevance. The details of these papers can be found in Appendix 2. Details on quality appraisal of the papers can be found in Appendix 3. The quality appraisal questions were informed by an EPPI-Centre systematic review on barriers and facilitators for "Children and Healthy Eating"(8). Relevance of the papers was determined on the basis of the proportion of the paper that looked at barriers to access to interventions, versus attrition rates, and the detail and depth of the information in contributing to answering the policy question. Particular value was given to studies which gave rich data on the opinions of families who had not attended childhood obesity interventions despite being eligible, and those that provided direct quotes from respondents, as well as those papers that were assessed as high or moderate quality.

INTERVIEWS

In addition to a literature review, interviews were undertaken with professionals who were part of the programme in Cheltenham. Convenience sampling was used to identify professionals who would be willing to be interviewed about their experiences of referring families into the programme. The first interviews was with the organiser of the programme who also attended and contributed to pilot programme sessions. The organiser gave details of other interviewees, including a paediatric dietician, specialist public health nurses, a pastoral lead from a primary school and an NCMP (National Child Measurement Programme) co-ordinator.

The in-depth interviews were informed by the literature review but the specific content of each interview was tailored according to the interviewee as each of them had different roles within the referral process. The interview process was iterative with information from previous interviews being included in discussion in subsequent interviews, in the hope that agreement or dissent on ideas and suggestions could be sought. In addition there was plenty of opportunity for the interviewees to direct the discussion towards other areas they felt were relevant. The interviews were between 15 and 60 minutes long and were audio recorded. A contact sheet was completed with 24 hours of the interview and the interview was fully transcribed within 48 hours. Quotes from interviews are presented anonymously, and recordings will be deleted 12 months after completion of this report. Transcripts from the interviews and the papers from the review were read multiple times for familiarity. Thematic content analysis of the interviews was undertaken (9), using Fishbein's Integrative Model of Behavioral Prediction (1) as a framework for themes. The model is described in more detail below. Interviews were coded using NVivo version 10. Ethical approval was granted by LSHTM MSc Research Ethics committee in April 2015.

Figure 1


IDENTIFICATION
Records identified through database searching
Records after duplicates removed (n = 3136)
SCREENING
Records screened (n = 254)
Records excluded (n = 2882)
ELIGIBILITY
Full-text articles assessed for eligibility
Full-text articles excluded (n = 199)
INCLUDED
Studies included in literature review

(10)

INTEGRATIVE MODEL OF BEHAVIORAL PREDICTION: FRAMEWORK FOR UNDERSTANDING BARRIERS

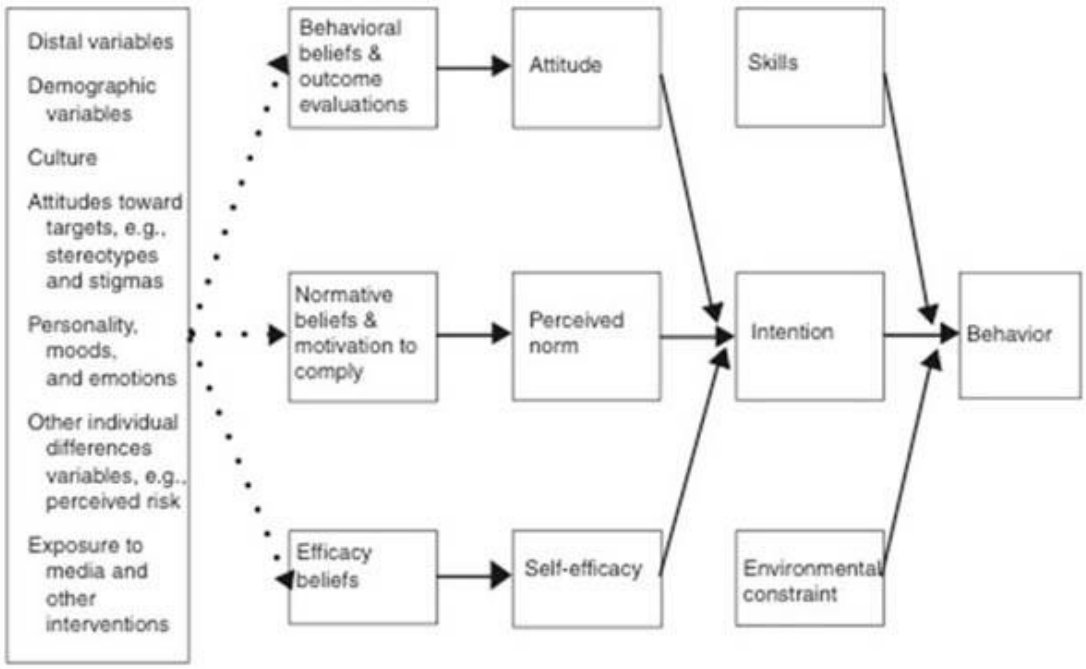
The Integrative Model of Behaviour (IMB) was formulated by Martin Fishbein from a background of his "reasoned action" approach to predicting human behaviour. It represents the view that if the beliefs underlying an intention to perform a behaviour can be changed then the intention itself will change. He explains that research shows there are three principle determinants of behaviour:

- attitude (based on beliefs of positive and negative consequences of a behaviour)
- perceived norms (including whether close friends or family support the behaviour, and others in society are performing it)
- self-efficacy (belief that the person can overcome challenges and successfully perform the behaviour)

He argues that the perceived risk of performing the behaviour is probably only a distal predictor, and thus less important in predicting behaviour. (11) This led to Fishbein constructing the integrative model of behavioral prediction that extended the model to include ability to perform intentions and environmental barriers as moderators in the relationship between intention and behaviour.

Grow et al(12) used this model to help in understanding factors which influence participation in family-based childhood obesity programmes. It was chosen as the framework to use for this thematic content analysis as it integrated other behaviour models including Theory of Planned Behavior, Social-Cognitive Theory and Health Belief Model. In Grow's study they found the IMB was effective in "convey[ing] the interaction of important factors affecting program attendance." Fishbein's model will therefore be used as a framework to help to understand the factors in both the literature search and the interviews that contribute to initial participation in the programme. The framework is shown in Figure 2.

Figure 2: Fishbein's Integrative Model of Behavioral Prediction (1)



RESULTS

The eleven included papers varied widely in their data collection methods (including focus groups, individual interviews, and demographic data) and eligible participants (professionals, parents, children). The majority (eight papers) used interviews or focus groups for data collection. The remaining three papers used either opinions of team members informally collected (13), or mainly demographic data on attendees versus non-attendees with a small number of questions asked on reasons for non-attendance.(14, 15)

Three papers considered views of health professionals (13, 16, 17) although Visram(17) also interviewed families. The rest focused on views of parents (12, 14, 15, 18-21) and in one case adolescents in addition to parents and stakeholders.(22)

Although location was not a search criterion the final papers all came from Europe, the USA or Australasia, likely mainly due to the "English Language" criterion. Four papers were from the UK (17, 18, 20, 21), one from Belgium (19), one Holland (16), three from the USA (12), one from Australia (22) and one from New Zealand (15). Regarding the interventions, most were targeted at all age groups from 4 or 5 years up to 16 or 18 years. A few of the interventions were targeted more specifically at primary school aged children (14, 15) or secondary school aged children.(22) Five of the papers were appraised as high quality(12, 17, 20-22), five as moderate quality(14-16, 18, 19) and one as low quality(13). Further details of study methods and findings can be found in Appendix 2.

RAISING THE ISSUE

The first barrier that arises in recruiting families to attend an intervention for childhood obesity is raising the issue that obesity is a problem. There is often resistance to discussing weight issues, one barrier to recruitment mentioned by Gerards' professionals. This was also a subject that arose repeatedly during interviews.

Staff in Visram's paper(17) report difficulties in approaching children and families who may be eligible for the intervention due to the sensitive nature of discussing body weight. Some professionals in Gerards' paper(16) also indicated they encountered resistance when trying to discuss the issue of obesity with parents. Furthermore some felt unable to then motivate the parents to participate in the intervention.

"We can't go up to a child and say 'You're fat – do you fancy coming onto our programme?' Really, it's for . . . especially in secondary school, it's for them to like come to see us. And in primary school it's for the parents to contact us." (17) p249

Parents quoted in the papers reviewed also acknowledged that the issue of overweight is difficult to address. In Gillespie's paper they admitted that raising the issue can provoke an "angry and defensive reaction" if not done sensitively:

'If they're pulling you up, saying your daughter doesn't look like Victoria Beckham, you'd be like that (gesture) ... beat it ... you stupid ... " (father, Dundee) (20) p87

There were repeated references in papers and interviews to feelings of blame or judgement of behaviour or parenting skills acting as barriers to open discussion of obesity. Newson's(21) non-attenders felt judged for their behaviour around feeding their child. There were similar findings in Taylor's paper(15), where a third of non-participating parents felt they were judged or blamed for their child's overweight (compared to 10% of participating parents). Interviewees also reflected on the difficulties of raising these issues with families, although several interviewees did suggest it is easier to have these conversations with families whom they already have a relationship with:

> *"…and the girl that they referred was significantly overweight and continuing to put on weight so she was at quite a high risk, and because they were already working with the dad, they felt they already had that relationship that they could talk to them about the scheme" (Interviewee 1)*

One of the interviewees described using a third person or tool to deflect the issue:

> *"We were talking about this this morning, about writing reports and quite often…phrase it like, "according to the NHS choices BMI calculator" and that sort of almost lets you off the hook a little bit, and it's like a tool that you can refer to." (Interviewee 4)*

Taylor looked at how useful participants in the intervention versus non-participants found the BMI information they were given, and found that viewing the BMI information as useful was a significant predictor of intervention uptake, in addition to low parental feelings of being judged. (15) Interestingly one of the interviewees also suggested that it is actually the parents whose children are overweight (rather than obese) who are more responsive to being notified that their child is overweight, possibly because it is unexpected:

> *"When we were sending out letters to everybody it's the children who were just above overweight, they're the parents who get a little bit [gasps] "a bit overweight…what can we do to bring them to a healthy weight." Anybody above that threshold, we don't really get people asking for support." (Interviewee 3)*

This led onto a suggestion that lowering the BMI threshold for entry into the intervention might actually increase the uptake, both because there would be a greater number of eligible children and because parents of overweight (rather than obese) children may be more responsive to the invitation.

PERCEIVED NORMS

Perceived societal norms around childhood weight were a major theme in almost all papers in producing a barrier to recruiting families to interventions. Several papers (14-17, 22) found that respondents (both professionals and parents) regarded overweight children as being a normal weight.

"Our experience is even paediatricians have had families come to them concerned but the family has been told 'oh no they're ok' when they are clearly overweight, well into the overweight range." (Researcher) (22) p5

"But how we found out about it was because we received a letter though the post to say that [name of son] was classed as clinically obese. Obese. And to go on this 'Balance It!' scheme. [. . .] To me, [name] was never obese. And that's, you know. . . I'm not looking at him through rose-tinted glasses here. [Name] is quite an active child, but he's quite a broad child and he's quite tall as well. So looking at him, anybody would have said that he wasn't fat." (Family 16: mother of son age 7: programme status uncertain) (17) p249

In Taveras' paper 21% of the 115 non-participants with obese children cited that their child did not have a weight problem. (14) Similarly, Taylor found that only 23% of non-participants (all with overweight or obese children) believed their child to be overweight, and only 16% were concerned about weight, versus 49% and 43% respectively of participants (despite no difference in BMI between groups).(15) Staff in Visram's paper felt that the denial of the weight problem in some families led to them declining to attend the obesity intervention. (17)

Social norms around childhood weight arose in all interviews. Several interviewees described parents who had struggled to believe their child was overweight:

> *"When we give them their BMI, or work that out, and then they say, "well, he's going to grow soon, and he'll get taller, and it will even out"" (Interviewee 3)*

> *"Another parent…kept trying to convince me that the child, it was just puppy fat, with this child. And that…all children look big when they're younger and shed that puppy fat" (Interviewee 5)*

Alongside this lack of awareness of overweight, the papers describe a significant stigma of overweight, which acted more frequently as a barrier than as a motivator to attend an intervention. A suggestion that a child should attend an obesity intervention contributed to the stigma. This was an issue mentioned by participants in Smith's paper:

"Teenagers often don't want to go, because they're very anxious they might see someone they know. Teenagers are already dealing with enormous bullying and other issues; to ask them to do something that they're concerned may actually make their life worse is going to turn them off the project." (Researcher) (22) p5

