



Statistics on Obesity, Physical Activity and Diet: England, 2013

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Executive Summary

This statistical report presents a range of information on obesity, physical activity and diet, drawn together from a variety of sources. The topics covered include:

- Overweight and obesity prevalence among adults and children;
- Physical activity levels among adults and children;
- Trends in purchases and consumption of food and drink and energy intake; and
- Health outcomes of being overweight or obese.

This report contains seven chapters which consist of the following:

Chapter 1: Introduction; this summarises Government policies, targets and outcome indicators in this area, as well as providing sources of further information and links to relevant documents.

Chapters 2 to 6: Cover obesity, physical activity and diet and provides an overview of the key findings from these sources, whilst maintaining useful links to each section of these reports.

Chapter 7: Health Outcomes; presents a range of information about the health outcomes of being obese or overweight which includes information on health risks, hospital admissions and prescription drugs used for treatment of obesity. Figures presented in Chapter 7 have been obtained from a number of sources and presented in a user-friendly format. Some of the data contained in the chapter have been published previously by the Health and Social Care Information Centre (HSCIC) or the National Audit Office. Previously unpublished figures on obesity-related Finished Admission Episodes and Finished Consultant Episodes for 2011/12 are presented using data from the HSCIC's Hospital Episode Statistics as well as data from the Prescribing Unit at the HSCIC on prescription items dispensed for treatment of obesity.

Main findings:

In England:

Obesity

- The proportion of adults with a normal BMI decreased between 1993 and 2011 from 41% to 34% among men and from 50% to 39% among women.
- The proportion that were overweight including obese increased from 58% to 65% in men and from 49% to 58% in women between 1993 and 2011
- There was a marked increase in the proportion of adults that were obese from 13% in 1993 to 24% in 2011 for men and from 16% to 26% for women.
- The proportion of adults with a raised waist circumference increased from 20% to 34% among men and from 26% to 47% among women between 1993 and 2011.
- In 2011, around three in ten boys and girls (aged 2 to 15) were classed as either overweight or obese (31% and 28% respectively), which is very similar to the 2010 findings (31% for boys and 29% for girls).

- In 2011/12, around one in ten pupils in Reception class (aged 4-5 years) were classified as obese (9.5%) which compares to around a fifth of pupils in Year 6 (aged 10-11 years) (19.2%).

Physical Activity

- In 2011/12, 15.5 million adults participated in sport at least once a week for 30 minutes at moderate intensity. This equated to 36% of adults (41% of men and 31% of women).
- In 2011, 43% of 5-16 year olds' main method of getting to and from school is walking, while the main method for 33% of this age group is being driven to school in a car / van. Just 2% used a bike to travel to school as their main mode of transport.
- In 2011/12, 80% of 5-15 year old children reported they had done some form of competitive sport in the last 12 months. Over three quarters (77%) had taken part in a competitive sport in school, whilst 37% had taken part outside of school.

Diet

- Household purchases of fresh and processed fruit are on a downward trend since 2008 and were 4.1% lower despite a rise in 2011.
- Household purchases of fresh and processed vegetables were 2.4 per cent lower in 2011 than in 2008 with 'fresh green vegetables' 6.6 per cent lower.
- While overall purchases of fruit and vegetables reduced between 2008 and 2011, consumers spent 8.1 per cent more on fresh and processed vegetables and 6.9 per cent more on fresh and processed fruit.
- 24% of men and 29% of women consumed the recommended five or more portions of fruit and vegetables daily in 2011 (27% of adults aged 16 and over).
- Of 5-15 year old boys, 16% consumed 5 or more portions of fruit and vegetables daily in 2011. For girls aged 5-15 the figure was 20%.

Health Outcomes

- In 2011, obese adults (aged 16 and over) were more likely to have high blood pressure than those in the normal weight group. High blood pressure was recorded in 53% of men and 44% of women in the obese group and in 16% of men and 14% of women in the normal weight group.
- The number of Finished Admission Episodes (FAEs) in NHS hospitals with a primary diagnosis of obesity among people of all ages was 11,736 in 2011/12. This is over eleven times as high as the number in 2001/02 (1,019) and more than triple five years earlier (3,862 in 2006/07)
- Over the period 2001/02 to 2011/12 in almost every year more than twice as many females than males were admitted to hospital with a primary diagnosis of obesity.
- North East Strategic Health Authority (SHA) had the highest rate of admissions with a primary diagnosis of obesity (56 admissions per 100,000 population). East of England SHA had the lowest rate (12 admissions per 100,000 population).
- In 2011, there were 0.9 million prescription items dispensed for the treatment of obesity, a 19% decrease on the previous year.

1 Introduction

This annual statistical report presents a range of information on obesity, physical activity and diet, drawn together from a variety of previously published sources. It also presents new analyses not previously published before which mainly consist of data from the Health and Social Care Information Centre's (HSCIC) *Hospital Episode Statistics (HES)* databank as well as data from the Prescribing Unit at the HSCIC.

The Health Survey for England (HSE), one of the major sources of information for this report, consists of a series of annual surveys designed to measure health and health-related behaviours in adults and children living in private households in England. The survey was commissioned originally by the Department of Health and, from April 2005 by the HSCIC. The HSE has been designed and carried out since 1994 by the Joint Health Surveys Unit of NatCen Social Research (previously the National Centre for Social Research) and the Department of Epidemiology and Public Health at the University College London Medical School (UCL). Wherever possible, the most recent information available from the HSE is presented. See [Appendix A](#) for further detail on the HSE.

The data in this publication relate to England unless otherwise specified. Where figures for England are not available, figures for Great Britain or the United Kingdom have been provided. Where relevant, links to the *Scottish Health Survey*, *Welsh Health Survey* and the report *Health at a Glance: Europe* have been provided.

1.1 Obesity

Overweight and obesity are terms that refer to an excess of body fat and they usually relate to increased weight-for-height. The most common method of measuring obesity is the Body Mass Index

(BMI). BMI is calculated by dividing a person's weight measurement (in kilograms) by the square of their height (in metres).

In adults, a BMI of 25kg/m^2 to 29.9kg/m^2 means that person is considered to be overweight, and a BMI of 30kg/m^2 or above means that person is considered to be obese.

In England, childhood obesity and being overweight is defined using the UK 1990 growth reference (as used in the sources of this report) or the UK/WHO growth reference for children under 4 years of age. This is because BMI varies with age and sex in children and adolescents.

BMI is the best way we have to measure the prevalence of obesity at the population level. No specialised equipment is needed and therefore it is easy to measure accurately and consistently across large populations. BMI is also widely used around the world, not only in England, which enables comparisons between countries, regions and population sub-groups. Height and weight data have been collected in each year of the HSE series, and waist circumference in most years. Height and weight data have been used to calculate BMI; waist circumference has been used to assess central obesity in adults.

In 2006, the National Institute for Health and Clinical Excellence (NICE) produced guidelines on the prevention, identification, assessment and management of overweight and obesity in adults and children.¹ These guidelines recommend a combination of BMI and waist circumference to assess health risks from obesity in adults.

In November 2010, the new coalition government set out its long-term vision for the future of public health in England in the White Paper, *Healthy Lives, Healthy People: Our Strategy for Public Health in*

England.² The White Paper describes a new approach for public health in England. It also sets out examples of national level action to help tackle obesity. This includes:

- Continuing to run the National Child Measurement Programme, so that local areas have information about levels of overweight and obesity in children to inform planning and commissioning of local services, and to provide a measure of the Public Health Outcomes Framework indicator on excess weight in 4-5 and 10-11 year olds.
- Helping consumers make healthier food choices through the Change4Life³ programme.
- Working with business and other partners through the Public Health Responsibility Deal (see section on Diet).

In October 2011, the Department of Health published *Healthy Lives, Healthy People: a call to action on obesity in England*⁴ which sets out in more detail how obesity will be tackled in the new public health and NHS systems.

Chapter 2 in this report presents the obesity prevalence rates and trends among adults. The relationship between obesity and various factors such as sex, demographics and lifestyle habits are also explored. Chapter 3 focuses on obesity prevalence rates and trends for children, and again, explores the relationship between obesity and various factors.

1.2 Physical activity

In 2011, the UK Chief Medical Officers (CMOs) published revised guidelines for physical activity. For the first time the guidelines take a lifecourse approach, updating the guidelines for adults, children and young people and including guidelines for early years and older people. The UK CMOs recommend that

adults should achieve at least 150 minutes of at least moderate intensity physical activity a week, it recognises the comparable benefits of achieving 75 minutes of vigorous intensity activity. The CMOs also recommend that children and young people should achieve a total of at least 60 minutes of at least moderate intensity physical activity each day. *Start Active, Stay Active*⁵ includes the guidelines for early years, encouraging physical activity from birth and for at least 180 minutes a day for those who are able to walk. It also includes guidelines on reducing sedentary behaviour for all age groups. *Start Active, Stay Active* supersedes the Chief Medical Officer for England's previous report (in 2004) on *At least 5 a week: Evidence on the impact of physical activity and its relationship to health*.⁶

In December 2010, the Secretary of State for Culture, Media and Sport published the coalition Government's high-level vision for achieving a lasting legacy from the Olympic Games: *Plans for the Legacy from the 2012 Olympic and Paralympic Games*.⁷ This was followed in September 2012 by a sports legacy plan, which includes a commitment to competitive sport in schools through the School Games.⁸ Over half the schools in England are already taking part in the Games, including primary, special and independent schools. To further support competitive sport in schools, the Government is funding Change4Life Sports Clubs in schools in primary and secondary schools. The clubs are fully inclusive with a focus on the least active, including disabled children.

In order to tackle physical inactivity outside school, initiatives such as the Change4Life continue to be driven forward (in conjunction with tackling obesity and healthier eating), for example through the 2012 Games4Life summer campaign. Change4Life has now expanded to focus on adults, with the *Get Going Everyday*⁹ message to encourage adults to increase their physical activity levels.

The Government is also seeking to increase participation in sport and physical activity by working with business, the third sector and others through the *Public Health Responsibility Deal*¹⁰, launched on 15 March 2011. The Physical Activity Network is one of five networks created through the Deal.

The *Public Health Outcomes Framework*¹¹ was published in January 2012. The document sets out the desired outcomes for public health and how these will be measured. The framework includes a specific indicator for the proportion of physically active and inactive adults.

The Public Health Outcomes Framework indicator aligns fully with the national ambition for physical activity, which was also announced in January 2012 and calls for a year on year increase in the proportion of adults achieving at least 150 minutes of physical activity and a corresponding decrease in those achieving less than 30 minutes each week.

[Chapter 4](#) on Physical activity among adults and [Chapter 5](#) on Physical activity among children cover information on self-reported activity and accelerometry. Physical activity levels, according to physical activity guidelines, and types of physical activity are considered. These chapters also cover information on adults' and children's knowledge and attitudes towards exercise and physical activity.

Other than the HSE, other sources of information on physical activity include the latest *Taking Part Survey*, *The National Travel Survey*, *The Active People Survey*, *The PE and Sport Survey* and other fitness surveys.

The Active People Survey, published by Sport England, provides information on participation in sport and the measurements for the local area estimates of adults playing sport for at least 30 minutes a week. The survey includes additional information on dance

and gardening, which contribute to local data on sport and wider physical activity to inform the Public Health Outcomes Framework indicator for adult physical activity.

1.3 Diet

Current government food based recommendations are that everyone should eat plenty of fruit and vegetables (at least 5 of a variety each day),¹² plenty of potatoes, bread, rice and other starchy foods, some milk and dairy foods, meat, fish, eggs, beans and other non-dairy sources of protein. Foods and drinks high in salt, fat and sugar should be consumed infrequently and in small amounts. This is visually represented in the eatwell plate,¹³ a policy tool that helps to make healthier eating easier to understand, showing the types and proportions of foods needed for a healthy, balanced diet.

Nutrient based recommendations for the population are based on advice from the Committee on Medical Aspects of Food and Nutrition Policy (COMA)¹⁴ and its successor the Scientific Advisory Committee on Nutrition (SACN). In 1991, the Department of Health published Dietary Reference Values (DRVs) which cover a range of intakes for most nutrients¹⁵. SACN published revised DRVs for energy in 2011. [Appendix C](#) contains information on the current DRVs.

One of the aims of the Public Health Responsibility Deal is to tap into the potential for businesses and other organisations to improve public health and tackle health inequalities through their influence over food, alcohol, physical activity and health in the workplace. It will help deliver voluntary agreements or 'pledges' to improve public health through activities such as further reformulation of food; better information for consumers about food; and promotion of more socially responsible retailing and consumption of alcohol. As of January 2013, there are nearly 500 partners

signed up to the Public Health Responsibility Deal.

Taking forward the Department for Environment, Food and Rural Affairs' (Defra) Fruit and Vegetables Task Force recommendation on fruit and vegetables, the Department convened an external reference group to provide advice on possible approaches to extend the 5 A DAY logo scheme to include composite foods (i.e. those foods with more than one ingredient, one of which is a fruit or vegetable). The Department of Health received this advice in June 2011, and subsequently considered various options for extending the scheme; discussing these options further with the Responsibility Deal Food Network High Level Steering Group. The Department decided not to extend the logo licensing scheme at that time, but continue to discuss possible qualifying criteria for extending the logo licensing scheme.

The Department for Education maintain existing standards for school food. All school food must meet the minimum standards set out in the Education (Nutritional Standards and Requirements for School Food) (England) Regulations 2007¹⁶ which came into force on 10th September 2007 and was amended in 2008¹⁷ and 2011¹⁸ (the amendments reflect minor technical changes to the school lunch requirements for Local Authority (LA) maintained primary, secondary and special schools and pupil referral units).

The regulations introduce combined food-based and nutrient-based standards for school lunches in primary schools from September 2008 and secondary and special schools and pupil referral units from September 2009. They are compulsory for all maintained schools and require school lunches to provide prescribed amounts of essential nutrients, vitamins and minerals. If parents/carers and others believe that their school is not meeting the standards, they may complain to the Secretary of State under s496/497 of the 1996 Education Act. The Secretary of State has the power to issue a direction

to the school. This sanction has not yet been used.

Academies created between 2008 and 2010 are subject to the food standards through their Funding Agreement. Academies created after 2010 are not, nor are Free Schools. None of those older Academies have applied to be exempt from the standards.

Chapter 6 on Diet covers purchases and consumption of food and drink and related intake of energy and nutrients. Also covered are adults' and children's consumption and knowledge of the recommended number of portions of fruit and vegetables a day plus attitudes towards a healthy diet.

Other than the HSE, other sources of information on diet include the latest *Living Cost and Food Survey* and the *National Diet and Nutrition Survey*.

1.4 Health Outcomes

Chapter 7 on Health Outcomes focuses on outcomes related to being overweight or obese, in particular blood pressure and long standing illness. The risks of diseases linked to obesity are discussed in this chapter, as well as information on hospital episodes with a primary or secondary diagnosis of obesity, 'bariatric surgery' and prescriptions for the treatment of obesity.

Throughout the report, references are given to sources for further information which are provided at the end of each chapter.

The report also contains four appendices: **Appendix A** describes the key sources used in more detail; **Appendix B** provides further details on measurements, classifications and definitions used in the various sources; **Appendix C** covers government policy, targets and outcome indicators related to obesity, physical activity or diet; **Appendix D** gives editorial notes regarding the conventions used in presenting information; and further

information regarding the topics discussed within this report.

1.5 United Kingdom Statistics Authority

This statistical release is a National Statistics publication. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. It is a statutory requirement that National Statistics should observe the Code of Practice for Official Statistics. The United Kingdom Statistics Authority (UKSA) assesses all National Statistics for compliance with the Code of Practice.

During 2010, the *Statistics on Obesity, Physical Activity and Diet: England* report underwent assessment by the United Kingdom Statistics Authority. Following assessment, the publications were designated continued National Statistics status.

Most of the sources referred to in this publication are National Statistics. Some of the statistics referred to in this publication are not National Statistics and are included here to provide a fuller picture; some of these are Official Statistics, whilst others are neither

National Statistics nor Official Statistics. Those which are Official Statistics should still conform to the Code of Practice for Official Statistics, although this is not a statutory requirement. Those that are neither National Statistics nor Official Statistics may not conform to the Code of Practice for Official Statistics.

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2 Obesity among adults

2.1 Introduction

The main source of data on the prevalence of overweight and obesity is the Health Survey for England (HSE). The HSE is an annual survey designed to monitor the health of the population of England. The report is written by NatCen Social Research (previously the National Centre for Social Research) and published by the Health and Social Care Information Centre (HSCIC). Most of the information presented in this chapter is taken from the recently published HSE 2011.¹

This chapter focuses on the prevalence of overweight and obesity in adults, presented by Body Mass Index (BMI) and also by waist circumference. Trends in the prevalence of overweight or obesity are presented and relationships between various economic and lifestyle variables and obesity are discussed. Regional, national and international comparisons have been provided as well as the Quality and Outcomes Framework (QOF) obesity prevalence rates. Participation by practices in the QOF is voluntary, though participation rates are very high.

The chapter also includes a focus on future predictions of adult obesity, which refers to other research reports.

2.1.1 Measurement of overweight and obesity

The calculation of BMI is a widely accepted method used to define overweight and obesity. Guidance published by the National Institute for Health and Clinical Excellence (NICE)² postulates that within the management of overweight and obesity in adults, BMI should be used to classify the degree of obesity and to determine the health risks. However, this needs to be interpreted with caution as BMI is not a direct measure of obesity. NICE recommends the use of BMI in conjunction

with waist circumference as the method of measuring overweight and obesity and determining health risks, specifically, the guidance currently states that assessment of health risks associated with overweight and obesity should be based on both BMI and waist circumference for those with a BMI of less than 35 kg/m². Hence this chapter focuses on using BMI and using BMI with waist circumference in order to define overweight and obesity in adults.

2.1.2 Measurement of BMI

BMI is defined as weight in kilograms divided by the square of the height in metres (kg/m²). [Figure 2.1](#) presents the various BMI ranges used to define BMI status.

Figure 2.1 BMI definitions

Definition	BMI range (kg/m ²)
Underweight	Under 18.5
Normal	18.5 to less than 25
Overweight	25 to less than 30
Obese	30 to less than 40
Obese I	30 to less than 35
Obese II	35 to less than 40
Morbidly obese	40 and over
Overweight including obese	25 and over
Obese including morbidly obese	30 and over

Where the prevalence of obesity is referred to in this chapter it is referring to those who are obese or morbidly obese (i.e. with a BMI of 30kg/m² or over) unless otherwise stated.

2.1.3 Waist circumference

Although BMI allows for differences in height, it does not distinguish between mass due to body fat and mass due to muscular physique, or for the distribution of fat. Therefore, waist circumference is also a widely recognised

measure used to identify those with a health risk from being overweight. A raised waist circumference is defined as greater than 102cm in men and greater than 88cm in women.

2.1.4 NICE risk categories

NICE guidelines on prevention, identification, assessment and management of overweight and obesity highlight their impact on risk factors for developing long-term health problems. It states that the risk of these health problems should be identified using both BMI and waist circumference for those with a BMI less than 35kg/m². For adults with a BMI of 35kg/m² or more, risks are assumed to be very high with any waist circumference (see [Figure 2.2](#)).

Figure 2.2: NICE risk categories

BMI classification	Waist circumference			
		Low	High	Very high
		< 94cm	94cm - 102cm	> 102cm
	Male	< 94cm	94cm - 102cm	> 102cm
	Female	< 80cm	80cm - 88cm	> 88cm
Normal weight		No increased risk	No increased risk	Increased risk
Overweight (25 to less than 30 kg/m ²)		No increased risk	Increased risk	High risk
Obesity I (30 to less than 35 kg/m ²)		Increased risk	High risk	Very high risk

2.2 Overweight and obesity prevalence

2.2.1 BMI

Chapter 10 of the HSE 2011 report provides information on overweight and obesity as well as anthropometric measures (height, weight, waist and hip circumference). In particular, [Table 10.3](#) on page 20 shows BMI prevalence among adults by age and gender for 2011.

The key findings show that in 2011, just under a quarter of men (24%) and just over quarter

of women (26%) were obese, and 41% of men and 33% of women were overweight. In comparison 34% of men and 39% of women had a BMI in the normal range.

Overall, mean BMI in men was 27.2kg/m² and in women was 27.1kg/m² and as with the prevalence of overweight including obesity, was higher in older age groups. Prevalence of overweight including obese varied by age, being lowest in the 16–24 age group, and higher in the older age groups among both men and women. [Figure 10A](#) on page 5 of Chapter 10 of the HSE 2011 report shows prevalence of overweight and obesity by age and gender for 2011.

2.2.2 Waist circumference

[Table 10.8](#) on page 25 of Chapter 10 of the HSE 2011 report shows the distribution of mean waist circumference and prevalence of raised waist circumference by age and gender for 2011.

In 2011, women were significantly more likely than men to have a raised waist circumference (47% and 34% respectively). Again both mean waist circumference and the prevalence of a raised waist circumference were generally higher in older age groups.

2.2.3 Health risk associated with BMI and waist circumference

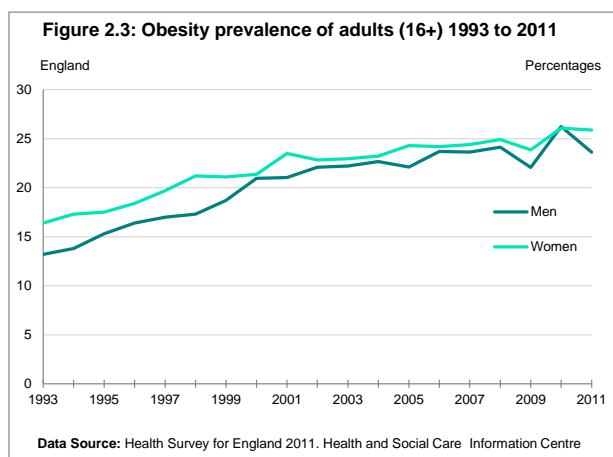
[Table 10.12](#) on pages 28 and 29 of Chapter 10 of the HSE 2011 shows the increased health risks associated with high and very high waist circumference, when combined with BMI to classify the risks (see [Figure 2.2](#) for definition of high and very high waist circumference).

Using combined categories of BMI and waist circumference to assess overall health risk: 18% of men were at increased risk, 15% at high risk and 21% at very high risk. The equivalent proportions for women were: 15%, 18% and 26%.

2.3 Trends in obesity and overweight

2.3.1 BMI

Table 4 from the HSE 2011 Adult Trend Tables³ shows that in England the proportion of adults with a normal BMI decreased between 1993 and 2011, from 41.0% to 33.6% among men and from 49.5% to 39.4% among women. For both men and women, the proportions that were overweight were stable over the same period (approximately 40% for men and 30% for women). There was however a marked increase in the proportion that were obese, a proportion that has gradually increased over the period from 13.2% in 1993 to 23.6% in 2011 for men and from 16.4% to 25.9% for women (see Figure 2.3). The proportions that were overweight including obese increased from 57.6% to 65.0% in men and from 48.6% to 58.4% in women between 1993 and 2011.



This increase is also shown in Figure 10G on page 13 of Chapter 10 of the HSE 2011 report (based on a 3 year moving average).

2.3.2 Waist circumference

Table 5 from the HSE 2011 Adult Trend Tables shows that between 1993 and 2011, the proportion of adults with a raised waist circumference also increased, from 23% to 41% (from 20% to 34% among men and from 26% to 47% among women).

2.4 Obesity and demographic characteristics

The HSE 2011 uses equivalised household income (a measure of household income that takes account of the number of people in the household – see Appendix B of this report for more details) to help identify patterns in obesity and raised waist circumference.

Table 10.5 on page 23 of Chapter 10 of the HSE 2011 report shows that there were very little differences in mean BMI by equivalised household income for men; in contrast for women, those in the lower income quintiles had a higher mean BMI than women in the higher quintiles. For women, the proportions who were obese were higher in the lowest income quintiles and lower in the highest quintiles (ranging from 17%-28%). The relationship between BMI and income for men was less clear.

Table 10.10 on page 27 of Chapter 10 of the HSE 2011 report shows that the proportion of women with a raised waist circumference was also lowest in the highest income quintile (39%) and highest in the lowest income quintile (55%). As with BMI, there was no clear relationship between waist circumference and equivalised household income for men.

2.5 Obesity and lifestyle habits

Previous years' HSE reports have included more detailed exploration of the lifestyle factors associated with obesity measures. The HSE 2007 report⁴ included a regression analysis of the risk factors for those classified as 'most at risk' according to the NICE categories using BMI and waist circumference criteria; the HSE 2006 report⁵ included a regression analysis exploring the risk factors associated with a raised waist circumference; and the HSE 2003 report⁶ included a regression analysis of risk factors associated with overweight and obesity.