One interviewee echoed this opinion:

> *"there's so much embarrassment, there's so much shame around weight that a group setting is, I think only for a certain type of patient" (Interviewee 2)*

A small number (3 out of 4 who were referred but not enrolled) in Grow's study cited their child's negative reaction as a barrier to attendance:

"She looked around and said . . . it's because I'm fat . . . so she was really resentful at first." (12) pE6

Contrary to the papers from the literature review, one interviewee described how for some families living in the area not only is overweight or obesity considered normal, overfeeding is actually desirable. She explained it was important to the parents that they are seen by others to be providing their children with enough food. She felt they wanted to be seen by other parents to have enough money to provide snacks for children, and to

be seen by authorities (particularly as many of the families have had interactions with Social Services or are under Child Protection Orders) to be able to feed their children. She thought that obesity was not a major concern to those families:

> *"I think a lot of the families in this area, we have a high vulnerability area, and they want to make sure that their children are seen to be eating a lot of food. I think we have a lot of families that are involved with social care and other supportive agencies and I think that they want to be seen that they're feeding their children and that, you know. In their eyes they're feeding them well. And dietary choice really is on the back burner as far as they're concerned. Historically these are from families that have, through the generations, have not had money. They've not had financial, you know, um, wherewithal. And I think what they're doing is making sure that their children eat and eat a lot. And I think they can't get that out of their psyche. That they've, you know, it's going to cause them a health problem, you know. We know that they're loving, they're nurturing towards their children but they blast them with food." (Interviewee 5)*

> *Interviewee: I've been trying to coax her into doing some support, trying to give her some support for 18 months really because I could see her actually ballooning in front of me and I got Mum in several times about her weight, and just trying to encourage her as much as I can but she was having none of it really.*
>
> *Interviewer: So Mum didn't think there was a problem? Or didn't think it was possible to do anything about it?*
>
> *Interviewee: No. She said she felt that she was happy with what she was eating, and she would be more concerned if she wasn't eating. (Interviewee 5)*

This suggests that the impact of obesity is not understood, or not valued above other social considerations, and that perceptions of other families in the area and of people in authority who come into their lives are more important to some families.

The influence of family and social network on attendance at interventions was mixed in the literature. Participants in Grow's study did not identify lack of family support as a barrier to attending a programme, only to enacting the healthy lifestyle changes. (12) Conversely, Newson found that attendance at the intervention was linked to participants' ability to manage negative perceptions expressed by others. This was done by discrediting their views, or justifying attendance from a different angle, e.g. learning to cook or trying new activities. (21)

Newson's findings of the impact of perceived norms also reinforce Fishbein's interpretation that perceived risk is a distal predictor of behaviour:

"A key focus for all parents was to ensure that their children were perceived, both by themselves and by others, as 'healthy'. The term 'healthy' for families related to the absence of serious illness and the ability for their children to be happy. Families benchmarked their children/lifestyles against the lay perception of obesity; namely, that obesity is the social norm; it is not a serious disease and their children are able to function within society. As a result, if the families believed that the intervention would support their own definition of health, e.g. that it would help their children to be happy and function better within society, then it would be deemed acceptable to attend. However, if families were presented with the diagnosis of obesity from a medical perspective (i.e. focusing on biological risk factors), which contrasted with their own definition, this may have created conflict and therefore prevented the families from engaging with the programme."(21) p1296

Participation in childhood obesity interventions is still seen as unusual, according to Gerards' professionals, and this could tie in with Newson's interpretation of social norms – families rejecting the intervention because it sets them apart from their peers. (16, 21) Newson emphasizes the importance to individuals of fitting into their social groups. If the social group has a negative attitude to obesity, or does not attend obesity interventions, then families find it difficult to respond positively to an invitation to an intervention while maintaining their social identity within a group. The interview quote above suggests that the intervention is not seen as something positive, which would fit in with keeping children happy and healthy, but as something that would "make a big issue" of weight and all the negative social connotations that would bring.

Interviewees report that not only were invitations to join the intervention rejected, but that some families interpreted the invitation as encroaching on their autonomy to make decisions related to their child:

> *It wasn't received well. It wasn't received well. It's almost like you, you know, "I'm the parent, I'll make the decisions on what the dietary choices are. My child, I don't want to make a big issue of my child's weight." (Interviewee 5)*

It is plausible that the parents do not wish to "make a big issue" of their child's overweight because of perceived social norms – that high bodyweight is undesirable in society and attending an intervention would draw unwanted attention to it. This is in keeping with Newson's findings that some parents tried to distance themselves from a diagnosis of obesity.(21)

ATTITUDE

In the Integrative Model of Behavioral Prediction, beliefs and evaluation of potential outcomes of attending the intervention lead to attitude towards obesity and the intervention.(1)

It is logical to think that if families recognise that obesity has a long-term impact on health then they may be more likely to believe that the intervention could have a positive potential outcome. However, Fishbein describes perception of risk as a "distal" predictor of intention and behaviour in his model.(1) This chimes with the literature review, where the recognition of implications of obesity on long-term health was mixed. Gillespie found that concerns about stigma of overweight causing bullying and low self-esteem were more pressing to parents than issues like heart disease and cancer. (20)

'he gets bullied, and everything, low self esteem, he's not got friends, he doesn't go out' (Mum of secondary school aged child, Dundee) (20)p86

Interviewees did not report any situations in which families demonstrated their awareness of the long-term health implications of obesity. In keeping with the literature review findings some interviewees described greater concerns from parents about self-esteem issues.

Several papers highlighted the importance of families understanding in detail what to expect from the intervention, one aspect of the "expected outcomes" of Fishbein's model.(1) Newson discusses how expectations of the intervention influence attendance. Families with positive beliefs about the support they would gain from other parents, friends their children could make and the gaining of personal skills and self-confidence were more likely to attend the intervention.(21)

It is good that we can go along and I can speak to other parents who are trying to change things, also James (child) can make friends with other kids the same who (may) not be fantastic at football and feel really bad, but they can play on the same level you know. (Ray, father, family 4, attendee) (21)p1297

Non-attendees in comparison highlighted the negative aspects of the intervention, for example that attending would confirm that their child was different from his peers, particularly in families who rejected the "diagnosis" of overweight:

"The thing is, he doesn't look fat … hmm … obese, so if we go and he thinks, 'do I look like the others?' then that wouldn't be nice, don't you think?" (Eileen, grandparent, family 8, non-attendee)(21)p1297

Unfortunately, even having a positive expectation of the programme did not always guarantee attendance, as Grow found. Although the numbers were small (4 parents interviewed were referred to the programme but

did not enrol), they all described a favourable view of the programme – they describe practical barriers prevented them from attending. (12) Of course due to the study design it is difficult to discern whether there was social desirability bias in their responses to an interviewer associated with the intervention.

Some parents in Newson's paper said they already felt they were making healthy changes at home, which was echoed in by a handful of non-participants (5 out of 74) in Taylor's paper, and 3 out of 4 of the non-enrolling participants in Grow's paper, and so used this as an excuse not to attend, suggesting their expectation was that the intervention would not tell them anything new.(12, 15, 21) This tallies with comments in several interviews which suggested parents weren't convinced the intervention would offer something different or helpful.

> *"she's like, "oh, I know about it all, I used to go to Slimming World and I know they need to eat more fruit and vegetables and obviously McDonald's is wrong, so they're not going to be able to teach me anything. I know it, I just have trouble implementing it, so I just need to focus on implementing it myself." And then it's quite hard to argue with that." (Interviewee 4)*

The last sentence in this quote suggests a degree of agreement from the professional as well. Another interviewee expressed doubts about the format of the intervention being suitable for everyone:

> *"There's so much embarrassment, there's so much shame around weight that a group setting is, I think only for a certain type of patient, who's willing to engage with others. Because that's who you want in a group, you want someone who's vocal, and who can talk to other people, because that's why you do it."*

Referrer beliefs about obesity and the intervention are an important potential barrier. Gerards found that professionals referring into interventions had variable perceptions of the intervention, which could influence the way they referred in. Most were positive about the benefits of the intervention but were less positive about whether they expected the families to "cooperate" with it, suggesting they thought the families didn't want or wouldn't benefit from the intervention. Although the design of the study did not make it possible to see whether those professionals were less likely to refer, or had a lower uptake rate from those they did refer, this is certainly a possibility. (16)

Children's beliefs are an important aspect but their voices were often missing from the research. Banks found that the decision to attend the intervention often involved eliciting agreement from the child, and the families who had stronger engagement with the intervention were those who involved the child in the decision.(18) However Braet found no difference in scores for motivation between children of non-completer families versus completers (although parents in completer families were more motivated than non-completers).(19) One interviewee, who referred two families, remembered that the children were not active participants in the decision to go to the intervention (only one family subsequently attended):

> *"One girl was definitely very quiet. Um. So naturally the conversation always led towards Mum. Um. The other girl, I'm trying to remember now. KL: Doesn't matter if you can't remember. HT: Again Mum did a lot of the talking. So mainly it was the Mum's decision for referral." (Interviewee 2)*

SELF-EFFICACY

Self-efficacy is the third predictor of intention in Fishbein's model.(1) Newson found non-attenders were anxious about their abilities in the intervention to participate in the physical activity.(21) Gillespie's parents also seemed to be lacking in self-efficacy, feeling the problem of obesity was too big to address.(20) Similarly one of the interviewees described a feeling of futility in one parent who declined the intervention:

> *"One parent said that he felt nothing could be done about this…the child's mother was 22 stone in weight. So, "it's inevitable that this child is going to be big."" (Interviewee 5)*

Readiness to start making lifestyle changes was addressed by two of the interviewees, and the difficulties of having a fixed start time for the intervention and a requirement to attend for 8 weeks as being a barrier to these families.

> *"The families, the children, aren't ready to make a change so they kind of see that as a pointless exercise going. It's always that, "oh I'll start in a few weeks, I'll start in a few weeks" and they don't feel ready to actually make all the difficult changes…so if they don't feel ready they're going to see going to a group as a little bit pointless. Because they're thinking well I'm not going to be able, I'm not starting anything else." (Interviewee 4)*

> *"I think people were saying, "yeah, well, I don't really want to do it, it's a commitment for over a period of a number of weeks and I've got a busy life and I've got things that I want to—and I might not be able to make all of them, and I don't think this is the right time for me at the moment." We had lots of excuses come out, "It's not the right timing, I don't want to make a commitment. I've got other family. I've got younger children.""(Interviewee 5)*

Self-efficacy of professionals to motivate families to attend the intervention is also a potential barrier. Gerards found that some professionals lacked confidence in being able to answer questions that families had about the intervention, which may negatively influence the uptake into the intervention:

"*Sometimes parents were very critical and started asking me a lot of questions,*

which I couldn´t answer. I felt uncomfortable"(16)p7

Similarly one interviewee felt she did not know enough about the intervention to "sell" it to participants, and another felt unable to counter arguments against attendance from parents:

> *Interviewer: "I'm just wondering when you talk to families about it, how much you are able to tell them about it?"*
>
> *Interviewee: "No, only…the very basics. It's a so many week programme and…it is about activities and healthy lifestyles…and it would give you different ways of…trying to get the healthy lifestyles in place. That sort of thing really but it's inclusive of the whole family so you would all benefit, it's a fun thing to do together. So we sort of sell it, in that way, but I don't know specifics. It would be quite good to know—I think if I had an outline of the programme that would help." (Interviewee 4)*

> *"And then it's quite hard to argue with that, I was kind of saying, "Yeah, but they would give you support, and the children could do activities" and she's like, "I know, I know, but I already know that they're meant to eat healthily and do more exercise,"" (Interviewee 4)*

SKILLS AND ENVIRONMENTAL CONSTRAINTS

Practical barriers to attending interventions were mentioned in all papers. However they were a less significant theme. Gillespie found that "setting and location was discussed by parents but was of less importance."(20)(*p87)* Newson considers practical barriers (personal safety, time, transportation, scheduling), however both attendees and non-attendees mentioned similar issues but attendees found ways to overcome these barriers – suggesting that if intention to act is strong enough, practical considerations are not a major barrier. For non-attendees "even when there were opportunities to reduce or resolve these barriers, attendance at the intervention was still considered problematic".(21)*(p1299)* This ties in with comments from two interviewees describing how non-attenders presented practical barriers:

> *"them not finding the venue I find quite difficult to accept because actually I'd gone through it, when the child had been referred and I spoke to the families and sent a confirmation letter, I couldn't have made it any clearer where the venue was, and actually, I spoke to most of them and I double checked "do you know where this is?" …so I was pretty confident, it's a pretty obvious building in the middle of the area where that they live in, so…" (Interviewee 1)*

> *"it would just be too much of an effort"…—it was half four to half six…she's got a little one and two school age children—she was like, "I need to get them home and get them dinner and get them to bed". (Interviewee 4)*

All of Grow's non-enrollers reported scheduling conflicts as the biggest barrier. Programme length and distance from home were also mentioned. As also described by Newson, Grow's participants reported barriers but overcame them, by asking family members for help, planning ahead, using child care, and bringing participants along to the intervention.(21)

Practical barriers in papers and interviews included timing of the sessions around school and other activities, location, difficulty with juggling commitments around other children, transportation (and payment for transport). There is a wide variation of timings of interventions in different papers, but it is evident that there is no time or practical consideration that suits all potential participants. Banks (recruiting for an intervention during school hours) found that it was difficult for children to "cloak" their attendance to their peers.(18) Gerards' professionals reported that they felt parents did not want to make time for the intervention.(16) Taveras' parents who refused to participate mainly (60%) reported that it would take up too much time. 5% said their distance from the clinical site was the problem.(14)

Only Grow's paper addressed the barrier of requiring a referral from a health care provider. This was not found to be a barrier and only one parent in the study suggested that the requirement should be removed. Of the four interviewees who did not enroll in the programme, all reported scheduling conflicts as the biggest barrier. (12)

Cost was another barrier which sometimes seemed important and in other cases to be less relevant. In Grow's paper, some parents thought it was important to provide the intervention for free while others felt that people don't value what they don't pay for.(12) Both a local council member and a parent in Smith's paper also felt the programme should be free.(22)

DISCUSSION

The aim of this report is to determine barriers to attendance at childhood obesity interventions in order to provide recommendations on improving recruitment of families into the "Let's All Get Active" in Cheltenham, UK.

Fishbein's Integrative Model of Behavioral Prediction captures the main themes from the papers reviewed and interviews conducted well. The additional theme of "Raising the Issue", while discussed separately in the results section, in fact is a barrier due to all three of the main themes: perceived norms, attitudes and self-efficacy.

Fishbein describes using the Integrative Model of Behavioral Prediction to identify the beliefs that need to be addressed in order to change behaviour. In the case of "Let's All Get Active" the implied message behind recruiting families to the intervention is that there are negative consequences of being obese and so it is desirable to maintain or reduce weight. However the Model tells us that support for perceived risk as a predictor of behaviour is inconsistent, and if anything it is only a distal predictor. So what are the main influences on intention to attend the intervention?

Ability to attend and environmental constraints to attend were mentioned both in the papers reviewed and by interviewees but seemed to be a secondary consideration. They were sometimes perceived to be excuses, or barriers that could be overcome if the underlying intention was strong enough.

It seems from the papers and interviews that attitude and perceived norms are more powerful predictors in this case than self-efficacy. Self-efficacy is mentioned in the context of professionals and their ability to "sell" the intervention to the families. Some interviewees mentioned it in the context of families understanding what they needed to do to address obesity but not being able to do it, but not related to self-efficacy in attending the intervention.

The balance of "good" perceived outcomes of the intervention versus "bad" must fall towards "good" in order to positively influence attitude and provide strong intention to attend.(1) If risk of health consequences from obesity is only a distal consideration then this will not contribute strongly towards a perception of "good" outcomes. Stigma of obesity is also unlikely to be a major outcome consideration by families – stigma is also a distal predictor in the Model.

There were several examples of perceived “bad” outcomes from attending the intervention, for example one interviewee described the importance of parental autonomy to many families in the area, and the perception that the intervention would take that away by telling them what to do. Another interviewee explained that some families felt they already knew what they needed to do so the intervention wouldn’t teach them anything new – inferring attending would be a waste of time.

The other important predictor seems to be perceived norms. There were multiple examples of these in the papers and the interviewees, from families feeling that their children were not obese despite being in high BMI percentiles, to the perception that primary age children are naturally a bit “stocky” and would grow out of it. Even the understanding that it is important to be seen among the community and by authority figures to be able to feed your child, and an overweight child is less of a concern than an underweight child because it is evidence you are providing for them. These are all normative beliefs that lead away from an intention to attend an obesity intervention. It seems important for parents to fit in with their social in-group, and whether the perception of that group is that obesity is not important because it shows you can adequately feed your child, or whether the perception is that overweight is undesirable, is immaterial. Either perception would lead to attendance at the intervention being counter to the norms of the social group. This means that in order for parents to attend the intervention they must either discredit the negative views that others hold about it, or justify their attendance from a different angle, like new skills that will be learnt, activities children can try, or friends that they can make. (21)

In considering how these barriers might be overcome for the childhood obesity intervention in Cheltenham, there are some other factors to consider. Clearly childhood obesity is an issue of public health importance, but with recent budgetary constraints and movement of the Public Health department from within the NHS to the Local Authority, the funding for the intervention moved from NHS Gloucestershire to Gloucestershire County Council. Therefore funding is at risk if there is not evidence of positive outcomes within a relatively short period of time (approximately two years). It would be difficult to put in place any changes that would require an increase in funding.

Other local organisations also have an interest in addressing childhood obesity rates, most significantly the National Child Measurement Programme in Gloucestershire which is recently recruited a new Clinical Specialist as part of their plan to increase expertise and capability of the Health and Wellbeing Team. It is currently unclear how much crossover there will be between the remit of the “Let’s All Get Active” intervention in Cheltenham and the county-wide Health and Well Being Team of the NCMP but it is certainly feasible that they will be competing for the same families. It would therefore be sensible to work together, so that resources are maximised and the services can be complementary.

STRENGTHS AND WEAKNESSES

Strengths of this report include the interviews that were conducted with local professionals who had been referring families to the intervention, to explore barriers that had already presented and be able to compare these to those that are addressed in the literature. The literature review specifically focused on the barriers for families who had not attended interventions, rather than attrition, as this was more relevant to the Cheltenham intervention. A robust systematic approach was taken to identifying relevant papers, and a theory which draws on several different health promotion theories as a basis to draw ideas together into a coherent framework. The iterative approach to the interviews was another strength, allowing developing ideas to be built on and commented on by other stakeholders.

A particular weakness in the method is the requirements that a dissertation be written by only one author. Therefore it was not possible to seek a second opinion on inclusion of papers into the literature review, the quality appraisal, or the coding of the interviews. There would have been benefit in debating the inclusion of some of the papers, for example the Lim paper which was considered low quality and had little to offer from the point of view of better understanding barriers to interventions, but passed the eligibility criteria and so was included. A second author interpreting themes from the interviews could have offered an alternative perspective on the data, and it is possible that prior experiences of the author could influence the interpretation of the interviews when only one person is coding.

A further weakness is that families could not be interviewed due to pragmatic constraints. Certainly finding families who had been referred but not attended, but were willing to talk about their experience might have been challenging but could have added valuable information, and is certainly something that should be considered for future work. However one included paper in particular targeted potentially eligible families who chose not to attend an intervention so will have captured some of this information (20).

The included papers were variable in quality, and sometimes included very small numbers of participants. While small numbers does not invalidate their findings, particularly if data saturation is reached, some seemed to have the same weakness as in the interviews for this report – a limited number of people who could be interviewed. In the case of this report, all of the people who had referred families to the intervention were contacted and interviewed but data saturation was not reached.

Unfortunately one paper which was identified in the literature review is embargoed until November 2015 and so could not be reviewed. (7) One potentially relevant paper could not be located. (23)

When conducting the interviews, it was sometimes a challenge to elicit from interviewees specific accounts of their experiences. In fact this occurred most naturally when there was incidentally an interview with two interviewees. On reflection, more information may have been forthcoming if the interviews had instead been conducted as focus groups, allowing the participants to compare and contrast their experiences.

RECOMMENDATIONS

From the point of view of improving attendance “Let’s All Get Active”, some barriers are extremely difficult to overcome. For reasons discussed in depth above, it is unlikely that practical barriers are a major cause of the low recruitment rates. Societal norms around perception of obesity are likely to shift very slowly over time, but there may be some ways to address barriers around perception of the intervention, for example seeing if parents who graduate from the intervention would be willing to talk to peers about their experiences in the hope that it may begin to normalize attendance at the intervention.

The content of the intervention is as yet relatively untested with the local audience due to low participation figures, and is designed to be flexible depending on participants. Furthermore, as addressed by Grow, content of the intervention which is likely to increase accessibility (as was suggested by parents experiencing barriers to attendance) often conflicted with content which was likely to improve the likelihood of making successful lifestyle changes.(12) However there might be some benefit in considering one interviewee’s suggestion of making the activity a particularly appealing one to children, and so allowing parents to justify their attendance from an angle other than obesity related. The literature review and other interviews suggest that this alone would not be sufficient to overcome barriers to attendance.

As we have seen in the discussion above, The second major barrier, attitude, could be addressed by changing the way in which families are recruited to the intervention, and the focus of the content of the intervention. As

REDUCE THRESHOLD FOR ELIGIBILITY

Increasing the postal areas eligible to attend the intervention, or reducing the BMI percentile cut-off could significantly increase the number of people approached to attend the intervention, without having an impact on resources used. While Hester’s Way was chosen due to its’ relative high proportions of primary age children with obesity, there are surrounding areas with higher than average rates of childhood obesity where interviewees have identified a demand for an intervention. Increasing the number of people graduating from the intervention has the potential to increase word-of-mouth recommendations between parents the could address some of the perceived societal norms barriers. It is also recommended that interested parents should be able to self-refer into the intervention in order to increase the number of referrals, and reduce the perception that a lifestyle change through this intervention is being demanded of them by professionals, rather than being a positive choice that they themselves are making.

IMPROVE CONFIDENCE OF PROFESSIONALS TO INFORM AND MOTIVATE POTENTIAL PARTICIPANTS

While a training session for referring professionals, including Motivational Interviewing techniques, was provided, it took place at least 6 months prior to recruitment into the intervention, and some referrers were unable to attend. It is recommended that these sessions are held regularly (at least annually) within 3 months of the start of the recruitment process to the next intervention cycle. This could help give referrers the confidence to address the issue of obesity with families they come into contact with and give them up-to-date information about the content of the intervention. If referrers can understand issues that are important to parents surrounding their child’s weight, they may be able to promote the aspects of the intervention which

would lead to “good” outcomes from the parents’ perspective. If referrers can motivate families to attend based on aspects of the intervention which do not focus on weight, like activities, skills learnt, and support from other families , then parents could use these to justify their attendance at the intervention.

IMPROVE UNDERSTANDING OF THE INTERVENTION

Among stakeholders there was a mixed response to the intervention, and a mismatch between the organiser’s understanding of the intervention as a “strength-based approach” and only a “basic” understanding of the content of the intervention by some of the referrers. It is recommended that intervention sessions be opened up for interested referrers to be able to attend if they wish to better understand the process and content of the intervention.

There is a perception among interviewees that parents distrust the concept of the intervention and are hesitant about attending without knowing the organisers. It is therefore recommended that the intervention is more widely promoted in schools and community centres in the eligible area. For example, if organisers could attend parents’ evenings at local primary schools and put up a display with information about the activities provided for people to approach if they are interested, this could help to familiarize eligible families with the organisers and the intervention, and again change the perception from an intervention they are required to comply with to one that would be appealing to attend.

ENCOURAGE PEER RECOMMENDATIONS

Recommendations from families who have attended and enjoyed the intervention is likely to be the most effective way of improving attendance at the intervention. Parents who have graduated from the programme could be approached and, if willing, could attend events such as the parents’ evenings at local schools to talk to other parents about their experiences in the intervention. This could start to normalize attendance at the intervention, and provide justification for families to attend.

IMPROVE FEEDBACK FROM INTERVENTION ORGANISERS TO REFERRERS

As addressed by several interviewees, it would be helpful for them to have timely feedback as to which of their referred families attend the intervention, both for them to be able to learn from experience which families tend to attend, and if possible to intervene promptly with families who haven’t attended to see if they need further support to attend. It is therefore recommended that a pathway is put in place to promptly inform referees of non-attendance of families.

CONSIDER CHANGING TO A SELF-REFERRAL, DROP-IN SERVICE

While practical barriers are unlikely to be a significant factor in preventing attendance, some parts of the intervention could be adjusted. If the intervention was arranged as a drop-in instead of an 8 week programme

to sign up to, and parents were encouraged to self-refer, then the sense that parental autonomy is being compromised could be improved.

WORK WITH NCMP HEALTH AND WELLBEING TEAM

The NCMP Health and Wellbeing Team are planning on taking a more proactive approach to managing childhood obesity in Gloucestershire. It is recommended that there is strong communication between the "Let's All Get Active" Team and the Health and Wellbeing team to ensure that the two programmes are complementary to each other.

APPENDIX 1: SEARCH STRATEGY

MEDLINE AND PSYCINFO

(Obesity* or weight* or overweight).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

AND

(Intervention* or program* or service*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

OR

exp Health Services/

AND

(Childhood or children or school* or family or p?ediatric).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]

OR

exp Family/ or exp Child/

Limit to…

Last 10 years

Qualitative (best balance of sensitivity and specificity)

English language

CINAHL

S10	S3 AND S6 AND S9	**Limiters** - Published Date: 20050101-20151231; English Language; Clinical Queries: Qualitative - Best Balance **Search modes** - Boolean/Phrase
S9	S7 OR S8	**Search modes** - Boolean/Phrase
S8	(MH "Child+")	**Search modes** - Boolean/Phrase
S7	"child*" OR "school*" OR "famil*" OR "p?ediatric*"	**Search modes** - Boolean/Phrase
S6	S4 OR S5	**Search modes** - Boolean/Phrase
S5	(MH "Health Services+") OR (MM "Health Services Accessibility+")	**Search modes** - Boolean/Phrase
S4	"intervention*" OR "program*" OR "service*"	**Search modes** - Boolean/Phrase
S3		**Search modes** - Boolean/Phrase

	S1 OR S2	
S2	(MH "Obesity+") OR (MM "Pediatric Obesity")	**Limiters** - Published Date: 20050101-20151231; English Language **Search modes** - Boolean/Phrase
S1	"obesity" OR "overweight" OR "weight"	**Limiters** - Published Date: 20050101-20151231; English Language **Search modes** - Boolean/Phrase

APPENDIX 2: DETAILS OF INCLUDED PAPERS

Banks 2014 (18)	**Quality:** Moderate **Usefulness:** Low
Study methods	**Findings**
Aims Examine families' reasons for engaging with, or disengaging from, childhood obesity treatment **Sample characteristics** *Location:* Bristol, South Gloucestershire and North Somerset, England. *Age*: Families with children aged 5-16 *Gender:* Mixed (Male 13, Female 20) *Socio-economic status:* not defined *Ethnicity:* not defined **Design** 15 semi-structured interviews with 'completer' parents (completed 12 months of treatment (5 appointments) in obesity clinic. Telephone interviews with 17 families who withdrew from treatment (out of a total 29 withdrawers) **Sampling** Families purposively selected using maximum variation sampling for a balance of gender, age and clinic type **Data collection** Interviews in family homes, children participated alongside parents in 9 'completer' interviews. Data collection ended when saturation was achieved. Same topic guide for telephone interviews but additional section on reasons for withdrawing. Data recorded with handwritten notes which were typed and analysed. **Data analysis** Thematic analysis identifying factors facilitating and inhibiting clinical engagement.	*No substantive difference between views expressed by participants in different arms of trial, so data was presented jointly (i.e. from completers and non-completers without distinguishing)* *Withdrawer interviews were not recorded and so "lacked detail"* **Building engagement** - decision to attend involved child and soliciting their engagement - not all families started with same degree of agreement, sometimes decision to seek help was made independently of child although in that family attendance was poor, although they completed. - Families whose accounts indicated stronger clinic engagement had involved child in decision to seek help **Maintaining engagement and disengaging** also discussed but not relevant to this paper

Braet 2010 (19)	**Quality:** Moderate

	Usefulness: Low
Study Methods	**Findings**
Aims Explore differential impact of demographic and psychological characteristics of completers and non-completers of all families who apply for an obesity treatment **Sample characteristics** *Location* Belgium *Number of participants:* 117 families at initial session, 81 met criteria to continue to the intervention (as per age, weight, exclusion of secondary causes, distance from clinic and language ability). 5 of the families were dropouts after the initial telephone contact and 10 dropped out after introductory ("intake") sessions but before the first treatment session, and thus of relevance. *Age* mean 10.46 years, range 4-16. *Gender* 27 boys and 45 girls *Socio-economic status* 26% lower/lower-middle class; 54% middle class; 20% upper-middle/upper class (Hollingshead index) *Ethnicity* not stated *Other:* Note these are families who contacted the clinic themselves, actively seeking advice, so may have different motivations/barriers. **Design** Principally quantitative design utilizing questionnaires and scales to capture data on childrens' psychopathology and parental motivations. **Sampling** Unclear – appears to be all families who applied for an intake session at the University Clinic via telephone because of obesity in their child, but time frame is not stipulated **Data collection** Height and weight were self-reported (and randomly checked in 10 families) at initial telephone contact. At first session, children and parents completed questionnaires on child's general and eating psychopathology, and on parental motivations. Children who completed less than 6 of 8 sessions were defined as non-completers. In some analyses non-completers were further defined into four subgroups including "intake dropouts" who only completed the initial phone call, and "advice dropouts" who did not complete both family	*Most findings are described as non-completers versus completers and therefore not relevant (as non-completers attended less than 6 out of 8 sessions)* *Very small numbers of dropouts prior to starting program* Subgroup analysis of non-completers found that intake and advice dropouts (n=15) did not differ in gender, age or baseline overweight from treatment dropouts. Motivation for treatment for both child and parents also did not differ. Only two of the five "intake dropouts" and six of the ten "advice dropouts" returned 1 year questionnaires. Due to these small numbers a further quantitative analysis of these subgroups was not justified.

intake sessions prior to starting treatment. Only self-reported height and weight, age, address and language were collected at the initial phone call; at the two "intake" sessions (prior to treatment starting), demographic data (gender, SES and family characteristics), motives-for-treatment-ratings and child psychological variable questionnaires (DEBQ, SPPC/SPPA, CBCL) were administered. All participants were contacted after 1 year to complete RETQ (Reasons for Ending Treatment Questionnaire), BTPS and motives-to-stop ratings. **Data analysis** Extensive quantitative analysis of questionnaires and scales comparing non-completers with completers. Very little analysis of "intake dropouts" and "advice dropouts"	

Gerards 2012 (16)	**Quality:** Moderate **Usefulness:** Moderate
Study Methods	**Findings**
Aims Identify barriers that Dutch youth health care (YHC) professionals perceive when referring parents of overweight children to an obesity prevention intervention **Sample characteristics** *Location* Holland *Participants* 16 YHC professionals (6 nurses, 8 physicians and 2 management staff). YHC is a system of preventive health care in Holland for children aged 0-19. YHC professionals can refer overweight children to other health care facilities, and annually >90% of 0-4 year olds are reached by the YHC organization. *Gender* 15 female, 1 male *Age* 28-61 years (average 46 years) *Socio-economic status:* 3 low, 6 moderate, 2 high *Other* participants from 11 different child health clinics **Design** Qualitative theory-based research design. **Sampling** 25 YHC professionals were asked to refer patients to a pilot 14-233k parent-focused group	Intervention implementation theory distinguishes 5 categories of factors determining implementation rate of innovations: **(1) characteristics of socio-political environment/context** - overweight children are seen as having a normal weight (2 respondents) - participation in child overweight programmes is unusual - people are not aware of severity of overweight as a problem (1 respondent) **(2) characteristics of implementing organization (YHC)** - childhood obesity prevention is an important task of the YHC (all respondents) - other stakeholders have responsibilities too, e.g. general practitioners, schools, day-care centres, municipal health services **(3) characteristics of implementers (YHC professionals)** - both outcome beliefs about programme and beliefs about target group influence recruitment of overweight children - majority of respondents positive about the intervention: useful,

intervention for childhood obesity. After 6 months of recruitment, they were invited to participate in interviews and 16 (22%) accepted. During that time only 10% of potentially eligible children in the area had been referred into the programme (i.e. recruitment challenges) **Data collection** Semi-structured interviews; 20 minutes; open-ended questions on a range of topics included prevention of childhood obesity, appraisal of the intervention and barriers and facilitators to the recruitment of children via YHC. **Data Analysis** Intervention implementation model used as framework for interpreting interviews. Interviews were transcribed, coded by 2 independent reviewers (using a pre-drafted coding list). If no suitable code was available, reviewers together reached agreement on relevance of adding an extra code.	although intensive and time-consuming - respondents less positive about expectations of target group co-operating: may be a reason they are less likely to refer - mixed beliefs regarding severity of the problem: some mentioned children who were overweight by guidelines were not overweight by their clinical judgement - some professionals had low self-efficacy and felt they needed to improve their communication skills - some professionals forgot to recruit eligible children **(4) characteristics of the innovation** - views about relative advantage of the intervention were mixed; some felt that another new intervention for childhood obesity was superfluous - respondents were unclear whether referred parents participated in the intervention - a third of respondents had had not eligible patients in their clinics in the time frame **(5) characteristics of the participants** -respondents felt parents were unaware of severity of consequences of overweight. - several respondents encountered resistance

Gillespie 2015(20)	**Quality** High **Usefulness** High
Study Methods	**Findings:**
Aims Use social marketing insight gathering to understand potential barriers and triggers for parents accessing the Tayside childhood weight management service (2-15 year olds). Findings to help inform POST's use of social marketing principles to normalise children's weight issues and increase engagement with local childhood weight management services. **Sample characteristics**	Four major themes emerged from thematic analysis: **(1) At the point of needing help – feelings** - Feelings centred around an intense uncertainty of where to turn, confusion and a sense of being trapped - some sense of risk factors of heart disease and cancer but emotional issues (e.g. bullying, low self esteem) were most salient to

Location Tayside, Scotland *Participants* 27 parents of school aged children *Gender* 22 mothers, 3 fathers, 2 grandmothers *Age* 14 parents of primary aged children, 13 parents of secondary aged children *Socio-economic Status* 15 parents low SES, 12 parents middle SES *Ethnicity* Not stated *Other* 14 participants described their child as overweight **Design** Qualitative research study **Sampling** Recruitment by commercial market research recruiters. Purposive sampling to recruit parents whose child's weight was above a healthy level but who hadn't accessed local weight management service. **Data collection** Four extended focus groups with parents of school age children. Semi-structured topic guide followed. Discussion of health behaviours, attitudes to health messages and weight issues; and motivations, benefits and barriers to accessing weight management services. Discussions were taped and transcribed. **Data analysis** Framework method of content matrix data analysis. Pre-defined themes identified and new themes inductively identified.	parents. - parents own feelings of their own overweight child: negative social and emotional outlook **(2) Triggers – why seek help?** - in some cases parents/carers felt it was inevitable their child would be overweight so triggers were played down. - needing to buy larger age-size clothes, evidence of name calling or bullying - impact on emotional wellbeing - parents hearing positive user feedback and promotion of childhood weight management services - Motivators based on Drummonds model of motivators of personal action include: build child's confidence and self esteem; support from other parents; gain back lost control (needing help to do this); practical solutions, easy to implement; happy children (aspiration); information on how, where and when to access service; non-stigmatising, a valuable sense of community; emotional/social skills that would benefit their child. **(3) Barriers – what prevents parents/carers seeking help?** - 16 barriers in 5 significant areas of difficulty were described - 5 areas: lack of control, desire to avoid conflict, no good reason (case of obesity not proven), fear of confronting issues and consequences, uncertain where to turn. - consistently mention a genuine fear of addressing the problem and raising the subject as a result of any possible negative consequence of doing so. **(4) The ideal service – the start of the solution?** - key characteristics of providers: fun/friendly; encouraging and supportive; help children settle and make friends; good listeners, non-judgemental, understanding, non-patronising.