The HSE 2007 report⁴ used logistic regression (see [Section 3.3.7](#) on pages 44 to 46 of HSE 2007 and [Appendix B](#) of this report for more details) to identify the risk factors associated with being in the 'most at risk' categories (high or very high risk). For both men and women, being 'most at risk' was positively associated with: age; being an ex-cigarette smoker; self-perceptions of not eating healthily; not being physically active; and hypertension. Income was also associated with being 'most at risk', with a positive association for men and a negative association for women. Additionally, among women only, moderate alcohol consumption was negatively associated with being 'most at risk.'

2.6 Obesity and physical activity

Self-reported physical activity levels were last included in the HSE 2008⁷ report. [Figure 2C](#) and [Table 2.5](#) on pages 31 and 47 of the HSE 2008 show self-reported activity levels by BMI category. Both men and women who were overweight (BMI 25 kg/m² to less than 30 kg/m²) or obese (BMI 30 kg/m² or more) were less likely to meet the recommendations compared with men and women who were not overweight or obese (BMI less than 25 kg/m²). Forty-six per cent of men who were not overweight or obese met the recommendations, compared with 41% of overweight men and 32% of obese men. A similar pattern emerged for women, with 36% of women who were not overweight or obese meeting recommendations, compared with 31% of overweight and 19% of obese women. Given these findings, it is not surprising that obese men and women had the highest rates of low activity (36% and 46% respectively).

[Table 3.6](#) on page 84 of the HSE 2008 report shows the average number of minutes per day in sedentary time and all moderate to vigorous physical activity (MVPA) by BMI category based on accelerometry data (an objective measure of physical activity), and [Figure 3C](#) on page 69 shows the data for MVPA time. Those who were not overweight or obese spent fewer minutes on average in sedentary time (591 minutes for men, 577 minutes for

women) than those who were obese (612 minutes for men, 585 minutes for women). Similarly, those not overweight or obese spent more MVPA minutes than those who were overweight or obese.

Further information on adult physical activity linked to obesity can be found in Chapter 4 of this report.

2.7 Geographical patterns in obesity

2.7.1 Obesity and waist circumference by Strategic Health Authority

[Table 10.4](#) on page 21 of Chapter 10 of the HSE 2011 report shows that among the different Strategic Health Authorities (SHAs) in England, no significant statistical differences were observed in men or women in mean BMI or prevalence of overweight and obesity.

[Table 10.9](#) on page 26 of Chapter 10 of the HSE 2011 report also shows there was no significant variation in the distribution of mean waist circumference or raised waist circumference by SHA.

2.7.2 Quality and Outcomes Framework

The QOF for 2011/12⁸ includes an indicator which rewards GP practices for maintaining an obesity register of patients (aged 16 and over) with a BMI greater than or equal to 30 kg/m², recorded in the previous 15 months. The recording of BMI for the register takes place in the practice as part of routine care. The underlying data includes the number of patients on the obesity register and the number of obese patients registered as a proportion of the practice list size. See [Appendix A](#) for more information on QOF.

In England in 2011/12, it was calculated that the prevalence rate based on GP obesity registers was 10.7%; much lower than the 24.8% for adults reported in HSE 2011. This could be due to a number of reasons. Not all patients will be measured and there may be

some obese people who have not recently visited their GP. While perhaps not able to demonstrate the complete extent of obesity prevalence, QOF can be a useful indicator of the number of people whose health is being monitored due to their obesity. To be included in the QOF obesity register a patient must be aged 16 or over and have a record of a BMI of 30 kg/m² or higher in the previous 15 months. This requirement results in the prevalence of obesity in QOF being much lower than the prevalence found in the Health Survey for England and other surveys.

The Quality and Outcomes Framework (QOF) prevalence data tables for 2011/12⁸ show a breakdown of obesity at a regional level. Prevalence rates based on the QOF ranged from 13.5% in North East SHA to 9.1% in South East Coast SHA in 2011/12. [Figure 2.4](#) shows the obesity prevalence rates from QOF for each SHA in England in 2011/12. There is clearly a north-south divide with northern England having higher obesity prevalence rates than southern England.

Figure 2.4 Obesity prevalence rates quoted by QOF for each SHA in 2011/12

SHA	Obesity prevalence (%)
North East	13.5%
North West	11.7%
Yorkshire and The Humber	11.6%
East Midlands	11.1%
West Midlands	12.0%
East of England	10.6%
London	9.4%
South East Coast	9.1%
South Central	9.4%
South West	10.4%

2.7.3 National and international comparisons

Scotland and Wales carry out their own health surveys. Adult BMI information can be found in [Section 7.5](#) and [Tables 7.1 to 7.3](#) of the *Scottish Health Survey 2011*⁹. The Scottish Government also published an *Obesity Topic Report*¹⁰ alongside the Scottish Health Survey 2010 which investigates into the most

appropriate measure of adult obesity using Scottish Health Survey data, and also investigates into the significant behavioural, socio-demographic and economic factors associated with adult obesity using data from the 2008, 2009 and 2010 surveys.

Adult BMI information for Wales can be found in [Section 4.7](#) on pages 60 and 61 and [Tables 4.1 and 4.2](#) on pages 71 to 72 of the *Welsh Health Survey 2011*¹¹.

In Scotland, 27.7% of adults were classified as obese, and 64.3% of adults were classified as being overweight or obese. In Wales, 22.1% of adults were classified as obese, and 57.3% of adults were classified as being overweight or obese. This compares with 24.8% of adults being obese in England and 61.7% of adults being overweight or obese.

Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

The Organisation for Economic Co-operation and Development (OECD) in 2012 published *Health at a Glance: Europe 2012*¹² which includes data on overweight and obese populations across different countries in Europe. Based on latest available health surveys, [Section 2.7](#) on page 62 of the report, states that more than half (52%) of the adult population in the European Union reported that they were overweight or obese. The obesity rate has doubled over the last twenty years in many European countries and stands at between 7.9% in Romania and 10.3% in Italy to 26.1% in the UK and 28.5% in Hungary.

The prevalence of overweight and obesity among adults exceeds 50% in 18 of 27 EU member states.

In 2011, the OECD also published *Health at a Glance 2011*¹³ which includes data on overweight and obese populations across different countries worldwide rather than just Europe. Based on latest available health surveys, more than half (50.3%) of the adult population in the OECD reported that they were overweight or obese. The least obese countries were India (2.1%), Indonesia (2.4%)

and China (2.9%) and the most obese countries were the US (33.8%), Mexico (30.0%) and New Zealand (26.5%).

Obesity prevalence has more than doubled over the past 20 years in Australia and New Zealand. Some 20-24% of adults in Australia, Canada, the United Kingdom (UK) and Ireland are obese, about the same rate as in the United States in the early 1990s. Obesity rates in many western European countries have also increased substantially over the past decade. The rapid rise occurred regardless of where levels stood two decades ago. Obesity almost doubled in both the Netherlands and the UK, even though the current rate in the Netherlands is around half that of the UK.

Figure 2.3.1 of the OECD report shows the prevalence of obesity among adults (2009 data) across the OECD countries and Figure 2.3.2 shows the increasing obesity rates among the adult population in OECD countries, 1990, 2000 and 2009 (or nearest years).

of prevalence to 2012¹⁵ predicted that the prevalence of obesity will increase to 32.1% in men and 31.0% in women by 2012 based on 1993-2004 obesity prevalence trend data.

The predicted 2012 obesity prevalence for adults in manual social classes is higher (34%) than adults in non-manual social classes (29%). The report also concluded that if recent trends in adult obesity continue, about a third of all adults in England (almost 13 million adults) would be obese by 2012, of which around 34% will be from the manual social class. HSE 2012 is expected to be published in December 2013. Comparisons against these modelled estimates will then be possible. The definitions of obesity used are contained within the publication. These do differ, which will need to be taken into consideration when attempting any comparisons.

2.8 The future

There are various research reports and journal articles available that use HSE data to predict future obesity trends in adults. The report by Foresight at The Government Office for Science produced the *Tackling Obesities: Future Choices* report¹⁴ which provides a long-term vision of how we can deliver a sustainable response to obesity in the UK over the next 40 years. HSE data from 1994 to 2004 were used as a basis of modelling obesity prevalence up to 2050.

By 2015, the Foresight report estimates that 36% of males and 28% of females (aged between 21 and 60) will be obese. By 2025 it is estimated that 47% of men and 36% of women will be obese. In a few years we will be able to compare against these modelled estimates. At the moment, the HSE 2011 data shows that the current rate for obesity is 24% for men and 26% for women.

Another research report published in 2008 by the British Medical Journal Group, *Trends in obesity among adults in England from 1993 to 2004 by age and social class and projections*

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3 Obesity among children

3.1 Introduction

This chapter presents key information about the prevalence of overweight and obesity in children aged 2 to 15 living in England, using data from the Health Survey for England (HSE) 2011¹. As described in [Chapter 1](#), the HSE is an annual survey and has provided information about the health of children since 1995. Information is presented showing relationships between obesity prevalence and income, parental Body Mass Index (BMI) and children's physical activity levels, and also provides regional comparisons. Information on children's attitudes to physical activity and obesity are also included.

This chapter also presents recent 2011/12 data from the National Child Measurement Programme for England (NCMP)² which provides the most comprehensive data on obesity and being overweight among children, generally aged 4-5 and 10-11 years, based on Reception class and school year 6. The findings are used to inform local planning and delivery of services for children and gather population-level surveillance data to allow analysis of trends in weight.

Data on National and International comparisons are taken from the *Health at a Glance: Europe 2012* report published by the Organisation for Economic Co-operation and Development (OECD) in 2012 and the *Scottish and Welsh Health Surveys*.

The final part of this chapter focuses on future predictions of childhood obesity, which refers to other research reports.

3.1.1 Measurement of overweight and obesity among children

As with adults, the HSE collects height and weight measurements to calculate BMI for

each child. BMI (adjusted for age and gender) is recommended as a practical estimate of overweight and obesity in children. The measurement of obesity and overweight among children needs to take account of the different growth patterns among boys and girls at each age, therefore a universal categorisation cannot be used to define childhood obesity as is the case with adults. Each sex and age group needs its own level of classification for overweight and obesity. The data presented in this chapter uses the British 1990 growth reference (UK90) to describe childhood overweight and obesity. This uses a BMI threshold for each age above which a child is considered overweight or obese. The classification estimates were produced by calculating the percentage of boys and girls who were over the 85th (overweight) or 95th (obese) BMI percentiles based on the 1990 UK reference population.

3.2 Trends in overweight and obesity

[Table 11.2 on page 15, Chapter 11](#) of the HSE 2011 report shows that around three in ten boys and girls aged 2 to 15 were classed as either overweight or obese (31% and 28% respectively), which is very similar to the HSE 2010 findings (31% for boys and 29% for girls).

Mean BMI was higher overall among girls than boys aged 2-15 (18.6kg/m² and 18.3kg/m² respectively, a difference of 0.3kg/m²). BMI generally increased with age in both sexes. Mean BMI ranged from 16.5kg/m² for boys and girls aged 2-4 to 21.4kg/m² for boys and 21.9kg/m² for girls aged 13-15.

[Table 4](#) of the HSE 2011 Child Trend Tables³ shows that among boys aged 2 to 15, the proportion who were obese increased overall between 1995 and 2004 where the prevalence

increased from 11.1% to 19.4%, but has steadily fallen between then and 2011 to 16.6%. Among girls in the same age group, the proportion who were obese increased from 12.2% to 18.8% between the years of 1995 and 2005 but since then has steadily decreased to 15.9% in 2011. Whilst there have been marked increases in the prevalence of obesity since 1995, the prevalence of overweight children aged 2 to 15 has remained largely unchanged and in 2011 this was 14.8% for boys and 12.6% for girls. (Note: data for 1995 to 2007 in Table 4 were revised in November 2009).

The same overall obesity increase was apparent among both younger children aged 2 to 10 and children aged 11 to 15. For boys aged 2 to 10, the prevalence of obesity increased overall from 9.7% in 1995, peaking at 17.4% in 2006 but then steadily falling to 12.4% in 2011. Among girls the prevalence of obesity increased from 10.6% in 1995 to 17.4% in 2005 but had similarly decreased by 2011 to 15.5%. In the 11 to 15 age group, obesity increased among boys from 13.9% in 1995 to 24.3% in 2004, falling to 23.8% in 2011. The situation is similar among girls, increasing from 15.5% in 1995 to 26.7% in 2004 but decreasing to 16.5% in 2011.