Grow 2013 (12)	**Quality:** High **Usefulness:** Moderate
Study Methods	**Findings:**
Aims To provide insights into salient factors affecting family enrollment and retention in community-based programs for overweight youth and their families **Sample characteristics** *Location* Washington, USA. *Participants* 23 parents of overweight children within 1 year of referral to community-based healthy lifestyle promotion program (10 had completed the program, 9 did not complete, 4 did not enroll) *Age* Parents of children aged 8 to 14 (mean 10); parents aged 27-52 years (mean 40.3) *Gender* 22 women, 1 man; 15 of 25 children were girls *Socio-economic status* not stated *Ethnicity* 8 White, 7 Black, 2 Hispanic, 1 American Indian, 3 Asian, 2 Mixed *Other* 5 educated to high school or less, 5 some college, 9 college graduate, 4 advanced degree **Design** Qualitative study **Sampling** Purposive to select participants across program sites, by level of program completion, and child age and sex. 84 parents were invited by letter; follow up phone calls to 54 parents (33 reached, 21 could not be contacted). 23 parents recruited (19 had enrolled in the program, 4 had not enrolled) **Data collection** Semi-structured, in-depth, face-to-face interviews. Interview guide informed by Integrative Model of Behaviour. Open-ended questions followed with probes to allow parents to describe experiences and perceptions of the program. All interviews conducted autumn 2008 to winter 2009. **Data analysis** Transcribed interviews were coded independently by 2 staff with a structured codebook and analyzed by themes through an iterative process.	**Parent-reported reasons for enrollment** - exposure to knowledge and behaviours for activity and/or eating (n=16) - weight concerns (n=10); several parents commented on clear preference that their child not be put on a diet and valued that the program did not emphasise weight loss (although 3 parents wanted a program *more* focused on weight loss) - support/assistance from outside the family (n=8); comments that program can ameliorate conflicts with child about eating and activity, relief that they are not the only person helping their child make changes. - parent benefits: help with parenting for health behaviours; spending time with child; parent has knowledge already but can reinforce what child learns - comments on child motivations (none to actively resistant); any positive motivations mentioned had emphasis on playing/having fun, being with other children their age, and being able to do things on their own e.g. cook or use weight room. - program interest among parents referred but not enrolled: favorable initial impression of the program - reasons for not enrolling (n=4): all reported scheduling conflicts as the biggest factor (other children's scheduled activities, child care needs, parent work) and a preference for once a week program, shorter program length (n=3), not perceiving need for program after making changes at home (n=2) and distance from home (n=2) - Requiring a referral from a health care provider was not perceived as a barrier to enrolling/attending NB> Higher number of "completers" with only one child suggested fewer external barriers in those parents.

	IMB Model: **(1) Intention/motivation (influenced by social-cognitive factors including behavior beliefs, norms and self-efficacy)** **(2) Environmental constraints/supports** **(3) Skills** Potentially modifiable program elements to increase program accessibility included: (some of these conflict with suggestions to increase family accountability and success at weight loss through attendance) - Professionals troubleshoot barriers to attendance with families before they start - Make multiple sites available close to home - Once a week frequency - <12 week commitment up front - Multiple time options (evening, weekend etc) and not too long per session; include a meal if evening - Provide childcare or allow siblings to enroll - Allow all children to enroll regardless of weight status - Free/sliding scale for low-income families - Focus on healthy lifestyles, not weight. - Expand referral strategy to include self-referral, advertise more widely, directly to parents at schools

Lim 2013 (13)	**Quality** Low **Usefulness** Low
Study Methods	**Findings:**
Aims To review challenges faced by a team providing family-based weight management programs to overweight and obese children from rural areas and their parents **Sample characteristics** *Location* Florida, USA	**Barriers related to rurality:** - distance to program site (time; costs; unreliable, limited or unavailable public transport) - socio-economic status: rural adults have less formal education and lower income that urban counterparts; more likely to have non-traditional work schedules and

Participants Unclear: opinions from team members of a rural childhood obesity intervention *Age* not stated *Gender* not stated *Socio-economic status* not stated *Ethnicity* not stated *Other* **Design** Non-systematic review of literature on challenges of providing services in rural areas, both generally and for obesity interventions, as well as opinions from team providing interventions as to what greatest barriers are. **Sampling** None stated – team members not detailed **Data collection** Opinions from team members, unclear how collected **Data analysis** None	work a second job therefore difficult to devote time to health care needs - lack of access to important services e.g. child care, which might impact on program attendance - due to limited resources, some children may participate who are not appropriate for program (e.g. with eating disorders needing specialist treatment) - rural culture: patriarchal gender roles might be a barrier for example in limiting mothers' control over resources like transportation or money to buy healthier foods; extended families are often involved in childcare and lack of their support can have an impact; often parenting style is more authoritarian and inconsistent with the behavioural strategies used in programs - food availability, costs and culture: food deserts are mostly located in rural areas - physical activity: few sidewalks, no streetlights, or no paved roads limit increasing activity at home. Lack of infrastructure like parks, recreational facilities and gyms. - Unrealistic family expectations

Newson 2013 (21)	**Quality:** High **Usefulness:** High
Study Methods	**Findings:**
Aims Examine experiences of families who were deciding to attend a childhood obesity intervention, and highlight recommendations on how to improve attendance at obesity interventions, and to inform the development of future local public health strategies to prevent and treat childhood obesity. **Sample characteristics** *Location* North West England *Participants* 11 families attending clinical assessment sessions for an obesity intervention (out of 21 who were approached). Primary participant (parent or grandparent) could opt for family members to join the interview if they thought it would add to the interpretation of the family's experience	Four main themes of factors influencing families' experiences: **(1) Perceptions of childhood obesity** - Both attendees and non-attendees did not recognise obesity in their children; childhood obesity was considered a norm locally; believed that obesity was linked to medical issues - Attendees understood the risk of obesity to health, and did not experience negative influence from significant others - Non-attendees used the medical assessment outcome as an indicator that obesity was not a serious medical condition, and were influenced by negative attitudes and comments about

Age Children were aged 5-15 *Gender* not specified *Socio-economic status* All families lived in an area classed as high deprivation *Ethnicity* not specified *Other* 5 families attended the intervention, 6 families did not attend; service inclusion criteria were BMI>98th percentile, aged 5-15 years **Design** Qualitative interview methodology **Sampling** All 21 families who were referred for a medical assessment and invited to attend an obesity intervention were approached. Time frame for these referrals is not stated. Eleven selected families based on convenience sampling. **Data collection** 11 semi-structured interviews. Part one of the interview asked about the intervention (e.g. how did you feel when you were invited to the intervention? Why did you decide (not) to attend the intervention?). Part two asked about their experiences of obesity. Interviews were recorded, transcribed and pseudonymised. **Data analysis** Interpretative Phenomenological Analysis was used to allow rigorous exploration of subjective experiences and social cognitions. It explores how people ascribe meaning to their experiences and interaction. Two authors coded the transcripts and discussed interpretations. Within each of the four main themes identified, attendees experiences were compared with non-attendees.	obesity from extended family/friends **(2) Perceptions of the intervention** - Both attendees and non-attendees were anxious of their own abilities to engage in the intervention/make personal changes - Attendees recognized the need for self support and new knowledge to change their behavior; perceived that the intervention would have a positive effect on child's wellbeing and relationships - Non-attendees were embarrassed about their perceived inability to participate, although believed they were already knowledgeable; perceived that the intervention would have a negative effect on their child **(3) Practical barriers and overcoming hurdles to attending** - Both attendees and non-attendees were concerned about personal safety to/from the venues - Attendees made time for the intervention and felt guilty when missing appointments; they overcame the barrier of transport to the venue - Non-attendees felt they had no time and cited transport as a barrier to attending **(4) Availability and suitability of local facilities** - Both attendees and non-attendees referenced lack of local, safe and appropriate activities for their children. - Attendees felt the intervention filled this gap, offered an opportunity for safe places to play, and they hoped to become more confident in trying local activities which are targeted to sporty children - Non-attendees reported that when the intervention ended there would still be no safe or accessible activities for children.

Smith 2014 (22)	**Quality** High

	Usefulness Moderate
Study Methods	**Findings:**
Aims To identify key individual, family and community enablers and barriers to the implementation of a multi-disciplinary family-centred intervention for overweight adolescents to be delivered in a community setting **Sample characteristics** *Location* Western Australia *Participants* 44 adolescents, 12 parents, 39 community stakeholders *Age* adolescents aged 12-16 *Gender* Adolescents 52% female, parents 82% female *Socio-economic status* Majority from middle-low socio-economic areas *Ethnicity* Majority white *Other* "Participants" (n=8 parents and 5 adolescents) were obese adolescents but "potential participants" (n=4 parents and 39 adolescents) inclusion criteria was aged 12-16 from WA (not obese necessarily) NB Fewer participants than planned due to recruitment difficulties **Design** Qualitative study **Sampling** Participants were recruited from families who had completed the Curtin University Activity, Food and Attitudes Program (CAFAP) (all families were approached, n=30), potential CAFAP participant families and community stakeholders. CAFAP is an 8-week healthy lifestyle program for obese adolescents (12-16 years) and their parents run as a pilot in 2009 and 2010 in Perth, WA. **Data collection** 2 "participant" focus groups (with parents, n=4, and adolescents, n=4), 4 "potential participant" focus groups (with parents, n=4, and adolescents n=13 per group). Written feedback from 1 adolescent and 4 parents who could not attend focus groups. 26 semi-structured interviews were held with community stakeholders (health professionals, local service providers and researchers). Separate groups for parents and adolescents. Focus group and interview content based on Ecological Systems Theory (EST). Discussed recruitment, retention in program and maintenance of healthy change. Focus	Results pertaining to recruitment only (study also explores retention in program and maintenance of healthy change) Unfortunately data has not been reported separately for participant families, non-participant families and community stakeholders. Obesity recognized as a current health problem and there is a need for interventions Identified barriers include - Fear of humiliation or bullying in adolescents making help seeking confronting (embarrassed about having to attend) - Promotion of healthy lifestyle not enticing if not concerned about their weight (overweight has become normalized) - Adolescent views regarding healthy lifestyle programs are a barrier in themselves (not liking to admit to being overweight for example) - Reluctance to refer and lack of expertise in health professionals (hesitancy to identify overweight and obesity) - Lack of current services (and new programs struggle initially to attract participants) - Financial and logistic barriers to attendance Enablers include - Advertising needs to sell the message and promote it widely - Message needs to be positive and not associated with being overweight - Program needs to be free.

groups and interviews were audio-recorded and transcribed. **Data analysis** Using content and thematic analyses. Focus groups and interviews were dealt with separately.	

Taveras 2011 (14)	**Quality** Moderate **Usefulness** Low
Study Methods	**Findings:**
Aims Examine correlates of participation in a childhood obesity prevention trial **Sample characteristics** *Location* Massachusetts, USA. *Participants* Parents of children recruited to participate in High Five for Kids (cluster RCT in 10 primary care pediatric offices of a primary care practice) (n=475), and parents who refused participation (n=329) *Age* Eligible children aged 2.0-6.9 years *Gender:* not specified *Socio-economic status:* not specified *Ethnicity* not specified **Design** Quantitative assessment of differences between participants and non-participants. **Sampling** Attempted contact with parents of all children who were potentially eligible. 475 parents recruited via telephone. Also 329 parents who refused participation in the intervention. **Data collection** Parents who refused participation were asked (1) Why did you decide not to participate in the study? (2) the number of children under the age of 18 living in the household, and (3) the highest grade or degree that the parent completed in school. Child's age, sex and most recent height and weight were obtained from electronic medical records. **Data analysis**	Non-participants and participants did not differ by number of children at home, child age or sex. After multivariate adjustment, parents who were college graduates (vs <college graduates) were less likely to participate. Parents were much less likely to participate (OR 0.41, 95% CI 0.31-0.56) if their child was overweight, versus obese. Parental reasons for refusing to participate in the study: - it will take too much time (60%) - difficult time for the family – divorce, illness etc (9%) - clinical site too far away (5%) Not acknowledging weight problem: - 21% of the 115 refusers with obese children said children did not have a weight problem - versus 30% among 214 children with overweight children

Multivariate analysis of factors including, age, gender and BMI of child, and education level of parents and household characteristics (number of children <18 years living in home)	