Figure 11D on page 9 of Chapter 11 of the HSE 2011 report shows the obesity trend as a 3 year moving average. This suggests that the trend in obesity now appears to be flattening out, and future HSE data will be important in confirming whether this is a continuing pattern, or whether this is a plateau within the longer term trend which is still gradually increasing. In 2011/12, the NCMP data shows that around one in ten pupils in Reception class (aged 4-5 years) were classified as obese (9.5%) which compares to around a fifth of pupils in Year 6 (aged 10-11 years) (19.2%). Also, 13.1% of pupils in Reception class and 14.7% of pupils in Year 6 were reported as being overweight.

Obesity prevalence was significantly higher in urban areas than in rural areas for both school years, as was the case in previous years. The obesity prevalence among Reception year children living in urban areas was 9.8% compared with 8.1% and 7.8% living in town and village areas respectively. Similarly, obesity prevalence among Year 6 children

living in urban areas was 19.9% compared with 16.3% and 15.6% living in town and village areas respectively.

Section 13.5 on page 318 of the HSE 2008 report includes a comparison of NCMP and HSE data, outlining the differences between results and methods of collection.

3.3 Relationship between obesity and income

Figure 11B on page 6 of Chapter 11 of the HSE 2011 report shows the proportion of children who were overweight or obese in each equivalised household income quintile. Girls in the highest income quintile were least likely to be obese (5% in the highest quintile as opposed to 13% to 22% in the other 4 quintiles). Boys in the lowest income quintile were most likely to be obese (25% in the lowest quintile as opposed to 9% to 17% in the other 4 quintiles). However, there were no real patterns for the proportion of children who were overweight including obese.

3.4 Obesity and overweight prevalence by parental BMI

Overweight and obesity prevalence among children varied by parental BMI status. The HSE 2007⁴ (which remains the most up to date source) found that obesity prevalence rates among children were higher in households where both natural parents or lone natural parent were classed as either overweight or obese.

Table 8.5 on page 239 of the HSE 2007 report shows how mean BMI, overweight and obesity prevalence varied by parental BMI status. Twenty-four per cent of boys aged 2-15 living in overweight/obese households were classed as obese compared with 11% in normal / underweight households. Equivalent figures for girls classed as obese were 21% and 10%.

3.5 Obesity and Physical Activity

Table 5.20 on page 157 of the HSE 2008⁵ report (which remains the most up-to-date source) shows the proportion of children who were sedentary for more than four hours on a typical weekday or weekend day according to BMI categories. Among both boys and girls there was a relationship between sedentary time and BMI category, which is also shown in Figure 5I on page 132 of the HSE 2008 report. For boys, on weekdays, the proportion who spent 4 or more hours doing sedentary activities was 35% for those who were not overweight or obese, 44% of those classed as overweight and 47% of those classed as obese. For girls, a similar pattern was found; 37%, 43% and 51% respectively.

Table 6.6 on page 177 of the HSE 2008 report shows average daily physical activity profile, by BMI category based on accelerometry data (an objective measure of physical activity). This shows that there is no difference in the activity profile according to whether participants were overweight or obese. However, it should be noted that the small base sizes for some of these categories limits the scope for detailed analysis. Further information on children's physical activity linked to obesity can be found in Chapter 5 of this report.

3.6 Regional, national and international comparisons

Statistics derived from the National Child Measurement Programme (NCMP) in England, enables us to make regional comparisons. In 2011/12, Obesity prevalence ranged from 8.1% in South East Coast Strategic Health Authority (SHA) to 11.0% in London SHA for Reception and from 16.3% in South Central SHA to 22.5% in London SHA for Year 6.

The Health and Social Care Information Centre (HSCIC) also provides results by Primary Care Trust (PCT). Maps in Figures 11 and 12 on pages 27 and 28 and On-line table

2 of the 2011/12 NCMP publication show child obesity prevalence rates in Reception class and Year 6 by PCT, where the PCT recorded is the one that took responsibility for the school the child attended. Obesity prevalence varied, ranging from 5.9% in Kingston PCT to 14.5% in Newcastle PCT for Reception; and from 12.9% in Richmond and Twickenham PCT to 28.3% in Southwark PCT for Year 6.

National information for Scotland and Wales can be found from their own health surveys. Child Obesity information for Scotland can be found in Chapter 5 and Table 5.2 of the *Scottish Health Survey 2011*⁶. This reports that obesity prevalence for all children aged 2-15 rose from 14.3% to 15.7% in 2011. The prevalence of obesity in boys increased from 13.0% in 1998 to 17.5% in 2011, with some fluctuations in the 2008-2010 period. For girls, the prevalence was 13.1% in 1998 and 13.7% in 2011, with some fluctuations in the intervening years (12.3%-14.7%).

The prevalence of overweight including obesity for children aged 2-15 in 2011 was 31.6% (34.5% for boys compared to 28.5% for girls).

Child obesity information for Wales can be found in Section 6 and Table 6.4 of the *Welsh Health Survey 2011*⁷. It shows that around a third (35%) of children were classified as overweight or obese, including around a fifth of children classified as obese (19%). Boys were slightly more likely to be obese than girls (21% compared to 18%) with the combined overweight or obese figure for boys being 36% and for girls being 34%.

Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

The Organisation for Economic Co-operation and Development (OECD) in 2012 published *Health at a Glance: Europe 2012*⁸ which includes data on overweight and obese populations across different countries in Europe. Based on latest available health surveys, Section 2.2 on page 52 and Figure 2.2.1 on page 53 of the report, show that among 15 year olds in EU member states one in six boys (17%) and one in ten girls (10%)

were overweight or obese. More than 15% of adolescents in southern European countries (Greece, Italy, Portugal and Spain), as well as in Croatia, Iceland, Luxembourg and Slovenia were reported as being overweight or obese. Fewer than 10% of children in Latvia and Lithuania, as well as in Denmark, France and the Netherlands reported being overweight or obese.

In 2011 the OECD also published *Health at a Glance 2011*⁹ which includes data on overweight and obese populations across different countries including those outside of Europe. Based on latest available health surveys which measure height and weight, a fifth of children aged 5-17 are overweight or obese across all OECD and emerging countries. In Greece, the United States and Italy this figure is around one in three. In contrast, China, Korea and Turkey show overweight or obese figures of 10% or less. In most countries, boys have higher rates of overweight and obesity than girls, although girls do tend to have higher rates in Nordic countries (Sweden, Norway and Denmark), as well as in the United Kingdom, the Netherlands and Australia.

The OECD reports that in many developed countries, child obesity rates doubled between the 1960s and 1980s and doubled again since then and that even in emerging countries, the prevalence of obesity is rising, particularly in urban areas.

Figure 2.4.1 on page 57 of the OECD report shows the prevalence of overweight and obesity in OECD and emerging countries among school aged children (aged 5-17 years), and figure 2.4.2 presents the prevalence of overweight and obesity for 6-9 year old children. This shows that there were crucial differences among children who were overweight or obese, not only across countries but also according to their age. In general, older children had higher prevalence of overweight and obesity than younger children.

3.7 Attitudes to and knowledge of physical activity by BMI status

At the time the data were collected for HSE 2007 the Government recommended that children should do at least 60 minutes of moderate physical activity every day of the week. In order to assess awareness of the recommended guidelines for physical activity for their age group, children aged 11 to 15 were asked in the HSE 2007 (which remains the most up to date source) how many days a week and how many minutes a day young people should spend doing physical activity. Table 8.7 on page 240 of the HSE 2007 report shows children's knowledge (those aged 11-15) of the number of days and minutes a day they should do physical activity. In 2007, 73% of boys who were classed as obese said that children should spend a minimum of five days a week doing physical activity, compared to 62% of those in the healthy BMI category. There were no significant differences found amongst girls.

When looking at the number of minutes per day children should be spending doing physical activity, 64% of boys in the healthy BMI category thought that children should spend at least 60 minutes a day doing physical activity, compared with 53% of those in the overweight category. Among girls, the proportion who thought that children should spend at least 60 minutes a day doing physical activity was higher in the overweight group: 62% among those classed as overweight compared with 50% in the healthy BMI category.

Children aged 11 to 15 were also asked how they perceived their own level of physical activity compared with other children of their own age, and to state whether they would like to do more physical activity than at present.

Figure 8D on page 228 of the HSE 2007 report shows that 46% of boys in the healthy BMI category believed that they were very physically active. This compares with 37% of those in the overweight group and 27% in the obese group. Among girls, 32% in the normal weight group believed that they were very

physically active compared with 21% of those in the obese group.

[Table 8.8](#) on page 241 of the HSE 2007 report shows the proportion of children stating they would like to do more physical activity than at present was higher in the obese group than in the healthy BMI category: 71% and 57% respectively for boys, 84% and 71% for girls.

In the HSE 2009, children aged 8-15 were asked about their perception of their weight. They were asked whether or not they thought they were about the right weight, and whether they were trying to change their weight. [Table 11B](#) on page 193 of the HSE 2009 shows that 75% of boys and 41% of girls who were overweight considered that they were about the right weight, and 33% of boys and 22% of girls who were obese did so, suggesting that there was a lack of awareness of a weight problem among some children.

3.8 The future

There are various research reports and journal articles available that use HSE data to predict future obesity trends in children. The report by Foresight at the Government Office for Science, *Tackling Obesities: Future Choices*¹⁰ includes some predictions for the future prevalence of obesity among young people under the age of 20. This report uses the International Obesity Task Force (IOTF) definition of obesity. More information on the IOTF can be found in [Appendix B](#). The report's predictions suggest a growth in the prevalence of obesity among people under 20 to 10% by 2015 and to 14% by 2025 based on HSE 2004 data. However, these figures should be viewed with caution due to the widening confidence intervals on the extrapolation.

Another research report published in the British Medical Journal Group in 2009, *Time trends in childhood and adolescent obesity in England from 1995 to 2007 and projections of prevalence to 2015*¹¹ reveals that the 2015 projected obesity prevalence is 10.1% in boys and 8.9% in girls, and 8.0% in male and 9.7% in female adolescents. Predicted prevalence in manual social classes is higher than in non-manual classes. The report concludes that if the trends in young obesity continue, the

percentage and numbers of young obese people in England will increase noticeably by 2015 and the existing obesity gap between manual and non-manual classes will widen further.

The HSE 2011 report shows that the rate of obesity in children aged 2 to 15 is 16.6% for boys and 15.9% for girls. The 2011/12 NCMP report shows obesity rates in Year 6 (pupils aged 10-11 years) to be 20.7% for boys and 17.7% for girls.

In a few years it will be possible to compare these figures against the modelled estimates. The definitions of obesity used are contained within the publication. These do differ, which will need to be taken into consideration when attempting any comparisons.

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4 Physical activity among adults

4.1 Background

The health benefits of a physically active lifestyle are well documented and there is a large amount of evidence to suggest that regular activity is related to reduced incidence of many chronic conditions. Physical activity contributes to a wide range of health benefits and regular physical activity can improve health outcomes irrespective of whether individuals achieve weight loss.

Current physical activity recommendations for adults are that they should achieve a total of at least 150 minutes over a week of at least moderate activity, in bouts of at least 10 minutes duration¹. Moderate activity can be achieved through brisk walking, cycling, gardening and housework, as well as various sports and exercise. Alternately 75 minutes of vigorous intensity activity across the week such as running, football or swimming. All adults should also aim to improve muscle strength on at least two days a week and minimise sedentary activities (see [Appendix B](#) for further details).

The main source of data used to monitor adults' physical activity is the *Health Survey for England (HSE)*. The HSE reports on adults' physical activity in the four weeks prior to interview by examining overall participation in activities and by describing frequency of participation and type of activity. The HSE is used as the primary source to measure progress towards achieving physical activity guidelines. The most recent HSE that included questions about physical activity and fitness was 2008² when physical activity and fitness was the main focus of the report. In addition to the self-reported questionnaire, independent measures of physical activity

were recorded in the week following the interview. Physical activity was recorded using accelerometry. Accelerometers measure the duration, intensity and frequency of physical activity for each minute they are worn by the participant, allowing an objective and accurate estimation of activity to be recorded. Fitness levels were also measured using a step test. The HSE reports from 2008 to 2011 did not include questions of people's perceptions and attitudes towards physical activity; therefore, results from the HSE 2007³ remain the latest available.

*The Taking Part Survey (TPS)*⁴ is a national survey of private households in England which began in mid-July 2005. It is a comprehensive study on how people enjoy their leisure time. Results from the survey include estimates on the prevalence of participation in active sport and reasons given for engagement and non-engagement in sporting activities.

*The National Travel Survey (NTS) 2011*⁵ provides information on personal travel in Great Britain, published by the Department for Transport, and is used in this chapter to look at the frequency of trips made by bicycle and on foot. *The National Travel Survey (NTS) 2010*⁶ also asked respondents how often they took walks of 20 minutes or more without stopping, for any reason.

The Active People Survey, published by Sport England, provides information on participation in sport and recreation. It provides the measurements for National Indicator 8 (NI8) – adult participation in sport and active recreation, as well as providing measurements for the cultural indicators NI9 and NI11. This is an annual survey, first undertaken in 2005/06 and the latest survey presents data for 2011/12⁷.

Part of the Sport England Sport Strategy 2012-17 is the 2012-17 Youth and Community Strategy for England which focuses on people aged 14 plus playing regular sport and on developing opportunities to those who want to progress in a chosen sport. Over £1 billion will be invested over 5 years.

4.2 Meeting physical activity guidelines

The latest information on whether physical activity guidelines are being met is derived by summarising different types of activity into a frequency-duration scale. It takes into account the time spent participating in physical activities and the number of active days in the last week. In the HSE, the summary levels are divided into three categories: Meets recommendations is defined as 20 or more occasions of moderate or vigorous activity of at least 30 minutes duration in the last four weeks (i.e. at least five occasions per week on average). This category corresponds to the minimum activity level required to gain general health benefits (e.g. reduction in the relative risk for cardiovascular morbidity). Some activity is defined as 4 to 19 occasions of moderate or vigorous activity of at least 30 minutes' duration in the last four weeks (i.e. at least one but fewer than five occasions per week on average). Low activity is defined as fewer than 4 occasions of moderate or vigorous activity of at least 30 minutes' duration in the last four weeks (i.e. less than once per week on average).

4.2.1 Self-reported physical activity

Self-reported physical activity in adults aged 16 and over is presented in [Chapter 2: Self-reported physical activity in adults](#), pages 21 to 58 of the HSE 2008. Key findings from the chapter are:

- In 2008, 39% of men and 29% of women aged 16 and over met the government's recommendations for physical activity, compared with 32% and 21% respectively in 1997.
- There was a clear association between meeting the physical activity recommendations and body mass index (BMI) category. Forty six per cent of men and 36% of women who were neither overweight nor obese met the recommendations, followed by 41% of men and 31% of women who were overweight and only 32% of men and 19% of women who were obese.

Further information is available in [Chapter 2: Self-reported physical activity in adults](#), of the HSE 2008 and includes information on the types of activities people carry out, the average number of hours of physical activity respondents have done in the past week and the proportion of people meeting recommended physical activity guidelines by equivalised household income ([Table 2.3](#) on page 46), Strategic Health Authority (SHA) ([Table 2.2](#) on page 45) and spearhead PCT status ([Table 2.4](#) on page 46).

The Active People Survey 2011/12, measures the number of adults aged 16 and over in England who participate in at least 30 minutes of sport and active recreation at moderate intensity at least three times a week. This survey includes additional information on participation in sports by age, gender, ethnicity, socio-economic classification and region. It also presents information on the types of sports people participate in and how participation levels have changed since the start of this survey.

A key finding from this report is that in 2011/12, 7.441 million adults participated in sport and active recreation three times a week for 30 minutes.

A key finding of the latest Taking Part Survey (TPS), 2011/12, is that 15.513 million adults (aged 16 and over) participated in sport at least once a week for 30 minutes at moderate intensity. This equated to 36 per cent of adults participating in 30 minutes of moderate intensity sport once a week (at least four times in the last 28 days) which included 41.1 per cent of men and 31.1 per cent of women. The TPS 2011/12 report contains further information on the participation in various sports.

4.2.2 Objective measures of physical activity

Objective measures of physical activity in adults aged 16 and over are given in [Chapter 3: Accelerometry in adults](#), in the HSE 2008. Accelerometers were used to independently measure physical activity over the seven day period following the completion of the self-reported physical activity questionnaire. The accelerometers record information on the frequency, intensity and duration of physical activity in one minute epochs. Full details are available in the HSE 2008 pages 62 to 66. Some key findings from the chapter are:

- Based on the results of the accelerometer study, 6% of men and 4% of women achieved the government's recommended physical activity level.
- Men and women aged 16 to 34 were most likely to reach the recommended physical activity level (11% and 8% respectively), the proportion of both men and women meeting the recommendations fell in the older age groups.
- On average men spent 31 minutes in moderate or vigorous activity (MVPA) in total per day and women an average of 24 minutes. However, most of this was sporadic activity, and only about a third of this was accrued in bouts of 10

minutes or longer which count towards the government recommendations.

Full details of the objective measures of physical activity can be found in [Chapter 3: Accelerometry in adults](#), of the HSE 2008 on pages 59 to 88. Included within this chapter is information on the activity patterns for adults on weekdays and weekend days, analyses by BMI (page 68 and [Table 3.6](#)), gender and age; as well as a comparison between the self-reported physical activity and the objective measures (pages 70 to 71 and [Tables 3.10 to 3.12](#)).

4.3 Physical fitness

Low levels of cardiovascular fitness are associated with increased risk of many health conditions. [Chapter 4: Physical fitness in adults](#), on pages 89 to 116 of the HSE 2008, presents information on cardiovascular fitness in adults aged 16 to 74 collected using a step test and monitoring participants' heart rate during and after the test. This test measured the maximal oxygen uptake ($VO_2\text{max}$). Oxygen uptake increases rapidly on starting exercise; maximal oxygen uptake is achieved when the amount of oxygen uptake into the cells does not increase, despite a further increase in intensity of exercise. Full details of the step test, the measures of physical fitness and the definitions used in this section can be found in [Chapter 4: Physical fitness in adults](#), on pages 91 to 95 of the HSE 2008.

Physical fitness has been measured only once before on a nationally-representative sample in England. In 1990, the *Allied Dunbar National Fitness Survey (ADNFS)*⁸, tested participants' fitness on a treadmill, by measuring $VO_2\text{max}$. The information in the HSE 2008 was analysed to allow comparisons to be made between the HSE 2008 and the ADNFS and this involved converting the results of the step test from the HSE to indicate the percentage of adults

who could sustain walking at 3 miles per hour (mph) on the flat and on 5% incline. The key findings from this chapter are:

- Men had higher cardiovascular fitness levels than women, with an average level of VO_2max of 36.3 ml $\text{O}_2/\text{min}/\text{kg}$ for men and 32.0 ml $\text{O}_2/\text{min}/\text{kg}$ for women. In both sexes, the mean VO_2max decreased with age.
- Cardiovascular fitness was lower on average among those who were obese (32.3 ml $\text{O}_2/\text{min}/\text{kg}$ among men and 28.1 ml $\text{O}_2/\text{min}/\text{kg}$ among women) than among those who were neither overweight nor obese (38.8 ml $\text{O}_2/\text{min}/\text{kg}$ and 33.9 ml $\text{O}_2/\text{min}/\text{kg}$ respectively).
- Virtually all participants were deemed able to walk at 3 mph on the flat but 84% of men and 97% of women would require moderate exertion for this activity. Thirty two per cent of men and 60% of women were not fit enough to sustain walking at 3 mph up a 5% incline. Lack of fitness increased with age.
- Physical fitness was related to self-reported physical activity. Average VO_2max decreased, and the proportion classified as unfit increased, as self-reported physical activity level decreased.

Full details of the physical fitness in adults in 2008 can be found in the [Chapter 4: Physical fitness in adults](#), of the HSE 2008. Details of physical fitness in adults in 1990 can be in the ADNFS report and the key findings are:

- Seven out of 10 men and 8 out of 10 women fell below their age appropriate activity level.

- One in 6 people reported having done no activities for 20 minutes or more at a moderate or vigorous level in the previous four weeks.

4.4 Participation in different activities

4.4.1 Occupational activity

Adults aged 16 to 74 who had worked (paid or voluntary) in the last four weeks were asked about their moderate intensity physical activity during work, as part of the HSE 2008. Respondents were asked about time spent sitting or standing, walking around, climbing stairs or ladders and lifting, carrying or moving heavy loads. Some of the key findings are:

- Men spent slightly more time than women sitting and/or standing, climbing stairs and/or ladders and carrying or moving heavy loads. Men and women spent similar amounts of time walking around.
- Twenty four per cent of men and 11% of women reported doing at least 30 minutes of moderate or vigorous activity in total whilst at work each day, thus meeting the government recommendations for physical activity solely from their work.
- Most men (62%) and women (59%) considered themselves to be very or fairly active at work.

Self-reported levels of physical activity during work hours are discussed in [Chapter 2: Self-reported physical activity in adults](#), section 2.4.2 on page 33 and [Table 2.9](#) on pages 53 and 54 of the HSE 2008, including age and gender breakdowns of the different types of occupational physical activity.

4.4.2 Non-occupational activity

Participation in different activities, outside of work, was collected for all adults aged over 16, as part of the HSE 2008. Physical activities were grouped into four main categories: walking, heavy housework, heavy manual/ gardening/ DIY and sports and exercise. Some key findings are:

- The most common activity for men was sports and exercise (51% had participated in the past four weeks) and the least common was heavy manual/ gardening/ DIY (28% had participated in the past four weeks).
- The most common activity for women was heavy housework (59% had participated in the past four weeks) whilst the least common was heavy manual/ gardening/ DIY (12% had participated in the past four weeks).
- On average men had participated in non-occupational physical activity on 13.9 days in the past four weeks, compared with 12.2 days for women.

Full details of participation in non-occupational physical activity can be found in [Chapter 2: Self-reported physical activity in adults](#), pages 21 to 58 and [Tables 2.7 and 2.8](#) on pages 49 to 52 of the HSE 2008.

The *National Travel Survey (NTS) 2011*⁵ reports on the frequency of travel by different modes of transport including walking and cycling. Some of the key findings from this report are:

- In 2011, the average number of walking trips was 222 trips per person per year compared with 292 trips in 1995/97, a decrease of 24%. However, 79% of all trips less than one mile in length were walking trips.

- Cycling is more prevalent among men than women (23 trips person per year compared to 8 trips).

Full details of walking and cycling can be found in the complete set of annual NTS tables, charts and maps in the National Travel Survey (NTS) 2011.

The *National Travel Survey (NTS) 2010* also asked respondents how often they took walks of 20 minutes or more without stopping, for any reason. This was not asked in the latest National Travel Survey. The NTS also asked respondents about cycling, access to bicycles, and frequency and length of cycle journeys. Some of the key findings from this report are:

- In 2010, 41% of respondents (aged 2+) said they made walks of 20 minutes or more at least 3 times a week and a further 23% said they did so at least once or twice a week.
- Twenty per cent of respondents reported that they took walks of at least 20 minutes “less than once a year or never”.
- In 2010, 15% of respondents said they rode a bicycle at least once a week and a further 10% said they did so at least once a month whilst 66% said they use a bicycle less than once a year or never.

The Active People Survey 2011/12 monitors participation in 32 sports in England and tracks changes in the recorded levels of participation over time. In this survey participation is defined as the number of adults (aged 16 and over) who have taken part in the sport at moderate intensity for 30 minutes or more at least once in the last week.

- In 2011/12, the most common sports that people had participated in were swimming (2,933,100 participants),

football (2,126,800 participants) and athletics (2,033,700 participants).

Further details of the number of people participating in each sport and how this has changed since 2007/08 can be found in the Active People Survey 2011/12.

The Taking Part Survey in 2012/13⁴ included information on sport and active recreation participation in the previous four weeks. The latest results show:

- 57 per cent of adults participated in active sport at least once in the last four weeks.
- 45 per cent of adults participated in at least one session of 30 minutes of moderate intensity sport in the week prior to being interviewed.

Further details can be found in the TPS 2012/13 [Chapter 2: Sport and active recreation](#) on pages 16 to 22.

4.5 Geographical patterns in physical activity

4.5.1 Physical activity levels by Strategic Health Authority

The HSE 2008 contains information on self-reported physical activity by Strategic Health Authority (SHA) in [Chapter 2: Self-reported physical activity in adults, Table 2.2](#) on page 45. The percentage of adults doing the recommended levels of physical activity varied by SHA, but no particular region stood out.