Taylor 2013 (15)	**Quality** Moderate **Usefulness** Low
Study Methods	**Findings**
Aims To determine what factors drive participation in a family-based weight management program for 4- to 8-year-old children following screening for overweight or obesity, and determine whether motivational interviewing for feedback is an appropriate way to inform parents their young child is overweight, in comparison with usual care. **Sample characteristics** *Location* 9 primary care practices or secondary care clinics in New Zealand *Participants* 1093 families attended screening, 2611 did not (198 excluded, 1166 declined and 1023 non-contactable after 5 attempts). 271 (24.8%) were overweight or obese. 197 agreed to the intervention. *Age 4-8.99 years* *Gender* *Socio-economic status* *Ethnicity* *Other* Recruitment was March 2009-March 2010 and January 2011-May 2011. **Design** Randomized controlled trial of uptake to obesity intervention after different weight feedback mechanisms. **Sampling** Potential participants (all families with children aged 4-8.99 years enrolled at 9 participating primary care practices or attending secondary care clinics across 2 time periods as above) were sent a letter inviting them to participate. They were contacted 1 week later by phone. Those who enrolled were randomized to feedback condition, motivational interviewing for feedback, or usual care, stratified by general practice. Parents of overweight or obese children (BMI ≥85th percentile) attended a follow-up interview to assess reactions to feedback and willingness to participate in a 2 year	- 197 families agreed to participate in the 2 year intervention (72.7% uptake) - Between intervention participants and non-participants there were few differences in age, sex, ethnicity, maternal BI or household structure. - Non-participants were from more deprived areas - Participant mothers were more highly educated. - There was no difference in uptake by feedback condition. - Participants who went on to be in the intervention were more likely to believe their child to be overweight before receiving the feedback results than non-intervention participants. (43% vs 16%) Despite no difference in BMI or body fat percentage between groups - No difference in autonomous motivation (because I feel that it is the best thing for my childs health) - Differences in introjected motivation (I would feel about about myself if my child did not have a healthy lifestyle – higher in participating parents); and active attempts by parents to achieve a healthier lifestyle for children (participants more likely to be trying to improve child's diet or increase their activity) - Main reasons for not participating in intervention were too busy or simply not interested. Some cited family or health issues (e.g. behavioural issues) taking precedence. Only 4 out of 66 parents thought there was no need to change child's weight. 5 didn't like focus on child weight, and 5 said they are already making changes.

intervention. **Data collection** After consenting, measures of the child's height, weight and waist circumference were obtained, body composition assessed (using bioelectrical impedance, and DEXA in a random subsample). Prior to feedback of weight status, extensive measures of parental motivation for healthy lifestyles in child, parent practices, and beliefs about child weight were collected, as well as demographic data. Feedback sessions were videotaped and transcribed in 270 participants; 1 participant withheld consent. Parents then completed an online questionnaire to assess their response to feedback. **Data analysis** Logistic regression of differences between participants and non-participants. Separate bootstrap procedures were used to select the most consistent predictors from the demographic, lifestyle and parental variables for the multivariate analysis. Feedback interview questions were analysed quantitively.	

Visram 2012 (17)	**Quality** High **Usefulness** Low
Study Methods	**Findings**
Aims Examine the experiences of four stakeholder groups – children and young people, parents and guardians, NHS staff and local authority staff – in attending, implementing or delivering the 'Balance It!' programme. Specifically seeking the voices of overweight and obese children, and exploring perceived barriers to accessing the programme. **Sample characteristics** *Location* Northern England *Participants* 16 NHS and local authority staff and 20 children (aged 4-16) and their families. *Age* Children 4-16 years *Gender* *Socio-economic group* *Ethnicity* *Other* This was a programme as part of a holistic care pathway whereby professionals refer overweight and obese children (4-17 years) into appropriate lifestyle interventions.	Included despite the fact that all the families were people who had attended sessions, because of information from staff about approaching families and barriers and enablers to access. Small sized groups **Identifying overweight and obesity** - staff report difficulties in approaching potential participants due to the sensitive and potentially emotive nature of discussing bodyweight. Easier to identify an obese child therefore higher proportion in programme than might expect (vs overweight) - Lack of awareness of obesity in families - Lack of awareness of consequences of obesity

Design Qualitative study. Mosaic methodology using visual and verbal techniques to enable children of all ages to take an active role in expressing opinions. **Sampling** All families listed in the 'Balance It!' database (≈250) were invited to take part in the study. Recruitment continued until a sample of at least 15 staff and 20 families was achieved. Not stated how children were identified to take part in programme. **Data collection** Semi-structured interviews based on a topic guide developed by the 'Balance It!' steering group and informed by existing literature. Flexible format to allow freedom to raise additional issues. 9 individual staff interviews, 2 small group interviews (n=2 and n=5); family interviews with 17 families involving the children, and 2 individual interviews with parents, and 1 via email. **Data analysis** Transcripts and notes were analysed using thematic framework analysis, allowing between- and within-case comparisons.	**Individual and family outcomes** - range of positive outcomes from the programme including increased exercise, better diet, weight loss. - A minority of families felt the programme had no impact due to insufficient support **Co-ordination and communication** - multi-disciplinary approach was an asset but sometimes difficult to co-ordinate. - Some families had experienced practical access barriers around the physical activity component and difficulties in contacting local authority staff - School nurses felt their input wasn't valued, other professionals felt school nurses weren't committed. **Areas for improvement** - general agreement that a more structured, cohesive approach while maintaining flexibility would improve the programme - cost, timing and transport perceived to be access barriers

APPENDIX 3: QUALITY APPRAISAL

Study	Quality of Reporting - *clear aims (yes/no)* - *context adequately described (yes/no)* - *adequate description of sample used and how identified/recruited (yes/no)* - *adequate description of methods (yes/no)*	Strategies for establishing reliability and validity - *sufficient attempts to establish validity of data collection tools/methods* - *sufficient attempts to establish reliability of data collection tools/methods* - *sufficient attempts to establish reliability of data analysis* - *sufficient attempts to establish validity of data analysis*	Appropriateness of methods for studying people's perspectives and experiences - *use of appropriate data collection methods for helping families to express their views* - *use of appropriate data analysis methods to ensure study findings are grounded in perspectives of families* - *families actively involved in design/conduct of study*	Overall judgement on quality
Banks(18)	Yes; yes; yes; yes	No; no; yes; yes	No; no; no	Moderate
Braet(19)	Yes; yes; no; yes	Yes; yes; yes; yes	No; no; no	Moderate
Gerards(16)	Yes; yes; yes; yes	No; yes; yes; yes	No; no; no	Moderate
Gillespie(20)	Yes; yes; yes; yes	Yes; yes; yes; yes	Yes; yes; no	High
Grow(12)	Yes; yes; yes;	No; no; yes; yes	Yes; yes; no	High
Lim(13)	No; yes; n/a; no	No; no; no; no	No; no; no	Low
Newson(21)	Yes; yes; yes; yes	Yes; yes; yes; yes	Yes; yes; no	High
Smith(22)	Yes; yes; yes; yes	Yes; yes; yes; yes	Yes; yes; no	High
Taveras(14)	Yes; yes; yes; yes	No; no; yes; yes	No; no; no	Moderate
Taylor(15)	Yes; yes; yes; yes	Yes; yes; yes; yes	No; no; no	Moderate
Visram(17)	Yes; yes; yes; yes	Yes; yes; yes; yes	Yes; yes; no	High

Usefulness assessed by consideration of amount of information pertaining to initial access to program rather than attrition from the program, and depth of qualitative information on themes around barriers and facilitators to access.

APPENDIX 5 - ADULT WEIGHT MANAGEMENT PATHWAY REVIEW

Gloucestershire weight management p

APPENDIX 6 - SUMMARY OF NICE GUIDANCE – OBESITY (AUG 2016)

NICE guidance	Recommendations
Pregnancy and Maternity	
Weight management before, during and after pregnancy [PH27] - July 2010 http://www.nice.org.uk/guidance/ph27	This is NICE's formal guidance on dietary interventions and physical activity interventions for weight management before, during and after pregnancy: • Weight management includes assessing and monitoring body weight, preventing someone from becoming overweight or obese, helping someone to achieve and maintain a healthy weight before, during and after pregnancy by eating healthily and being physically active and gradually losing weight after pregnancy • Effective weight-loss programmes address the reasons why someone might find it difficult to lose weight, are tailored to individual needs and choices, are sensitive to the person's weight concerns, are based on a balanced, healthy diet, encourage regular physical activity, expect people to lose no more than 0.5–1 kg (1–2 lb) a week, identify and address barriers to change. • Health professionals to use any opportunity to provide women with a BMI of 30 or more with information about the health benefits of losing weight before becoming pregnant. This should include information on the increased health risks their weight poses to themselves and would pose to their unborn child. • Health professionals should offer specific dietary advice in preparation for pregnancy, including the need to take daily folic acid supplements. • At the earliest opportunity, for example, during a pregnant woman's first visit to a health professional, discuss her eating habits and how physically active she is. Offer practical and tailored information. This includes advice on how to use Healthy Start vouchers. Use 6–8-week postnatal check to follow up. • Dieting during pregnancy is not recommended as it may harm the health of the unborn child

	• Offer women with a BMI of 30 or more after childbirth a structured weight-loss programme. If more appropriate, offer a referral to a dietitian or an appropriately trained health professional. • Encourage breastfeeding • Offer women with babies and children the opportunity to take part in a range of physical or recreational activities. This could include swimming, organised walks, cycling or dancing. Activities need to be affordable and available at times that are suitable • Ensure health professionals, healthcare assistants and support workers have the skills to advise on the health benefits of weight management and risks of being overweight or obese before, during and after pregnancy. Ensure they have the communication techniques needed to broach the subject of weight management in a sensitive manner.
Antenatal and postnatal mental health: clinical management and service guidance [CG192] - December 2014 **http://www.nice.org.uk/guidance/cg192**	This guideline covers recognising, assessing and treating mental health problems in women who are planning to have a baby, are pregnant, or have had a baby or been pregnant in the past year. It covers depression, anxiety disorders, eating disorders, drug- and alcohol-use disorders and severe mental illness. • Assessment and care planning in pregnancy and the postnatal period should include physical wellbeing (including weight, smoking, nutrition and activity level) and history of any physical health problem • Advise pregnant women taking antipsychotic medication about diet and monitor for excessive weight gain
Weight Management - Children and Young People	
Weight management: lifestyle services for overweight or obese children and young people NICE guidelines [PH47] - October 2013 **https://www.nice.org.uk/guidance/ph47**	This guidance makes recommendations on lifestyle weight management (sometimes called tier 2) services for overweight and obese children and young people aged under 18. These services are just one part of a comprehensive approach to preventing and treating obesity. • Ensure family-based, multi-component lifestyle weight management services for children and young people are available as part of a community-wide, multi-agency approach to promoting a healthy weight and preventing and managing obesity. They should be provided as part of a locally agreed obesity care or weight management pathway.

	• Ensure all lifestyle weight management programmes for overweight and obese children and young people are multi-component. They should focus on: o diet and healthy eating habits o physical activity o reducing the amount of time spent being sedentary o strategies for changing the behaviour of the child or young person and all close family members. • Ensure the following core components, developed with the input of a multidisciplinary are included: o Behaviour-change techniques to increase motivation and confidence in the ability to change. This includes strategies to help the family identify how changes can be implemented and sustained at home. o Positive parenting skills training, including problem-solving skills, to support changes in behaviour. o An emphasis on the importance of encouraging all family members to eat healthily and to be physically active, regardless of their weight. o A tailored plan to meet individual needs, appropriate to the child or young person's age, gender, ethnicity, cultural background, economic and family circumstances, any special needs and how obese or overweight they are. This should include helping them and their family to set goals, monitor progress against them and provide feedback (see recommendation 4). o Information and help to master skills in, for example, how to interpret nutritional labelling and how to modify culturally appropriate recipes on a budget. o Help to identify opportunities to become less sedentary and to build physical activity into their daily life (for example, by walking to school and through active play). o A range of physical activities (such as games, dancing and aerobics) that the children or young people enjoy and that can help them gradually become more active. o Information for family members who may not attend the programme itself to explain the programme's aims and objectives and how they can provide support. o Ongoing support and follow-up for participants who have completed the

	programme. • Ensure all lifestyle weight management programmes are designed and developed with input from a multidisciplinary team and have taken into account the views of children, young people and their families. The team should include professionals who specialise in children, young people and weight management. • Local authorities should ensure an up-to-date list of local lifestyle weight management programmes for children and young people is maintained. This should form part of a list of services commissioned for the local obesity care or weight management pathway. It should be regularly disseminated, or accessible to organisations in the public, community and voluntary sectors.
Obesity in children and young people: prevention and lifestyle weight management programmes NICE quality standard [QS94] - July 2015 **https://www.nice.org.uk/guidance/QS94**	This quality standard covers a range of approaches at a population level to prevent children and young people aged under 18 years from becoming overweight or obese. It includes interventions for lifestyle weight management. Statement 1. Children and young people, and their parents or carers, using vending machines in local authority and NHS venues can buy healthy food and drink options. Statement 2. Children and young people, and their parents or carers, see details of nutritional information on menus at local authority and NHS venues. Statement 3. Children and young people, and their parents or carers, see healthy food and drink choices displayed prominently in local authority and NHS venues. Statement 4. Children and young people, and their parents or carers, have access to a publicly available up-to-date list of local lifestyle weight management programmes. Statement 5. Children and young people identified as being overweight or obese, and their parents or carers as appropriate, are given information about local lifestyle weight management programmes. Statement 6. Family members or carers of children and young people are invited to attend lifestyle

	weight management programmes, regardless of their weight. Statement 7. Children and young people, and their parents or carers, can access data on attendance, outcomes and the views of participants and staff from lifestyle weight management programmes. Statement 8. (placeholder) Reducing sedentary behaviour.
Weight Management CYP & Adults	
Obesity: clinical assessment and management NICE quality standard - [QS127] August 2016 **https://www.nice.org.uk/guidance/QS127**	This quality standard covers the clinical assessment and management of obesity in children, young people and adults. This includes those with established comorbidities and those with risk factors for other medical conditions. Statement 1. People are informed of their BMI when it is calculated and advised about any associated health risks. Statement 2. Adults with a BMI of 30 or more for whom tier 2 interventions have been unsuccessful have a discussion about the choice of alternative interventions for weight management, including tier 3 services. Statement 3. Children and young people who are overweight or obese and have significant comorbidities or complex needs are referred to a paediatrician with a special interest in obesity. Statement 4. Adults with a BMI of 35 or more who have been diagnosed with type 2 diabetes within the past 10 years are offered an expedited referral for bariatric surgery assessment. Statement 5. Adults with a BMI above 50 are offered a referral for bariatric surgery assessment. Statement 6. People who have had bariatric surgery have a postoperative follow-up care package within the bariatric surgery service for a minimum of 2 years. Statement 7. People discharged from bariatric surgery service follow-up are offered monitoring of

	nutritional status at least once a year as part of a shared-care model of management.