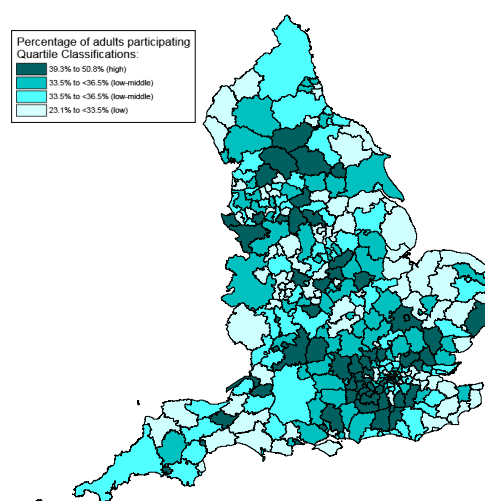
4.5.2 Sport and active recreation by Local Authority

Within the Active People Survey 2011/12, information is collected on Adult's participation in sport and active recreation at Local Authority (LA) level.

[Figure 4.1](#) shows the proportion of adults who participated in moderate intensity activity for 30 minutes at least once a week, in each LA.

Detailed results of activity levels by LA can be found within the Active People Survey 2011/12.

Figure 4.1 Adults' participation in sport 2011/12



1. The sports participation indicator measures the number of adults (aged 16 and over) participating in at least 30 minutes of sport at moderate intensity at least once a week. It does not include recreational walking or infrequent recreational cycling but does include cycling if done at least once a week at moderate intensity and for at least 30 minutes. It also includes more intense/strenuous walking activities such as power walking, hill trekking, cliff walking and gorge walking.

Data sources: ONS Boundary Files 2011, The Active People Survey 11/12, Sport England
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4.5.3 Physical Activity levels in Scotland and Wales

*The Scottish Health Survey 2011*⁹ contains information on self-reported physical activity

in adults in Scotland. The key finding regarding meeting government physical activity recommendations is that:

- In Scotland, in 2011, 39% of adults aged 16 and over reported meeting the government's recommendations for physical activity. Forty five per cent of men and 33% of women reported meeting the recommendations.

Full details of physical activity in Scotland can be found in the Scottish Health Survey 2011, [Chapter 6: Physical Activity](#).

*The Welsh Health Survey 2011*¹⁰ contains information on the self-reported physical activity levels of adults in Wales. The key finding regarding meeting government physical activity recommendations is:

- In Wales, in 2011, 29% of adults reported meeting the recommended levels of physical activity in the last week. A higher proportion of men than women reported meeting the recommendations (36% and 23% respectively).

Further details of physical activity can be found in the Welsh Health Survey 2011, [Chapter 4: Health-related lifestyle](#), [Section 4.7: Physical activity](#) on page 59 and [Table 4.2](#) on page 72.

4.6 Sedentary time

Sedentary time is at least as important as moderate intensity physical activity as a disease risk factor. Sedentary behaviour is not merely the absence of physical activity; rather it is a class of behaviours that involve low levels of energy expenditure. Sedentary behaviours are associated with increased risk of obesity and cardiovascular disease

independently of moderate to vigorous activity levels¹¹.

Based upon five of the conditions specifically linked to inactivity (coronary heart disease, stroke, diabetes, colorectal cancer and breast cancer), it has been estimated that the direct cost of physical inactivity to the NHS across the UK is £1.06 billion¹² which excludes the costs of other diseases and health problems, such as osteoporosis and falls, which affect many older people and is therefore considered a conservative estimate.

Both [Chapters 2: Self-reported physical activity in adults](#), and [Chapter 3: Accelerometry in adults](#) of the HSE 2008 asked adults about the amount of time they spent in sedentary pursuits including time spent watching television, other screen time, reading and other sedentary activities. Some key findings from these chapters are:

- Average total sedentary time combines both time spent watching the television and other sedentary time. Similar proportions of men and women were sedentary for six or more hours on weekdays (32% and 33% respectively). However, on weekend days, men were more likely to be sedentary for six or more hours than women (44% of men and 39% of women).
- On average, both men and women spent 2.8 hours watching television per weekday. Men averaged 3.2 hours of watching television on weekend days and women averaged 3.0 hours.
- Average total sedentary time varied by BMI category. The proportion of women who spent more than four hours per weekday and weekend day increased as BMI category increased, this was also the case for men on weekend days.

- Accelerometry data for adults shows that in 2008, those who were not overweight or obese spent fewer minutes on average in sedentary time (591 minutes for men, 577 minutes for women) than those who were obese (612 minutes for men, 585 minutes for women).

Full details of the sedentary time of adults are available in [Chapter 2: Self-reported physical activity in adults](#), sections 2.4.3 and 2.4.4 and [Tables 2.10 and 2.11](#) of the HSE 2008. Objective measures of sedentary time were collected by the accelerometers and these results are discussed in [Chapter 3: Accelerometry in adults](#), [Tables 3.2 to 3.6](#) of the HSE 2008.

4.7 Knowledge and attitudes towards physical activity

In the [Chapter 4: Adult physical activity: knowledge and attitudes](#), on pages 69 to 106 of the HSE 2007, adults were asked about their perceptions and attitudes to physical activity including adults' awareness of recommended physical activity levels, whether respondents believe they are achieving recommended levels and barriers to partaking in physical activity. Some key findings from this chapter are:

- Around a quarter of adults (27% of men and 29% of women) thought they knew the current recommendations for physical activity in 2007. Fewer than 1 in 10 adults specified a level equivalent to

the minimum target for physical activity.

- A high proportion of both men and women aged 16 to 64 perceived themselves to be either very or fairly physically active compared with other people their own age (75% of men and 67% of women).
- In 2007, women were slightly more likely than men to want to be more physically active than at present (69% and 66% respectively).
- Men and women were found to have different barriers to doing more activity. Men were most likely to cite work commitments as a barrier to increasing their physical activity (45%), while lack of leisure time was the barrier most cited by women (37%).

Further information can be found in [Chapter 4: Adult physical activity: knowledge and attitudes](#), of the HSE 2007. This includes differences in attitudes and perception by gender and age ([Tables 4.1 to 4.5, 4.8, 4.9, 4.12, 4.13 and 4.16](#)), SHA ([Tables 4.6, 4.10 and 4.14](#)) and equivalised household income ([Tables 4.7, 4.11 and 4.15](#)).

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5 Physical activity among children

5.1 Introduction

The main source of data used in this chapter is the Health Survey for England (HSE). The HSE gathers information on the physical activity levels of children aged 2 to 15. In the HSE 2008,¹ in addition to self-reported physical activity, objective measures of physical activity were also collected using accelerometry data for children aged 4 to 15. Accelerometers measure the movement in one or more planes and can be used to measure physical activity in free living population. The HSE 2008 gathered information on self-reported participation in physical activities excluding the time spent at school. The HSE 2008 is still the most up to date source of information on self-reported and objective measures of physical activity so has been included again in this publication.

Other sources of data used in this chapter include the *Taking Part Survey (TPS)*,² *PE and Sport Survey*³ and the *National Travel Survey*.⁴ The *TPS* collects data about engagement and non-engagement in culture, leisure and sport, showing how people enjoy their leisure time. The *PE and Sport Survey* collects information about levels of school sport in schools taking part in the School Sport Partnership Programme in England, while the *National Travel Survey* is designed to provide a databank of personal travel information for Great Britain. Data on National and International comparisons are taken from the *Scottish Health Survey*⁵ and *Welsh Health Survey*⁶ and *Health at a Glance: Europe 2012*⁷ a report published by the Organisation for Economic Co-operation and Development (OECD) in 2012.

This chapter provides an overview of the published data on physical activity in children and links to other data sources.

5.2 Meeting physical activity guidelines

At the time the 2008 HSE data was collected the Chief Medical Officer (CMO) of England recommended that children and young people should do a minimum of 60 minutes of at least moderate intensity physical activity each day.

In the HSE 2008, the summary levels for activity of children and young people are divided into three levels:

- meets recommendations,
- some activity
- low activity.

Meets recommendations (formerly called 'high' in earlier HSE reports) is defined as children doing at least 60 minutes of at least moderate intensity activity on all 7 days in the last week. Some activity (formerly 'medium activity' in previous HSE reports) is defined as 30 to 59 minutes of moderate or greater intensity activity on all 7 days in the last week. Low activity is defined as children who do fewer than 30 minutes of moderate activity on each day, or moderate activity of 60 minutes or more on fewer than 7 days in the last week.

The latest guidelines for physical activity for the early years (under 5s) and children and young people (5 – 18 years) can be found on the Department of Health webpage: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_127931

5.2.1 Self-reported physical activity

Self-reported physical activity levels in children aged 2 to 15 are given in [Chapter 5: Self-reported physical activity in children](#), on pages 117 to 157 of the *HSE 2008*.

Overall, in 2008, a higher proportion of boys (32%) than girls (24%) were classified as meeting the government's recommendations for physical activity. Among girls the proportion meeting the recommendations generally decreased with age, ranging from 35% in girls aged 2 to 12% among those aged 14. There was a less consistent pattern with age among boys.

[Chapter 5: Self-reported physical activity in children](#), [Tables 5.1 to 5.5](#) on pages 138 to 140 of the *HSE 2008* gives more detailed information on children's self-reported activity levels including activity levels by Strategic Health Authority (SHA), body mass index (BMI), equivalised household income and Spearhead Primary Care Trust (PCT) status.

A discussion of physical activity and obesity is included within [Chapter 3](#) of this report which covers Obesity among Children.

5.2.2 Objective measures of physical activity

Full details of the objective measures of physical activity in children aged 4 to 15 along with the methods of collection are given in [Chapter 6: Accelerometry in children](#), pages 159 to 180 of the *HSE 2008*. Accelerometers were used to independently measure physical activity over a 7 day period by recording frequency, intensity and duration of physical activity in one minute epochs.

Based on the results of the accelerometer study, more boys than girls were classified

as meeting the government's recommendations for physical activity (33% and 21% respectively). These objective findings are similar to those of the self-report study. However, the accelerometers showed that there was considerable variation by age. For boys aged 4 to 10, 51% met the government recommendations but only 7% of boys aged 11 to 15 had met these recommendations. For girls the pattern was similar, although fewer met the recommendations in either age group. Among girls aged 4 to 10, 34% had met the recommended target, whereas in this study none of the girls aged 11 to 15 had done so.

[Chapter 6: Accelerometry in children](#), of the *HSE 2008* includes information on the activity patterns of children and young people for weekdays and weekend days ([Section 6.4.2](#), page 164 and [Table 6.3](#)), analyses by BMI category ([Table 6.6](#)), equivalised household income ([Tables 6.4 and 6.8](#)) and Spearhead PCT status ([Section 6.5](#), page 166 and [Tables 6.10 and 6.11](#)). This chapter also contains further comparisons of the results observed in the self-reported and objective measures of activity.

The Taking Part Survey collects data on participation in culture, leisure and sport. From 2006 the survey was extended to include children aged 11 to 15 and in 2008/09 the sample was further increased to include children aged 5 to 10.

In 2011/12, 82.7% of 5-10 year olds had taken part in sports activities outside of school time in the last four weeks. Meanwhile, 96.1% of 11-15 year olds had taken part in sporting activities both in and out of school in the last four weeks. There is no significant change since 2008/09 and no change from 2010/11.

In the 5-10 year old age group, boys were more likely to have done sport in the last

four weeks than girls (89.9% compared to 75.3%). However amongst 11-15 year olds each gender had similar proportion of participant in sport.

Full details are presented from pages 12 - 19 of the 2011/12 Taking Part Statistical Release.

5.3 Types of physical activity

5.3.1 Travel to / from school

In recent years, travelling to and from school has been recognised as an opportunity for children to achieve part of their recommended daily physical activity. The HSE 2008 included questions on how children travel to and from school.

- Almost two thirds of children aged 2 to 15 who had attended school, nursery or playgroup in the last week had walked to or from school on at least one day in the last week (63% of boys and 65% of girls).
- More boys than girls cycled to or from school on at least one day in the last week (5% of boys compared to 2% of girls).

Further details are provided in [Chapter 5: Self-reported physical activity in children](#), [Section 5.4.1](#) on page 126 and [Tables 5.7 to 5.9](#) on pages 142 and 143 of the HSE 2008.

The National Travel Survey (NTS) 2011 ⁴ presents data on travel to/from school for children aged 5 to 16. This includes information on the number of trips to and from school by walking and cycling per child per year, for the years 1995/1997 to 2011 ([Table NTS0613](#)).

Figures for 2011 suggest that 43.3% of 5-16 year olds' main method of getting to and from school is walking, while the main method for 32.8% of this age group is being driven to school in a car / van. Just 2.4% used a bike to travel to school as their main mode of transport.

5.3.2 Other types of physical activity

The HSE 2008 asks children about participation in formal sports, for example swimming, football, tennis and gymnastics and informal activities including kicking a ball around, running about and playing active games. Time spent in walking (excluding to and from school) was included as a separate category of activity.

- Ninety-five per cent of boys and girls had participated in any physical activity in the past week.
- More girls than boys had participated in walking in the last week (65% and 61% respectively).
- More boys than girls had participated in formal sports (49% and 38% respectively) and in informal activities (90% of boys and 86% of girls).

[Chapter 5: Self-reported physical activity in children](#), of the HSE 2008 includes full details of the activities children participate in, including information on the number of days and hours of participation and analyses by age, gender ([Tables 5.10 to 5.12](#) on pages 144 to 148), equivalised household income ([Table 5.14](#) on page 150) and Spearhead PCT status ([Table 5.15](#) on page 150).

The Taking Part Survey 2011/12 ² includes information on the top 10 sports activities carried out by children.

- The most popular sports activities carried out by children aged 5 to 10, outside school hours was swimming, diving or lifesaving with 45.3% participating in the previous four weeks, followed by football (including five-a-side) (36.9%) and cycling or riding a bike (including BMX and mountain biking) (29.6%).
- For children aged 11 to 15 the most popular sports activities participated in the past four weeks both in and out of school were football (including five-a-side) (53.5%), basketball (including mini-basketball) (26.9%) and gym, gymnastics, trampolining or climbing frame (25.2%).

In January 2011 a competitive sport topic was introduced to the Taking Part survey to support the government in its aim of increasing the opportunities to participate in competitive sport. The findings from this show that;

- In 2011/12 80.0% of 5-15 year old children reported they had done some form of competitive sport in the last 12 months. Over three quarters (76.9%) had taken part in a competitive sport in school, whilst 37.0% had taken part outside of school.
- Almost two thirds (64.0%) of 5-10 year olds played sport at school in organised competitions (such as a sports day). Over half (53.4%) of 11-15 year olds had participated in competitive sport in this way. For 11-15 year olds, playing sports against others in PE and games lessons (74.6%) was the most common way of doing competitive sport, whilst being a member of a sports club (32.6%) was the least common.
- Just over a quarter (26.9%) of 11-15 year olds belonged to a sports club, making this the most common means of doing competitive sport outside school. Over a fifth (23.4%) played for a sports

team and 16.7% participated in a sports competition or one off event.

Further details are provided on pages 12 to 19 of the 2011/12 Taking Part Survey.

The 2010 National Travel Survey⁸ reports on the frequency of different types of travel including walking and cycling. This is the latest data available on frequency of walking with the next update due in July 2013

Table NTS0312 shows that in Great Britain in 2010, 68.3% of children aged 2 to 16, reported walking for 20 minutes or more, at least once a week. Full details are available within the Transport Statistics Bulletin, National Travel Survey 2010.

5.4 Participation in Physical Education and school sport

The PE and Sport Survey 2009/10 (which followed on from the 'School sports survey'), aimed to collect information about the levels of participation in physical education (PE) and school sport in schools taking part in the School Sport Partnership programme in England. In total 21,436 schools and further education (FE) colleges took part in the survey between May and July 2010. This Survey measured the take-up of 3 hours of high-quality PE and out-of-hours school sport in a typical week. This release was last published in September 2010 and is currently discontinued.

5.4.1 Participation in PE and school sport

The key findings from the survey show that in 2009/10, 55% of pupils in years 1-13 of participating schools took part in at least 3 hours of high quality PE and out of hours school sport in a typical week.

Among the three types of schools that were surveyed (primary, secondary and special), 64% of pupils in primary schools, 46% of pupils in secondary schools and 64% of pupils in special schools reported participating in at least three hours of high quality PE and out of hours school sport in a typical week.

5.4.2 Time spent on PE and school sport

The PE and Sport Survey covers physical activity both as part of the curriculum and activities that take place outside of school hours, for example school sports clubs.

The key findings show that overall; pupils in years 1 to 13 in the schools surveyed spent an average of 117 minutes in a typical week in 2009/10 on curriculum PE. The long term trend shows an increase in the average number of minutes pupils take part in PE each week. In 2004/05 the average number of minutes for Years 1 – 11 was 107, compared to 123 in 2009/10. For the first time data was collected by gender and showed that slightly more boys (80%) took part in at least 120 minutes of curriculum PE compared to girls (78%). In Years 1 – 6 there is no difference between the sexes, but on entry to secondary school a difference emerges. At Year 7 this difference is only two percentage points (89% of girls participate in at least two hours of curriculum PE, compared to 91% of boys), rising gradually to reach a four or five percentage point differential in Years 10, 11, 12 and 13.

The PE and Sport Survey 2009/10 includes full details of the amount of time children in partnership schools spend in PE and out of hours school sport ([Chapter 3](#), pages 9 to 22) including gender patterns (Figure 15 page 22), the types of sports children participate in ([Chapter 5](#), pages 32 to 34), participation in intra- and inter-school competitive activities ([Chapter 4](#), pages 23

to 31) and links to other clubs and organisations ([Chapter 6](#), pages 35 to 36).

5.5 Parental participation

The HSE 2008 collected information on parental activity levels which allow analysis of children's physical activity by parental physical activity. Parental physical activity was classified into three categories, as with children's, though the definitions were different (see [Chapter 4](#) for definitions). The key findings show that:

- A greater proportion of fathers than mothers reached the then government physical activity recommendations based on self-reported data (46% and 38% respectively).
- Among boys aged 2 to 10, more met the physical activity recommendations for children if their parents did so for adults. Among boys aged 11 to 15 the same pattern was apparent for their fathers' activity levels but not for mothers'. Similarly, among both age groups, more boys were in the low activity category if their parents were also in this group.
- Among girls, the activity level of parents made relatively little difference to the proportion meeting recommendations, but those who had parents with low activity levels were considerably more likely to be in the low activity category themselves.

Further details of the influence of parental participation in physical activity on children's physical activity are given in [Chapter 5: Self-reported physical activity in children](#), [Section 5.3.3](#), pages 125 and 126 and [Table 5.6](#) on page 141 of the HSE 2008.

5.6 Sedentary behaviour

Sedentary time is at least as important as moderate physical activity as a disease factor. Sedentary behaviour is not merely the absence of physical activity; rather it is a class of behaviours that involve low levels of energy expenditure.

The HSE 2008 asked children about the amount of time spent in sedentary pursuits including time spent watching television, other screen time, reading and other sedentary pursuits.

In [Chapter 5: Self-reported physical activity in children](#), of the HSE 2008, self-reported sedentary time is presented and the key findings show:

- The amount of time spent in sedentary pursuits was similar for boys and girls on weekdays (excluding time at school), with both boys and girls spending 3.4 hours in sedentary pursuits. Both boys and girls spent more time in sedentary pursuits on weekend days (4.1 hours for boys and 4.2 hours for girls).
- The pattern of sedentary behaviour differed with the age of children and between weekdays and weekend days. On weekdays, there was little variation among younger children, with fewer than 10% of those aged 2 to 9 years being sedentary for six or more hours per day, while the percentage rose steeply after this age. At weekends, the percentage that were sedentary for six or more hours generally increased across all age groups from 8% of boys and girls aged 2 to 40% of boys and 41% of girls aged 15.

Full details of the sedentary time of children and young people are available in [Chapter 5: Self-reported physical activity in children, Section 5.4.3](#), pages 130 to 132 of the HSE 2008. Details include analyses of sedentary

time by Strategic Health Authority (SHA) ([Table 5.17](#)), BMI status ([Table 5.20](#)), equivalised household income ([Table 5.18](#)) and Spearhead PCT status ([Table 5.19](#)). Objective measures of sedentary time were collected for children aged 4 to 15 by the accelerometers; these are discussed in [Chapter 6: Accelerometry in children](#) on pages 159 to 180 of the HSE 2008.

5.7 Attitudes and perceptions to physical activity

In the HSE 2007,⁹ (which remains the most up to date source) children aged 11 to 15 were asked about their knowledge and attitudes to physical activity. Information was collected on children's knowledge of how much physical activity they should do related to recommended physical activity targets, perception of their own physical activity levels and their desire to do more physical activity. The key findings from HSE 2007 showed that:

- When asked how much physical activity children should do, only one in 10 children aged 11 to 15 suggested that it should be 60 minutes or more each day and a further 8% of boys and 3% of girls overestimated the minimum recommendations.
- Most children perceive themselves as being either very or fairly physically active compared with children their own age (90% of boys and 84% of girls respectively).
- Girls were more likely than boys to want to do more physical activity (74% and 61% respectively). When asked about activities they would like to do more of in the future, boys most frequently mentioned ball sports (39%), riding a bike and swimming (both 35%),

whereas girls were most likely to mention swimming (47%).

Full details on the behaviour, knowledge and attitudes towards physical activity are provided in [Chapter 9: Children's physical activity, behaviour, knowledge and attitudes](#), pages 251 to 278 of the HSE 2007.

5.8 National and International Comparisons

National information for Scotland and Wales can be found from their own health surveys. Child physical activity information for Scotland can be found in [Chapter 4](#) on pages 80 to 100 of the *Scottish Health Survey 2011, Volume 2: Children*.⁵ This reports that:

- In 2011, 73% of children (76% per cent of boys and 70% of girls) met the physical activity recommendations (at least 60 minutes daily) including school-based activity.
- Although there was little change for boys between 2008 and 2011, the proportion of girls meeting the recommendations increased from 64% in 2008

Child physical activity information for Wales can be found in [Section 6.6](#) on page 97 and [Table 6.3](#) on page 102 of the *Welsh Health Survey 2011*.⁶ Key facts from this section show that

- Around a third of children were reported as undertaking physical activity for at least an hour on every day of the

previous week, more common amongst boys than girls.

- 51% of children were reported as undertaking physical activity for at least an hour on five or more days of the previous week, including 35% who did so every day.
- A higher proportion of boys than girls were reported to undertake these levels of physical activity.

Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

The Organisation for Economic Co-operation and Development (OECD) in 2012 published *Health at a Glance: Europe 2012*⁷ which includes data on physical activity among children based on latest available health surveys. [Section 2.4](#) on page 56 and [Figure 2.4.1 and 2.4.2](#) on page 57 show that only one-in-five children (aged 11, 13 and 15) in 24 EU member states report that they undertake moderate-to-vigorous exercise regularly. At age 11, Austria, Ireland and Spain stand out as strong performers with over 30% of children reporting exercising for at least 60 minutes per day over the past week. At age 15, children in Ireland maintain their place, along with the Czech and Slovak Republics, at 20%. Country rankings vary according to the child's age. Children in Denmark, France and Italy were least likely to report exercising regularly. Italy appears at the lower end for both boys and girls, and at both ages. A higher proportion of boys consistently reported undertaking physical activity, whether moderate or vigorous, across all countries and all age groups.

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6 Diet

6.1 Introduction

Poor diet and nutrition are recognised as major contributory risk factors for ill health and premature death. This chapter describes information available about purchases and consumption of food and drink among both adults and children. Most of this information comes from three major national surveys; the *Living Costs and Food Survey (LCF)*, the *National Diet and Nutrition Survey (NDNS)* and the *Health Survey for England (HSE)*.

The LCF survey collects information on the type and quantity of food and drink purchased in households. The LCF survey has been previously known as the *Expenditure and Food Survey (EFS)*. It was renamed in 2008 when it became a module of the *Integrated Household Survey (IHS)*. Findings from the survey are published annually in the *Family Food report*, by the Department for Environment, Food and Rural Affairs (DEFRA), with *Family Food 2011*¹ being the most recent edition. The LCF is conducted throughout the year (January to December) across the whole of the UK.

The NDNS² results were published from years 1, 2 and 3 (combined) of a new rolling programme (2008/09-2010/11) of a continuous cross-sectional survey of the food consumption, nutrient intakes and nutritional status of people aged 18 months and older living in private households in the UK. The NDNS involves an interview, a four-day dietary diary and collection of blood and urine samples. The results are used to develop policy and monitor progress towards public health objectives on diet and nutrition, such as the Responsibility Deal Food Network pledges on trans fat and salt intakes. The data are also used to compare consumption with UK dietary recommendations on healthy, balanced diets and nutrient intakes.

In its previous form, NDNS comprised a series of cross-sectional surveys, each focusing on a different age group. The last survey in this series collected data on consumption for 19 to 64 year olds in Great Britain in 2000/2001, based on a seven-day diary.³ The last NDNS for those aged 4 to 18 years was carried out in 1997.⁴ An NDNS of people aged 65 years and over was carried out in 1994/95⁵ and one of young children aged 1½-4½ years in 1992/93.⁶

The report of years 1, 2 and 3 combined of the new NDNS rolling programme (2008/09-2010/11)² focuses on food consumption and nutrient intakes for adults aged 19 to 64 years and 65 years and over. This is also presented for children aged 18 months to 3 years, 4 to 10 years and 11 to 18 years. Intakes are compared with government recommendations. Details of UK nutrient recommendations can be found in [Appendix C](#).