Obesity: identification, assessment and management
[CG189]- November 2014
http://www.nice.org.uk/guidance/cg189
	This guideline addresses three main areas: follow‑up care packages after bariatric surgery; the role of bariatric surgery in the management of recent-onset type 2 diabetes; and very-low-calorie diets including their effectiveness, and safety and effective management strategies for maintaining weight loss after such diets.
	
	• Measures of overweight and obesity
	  ○ Use BMI as a practical estimate of adiposity in adults. Interpret BMI with caution because it is not a direct measure of adiposity.
	  ○ Interpret BMI with caution in highly muscular adults as it may be a less accurate measure of adiposity in this group. Some other population groups, such as people of Asian family origin and older people, have comorbidity risk factors that are of concern at different BMIs (lower for adults of an Asian family origin and higher for older people
	  ○ Think about using waist circumference, in addition to BMI, in people with a BMI less than 35 kg/m2
	  ○ For children use BMI (adjusted for age and gender) as a practical estimate of adiposity in children and young people. Interpret BMI with caution because it is not a direct measure of adiposity. Waist circumference is not recommended as a routine measure.
	• Equip specialist settings for treating people who are severely obese with, for example, special seating and adequate weighing and monitoring equipment, larger scanners & beds in hospitals
	• Tailor the components of the planned weight management programme to the person's preferences, initial fitness, health status and lifestyle. Multicomponent interventions (physical activity / diet / behaviour change) are the treatment of choice.
	• Ensure that interventions for children who are overweight or have obesity address lifestyle

	within the family and in social settings • Offer regular, non-discriminatory long-term follow-up by a trained professional for adults and children • Use clinical judgement to decide when to measure a person's height and weight. Opportunities include registration with a general practice, consultation for related conditions (such as type 2 diabetes and cardiovascular disease) and other routine health checks. • The level of intervention should be higher for patients with comorbidities / high risk groups – levels of intervention to start with general advice on healthy weight and lifestyle at level 1 – at level 4 interventions should include diet and physical activity; consider drugs; consider surgery • Recognise that surprise, anger, denial or disbelief about their health situation may diminish people's ability or willingness to change. Stress that obesity is a clinical term with specific health implications, rather than a question of how people look. Praise successes in losing weight however small • Consider referral to an appropriate specialist for children who are overweight or obese and have significant comorbidities or complex needs (for example, learning disabilities or other additional support needs). • Give people who are overweight or obese, and their families and/or carers, relevant information on treatments / risks / self-care / support from the VCS • Encourage adults & children to increase their level of physical activity even if they do not lose weight as a result • Consider pharmacological treatment only after dietary, exercise and behavioural approaches have been started and evaluated (drug treatment not recommended for children under 12) • Bariatric surgery is a treatment option for people with obesity if they have a BMI of 40 kg/m2 or more, or between 35 kg/m2 and 40 kg/m2 and other significant disease and where all appropriate non-surgical measures have been tried but the person has not achieved or maintained adequate, clinically beneficial weight loss. • Bariatric surgery is the option of choice (instead of lifestyle interventions or drug treatment) for adults with a BMI of more than 50 kg/m2 when other interventions have not been effective. • Surgery for obesity should be undertaken only by a multidisciplinary team that can provide

	appropriate pre-operative and post-operative support, including psychological – minimum of 2 years follow-up care. Following that, annual monitoring of nutritional status and appropriate supplementation according to need • Surgical intervention is not generally recommended in children or young people. Bariatric surgery may be considered for young people only in exceptional circumstances, and if they have achieved or nearly achieved physiological maturity. • Offer an expedited assessment for bariatric surgery to people with a BMI of 35 or over who have recent-onset type 2 diabetes
Weight Management Adults	
Obesity in adults: prevention and lifestyle weight management programmes NICE quality standard [QS111] - January 2016 **https://www.nice.org.uk/guidance/QS111**	This quality standard covers ways of preventing adults (aged 18 and over) from becoming overweight or obese and the provision of lifestyle weight management programmes for adults who are overweight or obese. Although local definitions vary, these programmes are usually tier 2 interventions that may include weight management programmes, courses or clubs, and form 1 part of a comprehensive approach to preventing and treating obesity. This quality standard does not cover specialist management (tier 3 interventions) or bariatric surgery (tier 4 intervention). Statement 1. Adults using vending machines in local authority and NHS venues can buy healthy food and drink options. Statement 2. Adults see details of nutritional information on menus at local authority and NHS venues. Statement 3. Adults see healthy food and drink choices displayed prominently in local authority and NHS venues. Statement 4. Adults have access to a publicly available, up-to-date list of local lifestyle weight management programmes. Statement 5. Adults can access data on attendance, outcomes and views of participants and staff from locally commissioned lifestyle weight management programmes.

	Statement 6. Adults identified as being overweight or obese are given information about local lifestyle weight management programmes. Statement 7. Adults identified as overweight or obese, with comorbidities are offered a referral to a lifestyle weight management programme. Statement 8. Adults about to complete a lifestyle weight management programme agree a plan to prevent weight regain.

Weight management: lifestyle services for overweight or obese adults
[PH53] - May 2014
http://www.nice.org.uk/guidance/ph53/chapter/1-recommendations
	This guideline makes recommendations on the provision of effective multi-component lifestyle weight management services for adults who are overweight or obese (aged 18 and over). It covers weight management programmes, courses, clubs or groups that aim to change someone's behaviour to reduce their energy intake and encourage them to be physically active.
	The aim is to help meet a range of public health goals. These include helping reduce the risk of the main diseases associated with obesity, for example: coronary heart disease, stroke, hypertension, osteoarthritis, type 2 diabetes and various cancers (endometrial, breast, kidney and colon).
	
	• Adopt an integrated approach: Ensure there is an integrated approach to preventing and managing obesity and its associated conditions. Systems should be in place to allow people to be referred to, or receive support from (or across) the different service tiers of an obesity pathway. All the options in the local obesity pathway should be made clear to both professionals and the public.
	• Ensure services cause no harm and treat people with respect
	• Be aware of the effort needed to lose weight and harm caused by stigma
	• Ensure the tone and content of all communications is respectful and non-judgemental
	• Raise awareness of local weight management issues and services with commissioners, professionals and the public
	• Commission services that are effective address both weight loss and maintaining weight loss
	  ○ Multi-component: diet, activity, behaviour
	  ○ Multidisciplinary: dieticians, psychologists and physical activity instructors
	  ○ Focus on life-long change

	○ For funded referrals, note that: ▪ programmes may particularly benefit adults who are obese (that is, with a BMI over 30 kg/m2, or lower for those from black and minority ethnic groups) or with other risk factors (comorbidities such as type 2 diabetes) ▪ where there is capacity, access for adults who are overweight should not be restricted (that is, for people with a BMI between 25 to 30 kg/m2, or lower for those from black and minority ethnic groups) or with other risk factors (comorbidities such as type 2 diabetes) ▪ there should be no upper BMI or upper age limit for referral. • Address the expectations and information needs of adults thinking about joining a lifestyle weight management programme ○ Discuss the importance and wider benefits of adults who are overweight or obese making gradual, long-term changes to their dietary habits and physical activity levels. ○ Discuss realistic weight-loss goals. People should be aware that: The more weight they lose, the greater the health benefits, particularly if someone loses more than 5% of their body weight and maintains this for life. ○ On average, people attending a lifestyle weight management programme lose around 3% of their body weight, but this varies a lot. ○ Preventing future weight gain and maintaining a lower weight trajectory leads to health benefits. • Provide national sources of information • Provide training and continuing professional development on lifestyle weight management for health and social care professionals • Monitor and evaluate progress and effectiveness

BMI: preventing ill health and premature death in black, Asian and other minority ethnic groups [PH46] - July 2013 **http://www.nice.org.uk/guidance/ph46/chapter/1-Recommendations**	This guidance aimed to determine whether lower cut-off points should be used for black, Asian and other minority ethnic groups in the UK as a trigger for lifestyle interventions to prevent conditions such as diabetes, myocardial infarction or stroke. • Use lower thresholds to trigger action to prevent type 2 diabetes among Asian (South Asian and Chinese) population (23 kg/m2 to indicate increased risk and 27.5 kg/m2 to indicate high risk) • Extend the use of lower BMI thresholds to trigger action to prevent type 2 diabetes among black African and African-Caribbean populations • Raise awareness of practitioners and within the BME community that there is an increased risk of chronic health conditions at a lower BMI
Behaviour Change	
Maintaining a healthy weight and preventing excess weight gain among adults and children [NG7] - March 2015 **http://www.nice.org.uk/guidance/NG7/chapter/1-recommendations**	This guideline makes recommendations on behaviours that may help people maintain a healthy weight or prevent excess weight gain: • Advice for parents and carers to encourage physical activity and appropriate dietary habits in adults and children and: • Identify perceptions, habits or situations that may undermine efforts to maintain a healthy weight or prevent excess weight gain in the long term, and offer practical examples of helpful alternatives. These may include: drinking water instead of drinks containing free sugars while being physically active, not overestimating how much physical activity is being done, avoiding overeating after being physically active • Increase regular walking, particularly brisk walking, or cycling as a form of active travel (to school, work or other local destinations) • Encourage adults to limit alcohol consumption • Help children and encourage young people to get enough sleep • Encourage self-monitoring of weight and amount of physical activity • Communicate benefits of a healthy weight, and of gradual improvements in physical activity and diet • Tailor messages for specific groups

Behaviour change: individual approaches [PH49] - January 2014 **http://www.nice.org.uk/guidance/ph49/chapter/1-recommendations**	This guidance makes recommendations on individual-level behaviour change interventions aimed at changing the behaviours that can damage people's health. It includes a range of approaches for people aged 16 and over, from single interventions delivered as the opportunity arises to planned, high intensity interventions that may take place over a number of sessions. • Develop a local behaviour change strategy • Ensure organisational strategy, policy, resources and training all support behaviour change • Commission high-quality behaviour change interventions that take local need into account • Use proven behavioural change techniques • Commission suitable training for all health and social care professionals and others involved in helping to change people's behaviour • Monitor and evaluate programme success - ensure behaviour change is maintained for at least a year
Physical Activity	
Physical activity and the environment - [PH8] January 2008 **http://www.nice.org.uk/guidance/ph8**	This guidance offers the first evidence-based recommendations on how to improve the physical environment to encourage physical activity. It is for NHS and other professionals who have responsibility for the built or natural environment. • Involve all local communities and experts at all stages of the development to ensure the potential for physical activity is maximised. • Ensure planning applications for new housing developments / new workplaces always prioritise the need for people (including those whose mobility is impaired) to be physically active as a routine part of their daily life. • Ensure local facilities and services, workplaces, homes and school are easily accessible on foot, by bicycle and by other modes of transport involving physical activity. • Ensure children can participate in physically active play in and outside of school grounds • Ensure pedestrians, cyclists and users of other modes of transport that involve physical activity are given the highest priority when developing or maintaining streets and roads. (This includes people whose mobility is impaired.) • During building design or refurbishment, ensure staircases are designed and positioned to encourage people to use them

Physical activity: for NHS staff, patients and carers NICE quality standard [QS84] March 2015 **https://www.nice.org.uk/guidance/QS84**	This quality standard covers encouraging physical activity in people of all ages who are in contact with the NHS, including staff, patients and carers. It does not cover encouraging physical activity for particular conditions. Statement 1. Adults having their NHS Health Check are given brief advice about how to be more physically active. Statement 2. Parents or carers of children are given advice about physical activity during their child's Healthy Child Programme 2-year review. Statement 3. Parents or carers of children are given advice about physical activity as part of the National Child Measurement Programme (NCMP). Statement 4. NHS organisations have an organisation-wide, multi-component programme to encourage and support employees to be more physically active.
Physical activity: walking and cycling NICE guidelines [PH41] - November 2012 **https://www.nice.org.uk/guidance/ph41/chapter/1-recommendations**	This guidance aims to set out how people can be encouraged to increase the amount they walk or cycle for travel or recreation purposes. • Ensure a senior member of the public health team is responsible for promoting walking and cycling. • Ensure the joint strategic needs assessment, the joint health and wellbeing strategy and other local needs assessments and strategies take into account opportunities to increase walking and cycling. • Ensure walking and cycling are considered, alongside other interventions, when working to achieve specific health outcomes in relation to the local population (such as a reduction in the risk of cardiovascular disease, cancer, obesity and diabetes, or the promotion of mental wellbeing[• Ensure local, high-level strategic policies and plans (esp local authorities) support and encourage both walking and cycling. This includes a commitment to invest sufficient resources to ensure more walking and cycling – and recognition that this will benefit individuals and the wider community. • Help those interested in changing their travel behaviour to make small, daily changes by

	commissioning personalised travel planning programmes. • Address infrastructure and planning issues that may discourage people from wanting to cycle or walk, for example, motor traffic volume and speed, lack of convenient road crossings, poorly maintained footways and cycle paths or lack of dropped kerbs, • Develop strategies in consultation with staff (and other relevant stakeholders, for example, students in universities and colleges) to promote walking and cycling in and around the workplace •
Physical activity: brief advice for adults in primary care NICE guidelines [PH44] Published date: May 2013 **https://www.nice.org.uk/guidance/ph44**	The guideline is for commissioners of health services and anyone working in primary care whose remit includes offering lifestyle advice. Examples include: exercise professionals, GPs, health trainers, health visitors, mental health professionals, midwives, pharmacists, practice nurses, physiotherapists. • Identify adults who are not currently meeting the UK physical activity guidelines • Advise adults who have been assessed as being inactive to do more physical activity, with the aim of achieving the UK physical activity guidelines. Emphasise the benefits of physical activity. • Provide information about local opportunities to be physically active for people with a range of abilities, preferences and needs. • When commissioning services to prevent or treat conditions such as cardiovascular disease, type 2 diabetes and stroke or to improve mental health, ensure brief advice on physical activity is incorporated into the care pathway. • Ensure brief advice on physical activity is incorporated into services for groups that are particularly likely to be inactive. This includes people aged 65 years and over, people with a disability and people from certain minority ethnic groups. • Ensure systems such as Read Codes are being used to identify opportunities to assess people's physical activity levels and deliver brief advice. • Ensure resources (for example, standard documents a • Provide information and training for primary care practitioners to do the above
Communities	
Obesity: working with local communities- [PH42]	This guidance aims to support effective, sustainable and community-wide action to prevent

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http://www.nice.org.uk/guidance/ph42
	overweight and obesity in adults and overweight and obesity in children. It sets out how local communities, with support from local organisations and networks, can achieve this.
	
	Guiding principles
	• Community Engagement
	• Behaviour Change
	• Cultural appropriateness (to take account of the community's cultural or religious beliefs and language and literacy skills)
	Recommendations
	• Develop a sustainable, community-wide, multi-agency, approach
	• Support leadership at all levels to tackle obesity
	  ○ Work with local champions
	  ○ Fund small-scale community led projects
	• Effective communications
	• Involve the community, local businesses and social enterprises- integrated approach in identifying their priorities in relation to weight issues, co-produce action
	• Local authorities and the NHS can be exemplars of good practice (help staff / service users and wider community to achieve a healthy weight)
	• Monitor and evaluate appropriately
	• Embed organisational development and training

Preventing obesity and helping people to manage their weight
NICE advice [LGB9] Published date: May 2013
https://www.nice.org.uk/advice/lgb9
	This briefing summarises NICE's recommendations for local authorities and partner organisations on preventing people becoming overweight and obese and helping them to manage their weight.
	
	Basic principles
	• Obesity is a complex problem for which there is no simple solution. It cannot be addressed through single interventions undertaken in isolation.
	• NICE recommendations on preventing obesity and helping people to manage their weight should be undertaken in parallel, wherever possible. They should also:
	  ○ be implemented as part of a broad approach, which involves a variety of organisations, community services and networks operating at a range of levels
	  ○ be implemented as part of integrated programmes that address the whole

	population, but also address local health inequalities, for example, within specific neighbourhoods o be underpinned by a robust, community-wide approach that includes monitoring and evaluation o comprise specific actions commissioned to meet local needs and priorities, for example, to encourage healthy eating and physical activity and to develop community programmes to combat obesity. **<u>Specific actions to meet local needs</u>** **Encouraging healthy eating** • Make people aware of their eligibility for welfare benefits and other schemes that supplement the family food budget. • Use existing powers to control the number of take-aways and other food outlets in a given area, particularly near schools. • Local authority and NHS commissioners could make a difference by ensuring healthier choices are included in catering contracts and are promoted through pricing and educational initiatives. **Encouraging physical activity** • Work in partnership to create and manage more safe spaces for incidental and planned physical activity, addressing any concerns about safety, crime and inclusion. Audit and amend bye laws that prohibit games. For details see public open spaces and children and young people on NICE's 'Physical activity' pathway. • Plan local facilities and services to ensure they are accessible on foot or by bicycle. For details see environment and physical activity on NICE's 'Physical activity' pathway. • Ensure leisure services are affordable, culturally acceptable and accessible by public transport or by safe 'active travel' routes. Ensure provision is made for women who wish to breastfeed. For details see local strategy, policy and commissioning for physical activity and women before, during and after pregnancy on NICE's 'Physical activity' pathway. • Consider pedestrians and cyclists when designing, developing or maintaining streets or roads, for example, by introducing traffic calming measures.

	Developing community programmes to combat obesity • Ensure obesity prevention programmes are highly visible and easily recognisable. Consider adapting a widely known brand for use locally (such as the Department of Health's Change4Life). For details see branding on NICE's 'Obesity: working with local communities' pathway. • Consider the type of language and media used to communicate about obesity, tailoring language to the situation or intended audience. Ensure messages are consistent and clear. For details see language on NICE's 'Obesity: working with local communities' pathway and conveying healthy lifestyle messages to the local community on NICE's 'Preventing type 2 diabetes' pathway. • Address local people's concerns about issues such as the cost of eating more healthily or being more physically active and the perceived dangers of children playing outside. For details see recommendations for local authorities about community programmes to improve diet on NICE's 'Diet' pathway. • Train lay or peer workers from black and minority ethnic communities and lower socioeconomic groups to promote physical activity and healthy eating. • **Commissioning community weight management programmes** • Commission lifestyle weight management services from either NHS or non-NHS providers. Ensure they meet the needs of high risk groups . For details see using community resources and lay and peer workers to tailor interventions and target communities at high risk of type 2 diabetes on NICE's 'Preventing type 2 diabetes' pathway. • Ensure lifestyle weight management services meet current best practice guidance. • Work in partnership with NHS colleagues, leisure services and providers of weight management services to support women who wish to lose weight after childbirth. **Ensuring local authorities and their NHS partners are exemplary employers** • Set an example by ensuring on-site catering offers healthier choices. • Encourage physical activity by improving the décor and signposting of stairs, and by providing showers and secure cycle parking to encourage active travel. • Offer lifestyle weight management services for overweight or obese staff who would like support to manage their weight.

	Involving local businesses and social enterprises • Encourage local organisations and businesses to recognise their corporate social responsibilities in relation to health and wellbeing. For example, they should ensure the range and content of the food and drink sold does not create an incentive to over-eat and gives people the opportunity to eat healthily. • For details see involving local businesses and social enterprises on NICE's 'Obesity: working with local communities' pathway. • Encourage local organisations to provide information, such as the calorie content of meals, on menus. For details see promoting a healthy diet – local action on NICE's 'Preventing type 2 diabetes' pathway. • Encourage venues frequented by children and young people to resist sponsorship and product placement from companies associated with foods high in fat, sugar and salt. **<u>Community-wide actions to prevent obesity</u>** **Developing a sustainable, community-wide approach** • Adopt a coherent multi-agency approach. Ensure activities on obesity are integrated within the joint health and wellbeing strategy, the joint strategic needs assessment (JSNA) and broader regeneration and environmental strategies. • Make action on obesity prevention and management a strategic priority and align it with other disease-specific prevention strategies. • Work in partnership. This includes working with local clinical commissioning groups. **Providing and supporting leadership** • Ensure the needs and priorities of the local community, as outlined by the JSNA, are understood by all those who may take action on obesity. • Ensure elected members are briefed on the local picture and help them ensure obesity prevention is integrated within all council strategies and plans. • Ensure all management, staff and partners working with local communities are aware of the importance of preventing and managing obesity. • Support senior and middle management and frontline staff of partnerships involved in local action on obesity. • Provide opportunities for partners to meet to share learning and to enhance cooperation

	and joint working. • Identify and work with 'champions' within local authorities, NHS groups and public, private, community and voluntary sector bodies. **Coordinating local action** Ensure the public health team includes: • a director of public health or lead public health consultant who, as part of their role, provides strategic direction on obesity • a senior coordinator with expertise in obesity prevention and community engagement and with dedicated time to oversee the local programme • community 'health champions' and others who work directly with the community. **Involving the community** • Work with local people, groups and organisations to decide what action to take. • Use community engagement and capacity-building methods to identify networks of local people, champions and advocates who can help. • Work with local clinical commissioning groups to ensure GP practices are aware of local obesity prevention and treatment initiatives. • Council leaders and elected members should raise the profile of obesity prevention initiatives through informal and formal meetings with local people. **Integrated commissioning** • Foster an integrated approach to commissioning which supports a long-term (beyond 5 years) health and wellbeing strategy It should involve a variety of organisations, community services and networks operating at a range of levels • Focus on the most effective 'packages' of interventions to meet local needs. This includes awareness-raising and environmental interventions that support changes in behaviour and lifestyle weight management services for adults, children and families. • Allocate resources to local community engagement activities and to innovative approaches which are likely to be effective and which have the support of the local community. • Ensure flexibility in contracts to allow programmes or services to be adapted and improved. Consider extending effective programmes and services, or commissioning effective small-scale projects or prototypes.

	Monitoring and evaluation • Ensure all strategies, policies and activities that may impact on obesity are monitored in a proportionate manner. This includes taking into account their impact on inequalities. • Build monitoring into all contracts and simple tests used to assess value for money. • Set aside sufficient time and resources to thoroughly evaluate new or innovative pieces of work (for example, 10% of project budgets). • Ensure the results of monitoring and evaluation are easy to use and made available to all those who could benefit. **Scrutiny and accountability** Health overview and scrutiny committees and others with a scrutiny responsibility should assess local action on preventing obesity. This includes: • assessing the priority given to obesity • ensuring the local community's views have been taken into account • ensuring local obesity strategies have been implemented by local health and wellbeing boards. **Organisational development and training** • Ensure all partners have an opportunity to increase their awareness of, and develop their skills in, obesity prevention. • Ensure all relevant professionals are trained to be aware of the health risks of being overweight and obese and the benefits of preventing and managing obesity. • Ensure all relevant staff who are not specialists in weight management or behaviour change can give people details of local services that can help them maintain a healthy weight.For examples, see training and development on NICE's 'Obesity: working with local communities' pathway. • Ensure the links between nutrition and health are an integral part of training for catering managers.

[i] Department of Health (2011) Start Active, Stay Active: A report on physical activity for health from the four home countries' Chief Medical Officers