Data on fruit and vegetable consumption among both adults and children are taken from the HSE as this source is used to monitor the Government's '5 a day'⁷ target, encouraging people to eat at least five portions of fruit and vegetables a day. More detailed HSE data presented in this chapter are taken from the *HSE 2007*⁸, *HSE 2008*⁹ and *HSE 2009*¹⁰ as this is when such data was last reported.

Data on National and International comparisons are taken from the *Scottish Health Survey*¹¹ and *Welsh Health Survey*¹² and *Health at a Glance: Europe 2012*¹³ a report published by the Organisation for Economic Co-operation and Development (OECD) in 2012.

6.2 Adults' diet

6.2.1 Trends in purchases and expenditure on food and drink

Estimates of expenditure and quantities of food and drink purchased and brought into the household have been collected since the mid 1970s by the *National Food Survey* (1974 to 2000), the *Expenditure and Food Survey* (EFS) (2001/02 to 2007) and subsequently the *LCF* (since 2008).

*Family Food 2011*¹ presents trends in UK purchases and expenditure on food and drink, based on the *LCF*. [Table 1.1](#) on page 3 of this report shows quantities of household purchases of food and drink in the UK between 2008 and 2011. [Table 1.3](#) on page 6 shows expenditure on food and drink over the same period. [Chapter 5](#) on pages 51 to 56 presents some analysis on how the rises in food prices in 2010 have affected spending patterns. Some key findings were:

- Household purchases of fresh and processed fruit are on a downward trend since 2008 and are 4.1% lower despite a rise in 2011.
- Household purchases of fresh and processed vegetables were 2.4 per cent lower in 2011 than in 2008 with 'fresh green vegetables' 6.6 per cent lower in 2011 than in 2008.
- While overall purchases of fruit and vegetables reduced between 2008 and 2011, consumers spent 8.1 per cent more on fresh and processed vegetables and 6.9 per cent more on fresh and processed fruit.
- The average weekly expenditure on all household food and drinks in 2011 was £27.99 per person, an increase of 1.5 per cent on 2010. Total expenditure on household food and non-alcoholic drink rose by 1.7 per cent in 2011 and is 8.3 per cent higher than in 2008 (1 per cent lower when adjusted for the

effects of inflation). There have been significant upward trends in household expenditure on alcoholic drinks, butter, confectionery, sugar and preserves, cheese and beverages.

Family Food 2011 also presents some regional analysis of food purchases using a 3 year average. [Table 3.4](#) on page 30 shows purchases of selected food groups by Government Office Region. Some findings were:

- Household purchases of vegetables (excluding potatoes) were highest in the South West and lowest in the North West (1,230 and 981 grams per person per week respectively).
- Household purchases of fruit were highest in London and lowest in the North East (1,325 and 942 grams per person per week respectively).

6.2.2 Consumption of food and drink by age and gender

Results from years 1, 2 and 3 combined (2008/09 – 2010/11) of the rolling *NDNS* programme confirm those published in the previous report for Years 1 and 2 combined (2008/09 – 2009/10).¹⁴

[Chapter 5](#) on Dietary intakes from the Headline results of the *NDNS* Years 1, 2 and 3 (combined) of the Rolling Programme (2008/2009 – 2010/2011) show the key findings for food consumption and nutrient intake based on four-day diaries kept by over 3,000 adults and children in the UK between February 2008 and April 2011. [Table 5.3](#) shows vegetable, fruit, meat and fish consumption (including from composite dishes). The main findings from the report show that:

- Adults aged 19 to 64 years on average consumed 4.1 portions of fruit and vegetables per day (including the contribution from composite dishes) and older adults (i.e. those aged 65 years and

over) 4.4 portions. 31% of adults and 37% of older adults met the “5-a-day” recommendation.

- Mean consumption of oily fish was well below the recommended one portion (140g) per week in all age groups. For example, mean consumption in adults aged 19 to 64 years was equivalent to 54g per week.
- Mean energy intakes for adults were 1,882 kcal/day for those aged 19 to 64 years (2,151 kcal/day for men and 1,614 kcal/day for women) and 1,690 kcal/day for adults aged 65 years and over (1,934 kcal/day for men and 1,501 kcal/day for women).
- Mean saturated fat intakes for all age groups exceeded the recommended level of no more than 11% of food energy. The mean saturated fat intake for adults aged 19 to 64 years was 12.7% of food energy.
- Mean intakes of trans fatty acids provided 0.7-0.8% of food energy for all age groups, which was within the recommendation of no more than 2% food energy.
- Mean intakes of non-milk extrinsic sugars (NMES) exceeded the recommendation of no more than 11% of food energy for all age groups.
- 58% of adults aged 19 to 64 years and 52% of adults aged 65 years and over consumed alcohol during the four-day recording period. Adults aged 19 to 64 years who consumed alcohol during the four-day recording period obtained 9% of energy intake from alcohol; older adult consumers obtained 7%.

6.2.3 Purchases of food and drink by income

The eatwell plate forms the basis of the Government's healthy eating advice to the general population. It makes healthy eating easier to understand by giving a visual representation of the types and proportions of foods that

should be eaten to make a well-balanced, healthy diet. This includes snacks as well as meals. The eatwell plate is intended as a guide to the overall balance of the diet over a day or a week rather than for any specific meal.

Food and drink purchases for household supplies were grouped approximately into the five eatwell plate groups. Based on these groupings, [Chart 5.4](#) on page 59 of *Family Food 2011* shows the average UK diet for all households and low income households (equivalised income decile 1) compared to the eatwell plate categories.

Looking at balance of diet:

- Neither low income households or all households are close to the eatwell plate.
- Both low income households and all households have a relatively similar diet when compared to the eatwell plate.
- The main difference between low income households and all households is in fruit and vegetable purchases where low income households buy less.

Comparing low income households to all households in 2011 shows that low income households are:

- Closer to eatwell for starchy foods.
- Further from eatwell for milk and dairy foods.
- Further from eatwell for foods high in fat and or sugar.
- Further from eatwell for fruit and vegetables.

6.2.4 Fruit and vegetable consumption

The *HSE Adult trend tables*¹⁵ were updated in 2011 for fruit and vegetable consumption. Fruit and vegetable consumption is measured in portions per day for HSE, based on consumption in the day before the interview. Portions are expressed in everyday units such as whole or half fruit and tablespoons or bowls, to make it easier for participants to recall their consumption accurately. Some key findings in 2011 were:

- 24% of men and 29% of women consumed the recommended five or more portions of fruit and vegetables daily in 2011 (27% of adults).
- Women continued to be more likely than men to consume five or more portions of fruit and vegetables a day in 2011. Consumption varied with age among both sexes, this being lowest among those aged 16-24 (15% of men and 20% of women this age ate five or more portions) and higher among the older age groups (30% of men and 36% of women in 55-64 age group).

More detailed data on consumption of fruit and vegetables was last reported in [Chapter 8](#) on pages 137 to 144 of the *HSE 2009* report.¹⁰ [Tables 8.1 and 8.2](#) (pages 146 and 147) show daily consumption and types of fruit and vegetables consumed by age and sex, [Tables 8.3 and 8.4](#) (pages 148 and 149) show these data age standardised by equivalised household income and [Tables 8.5 and 8.6](#) (pages 150) show the same information by Spearhead status and sex. Some key findings in 2009 were:

- Higher consumption was also associated with higher income, and vice versa: 32% of men and 37% of women in the highest income quintile had consumed five or more portions in 2009, but only 18% of men and 19% of women in the lowest quintile had done so.
- The proportion of adults eating five or more portions of fruit and vegetables per day was higher among adults in non-Spearhead Primary Care Trusts (PCTs) (27% of men and 31% of women) than in Spearhead PCTs in 2009 (20% of men and 23% of women).

Scotland and Wales carry out their own health surveys. Fruit and vegetable consumption can be found in Volume 1 in [Section 5.3](#) on pages 139 to 140 of the *Scottish Health Survey 2011* for adults and Volume 2 in [Section 3.3](#) on pages 67 to 69 for children.¹¹ Similarly, fruit and vegetable consumption can be found in [Section 4.6](#) on page 58 of the *Welsh Health*

Survey 2011 for adults and in [Section 6.5](#) on page 96 for children.¹²

In 2011, the percentage of adults consuming the recommended five or more portions of fruit and vegetables daily was 22% in Scotland and 33% in Wales. This compares with 27% for England.

The Organisation for Economic Co-operation and Development (OECD) in 2012 published *Health at a Glance: Europe 2012*¹³ which includes data on fruit and vegetable consumption among adults. [Section 2.8](#) on page 64 and [Figures 2.8.1 and 2.8.2](#) on page 65 shows the percentage of adults who eat fruit or vegetables on a daily basis. Details of the methodologies used by each country are contained within the publications. These will need to be considered when attempting comparisons.

Consumption of fruit on a daily basis ranged from 45% in Bulgaria and Romania to 75% in Italy, Malta and Slovenia and 84% in Switzerland in 2008 (or the nearest year). Daily vegetable consumption ranged from around 50% in Estonia, Germany, Malta and the Slovak Republic to 75% in France and Slovenia with Belgium and Ireland highest at 85% and 95% respectively. The average daily fruit and daily vegetable consumption across all countries was 63%.

6.2.5 Knowledge and attitudes

[Chapter 5](#) on pages 107 to 147 of the *HSE 2007* report (this is the most up-to-date source) asked respondents about their knowledge of and attitudes towards diet and healthy eating. [Tables 5.7 and 5.8](#) (pages 133 and 134) present data on knowledge of fruit and vegetable guidelines, [Tables 5.10 and 5.11](#) (pages 136 and 137) show data on perceptions of diet, [Tables 5.12 to 5.16](#) (pages 138 to 143) on attitudes to healthy eating and [Table 5.17](#) (page 144) on barriers to improving diet. Some key findings were:

- A higher proportion of women (78%) than men (62%) correctly stated that five

portions of fruit and vegetables should be consumed per day.

- The majority of participants believed their own diet to be 'quite' healthy (71% for men and 72% for women). Women were more likely to consider that they had a 'very' healthy diet compared with men (19% and 16% respectively) and less likely to report their diet as being 'not very healthy/very unhealthy' (8% of women and 12% of men).
- The majority of men and women agreed with the statements 'Healthy foods are enjoyable' (66% of men and 80% of women) and 'I really care about what I eat' (64% of men and 74% women). Few agreed that 'Healthy eating is just another fad' (10% of men and 8% of women).

6.2.6 Energy and macronutrients from food and drink

Trends in energy and nutrient intake are available from [Chapter 2](#) of *Family Food 2011*. Key findings are:

- Based on food and drink purchases, total energy intake per person was 1.4 per cent lower in 2011 than in 2008. This is a statistically significant downward trend over this four year period that confirms the longer term downward trend already apparent since the mid-nineteen sixties. Total energy intake was an average of 2,245 kcal per person per day in 2011 (2,292 in 2010).
- Energy intake from eating out was 4.9 per cent lower in 2011 than in 2008 due mainly to fewer free work meals and fewer free school meals. Average energy intake from eating out was 236 kcal per person per day in 2011 accounting for 11 per cent of total energy intake.
- There was a decrease (3.1%) in the total intake of sodium in 2011. Levels are now 1.5 per cent lower than in 2008 indicating a downwards trend. Eating out accounted for 11 per cent of sodium intakes, in line with

eating out as a percentage of total energy intake. Sodium intakes from eating out fell 7.8 per cent in 2011, a reduction of 3.6 per cent since 2008. Major contributors to the sodium content of household food purchases in 2011 include: 'non-carcase meat and meat products', bread and 'other cereals and cereal products'.

Family Food 2011 also presents some country and regional analysis of energy intake, using data covering the combined years 2009-2011. [Table 3.2](#) on pages 26-27 shows energy and nutrient intakes by country and [Table 3.6](#) on pages 32-33 shows the same information by Government Office Region. Some findings were:

- Total energy intake was lowest in England (2,269 kcal per day) compared to Scotland, Wales, and Northern Ireland which had similar intakes (2,317 2,360 and 2,383 kcal per day respectively).
- Total energy intake was highest in the South West (2,378 kcal per day) and lowest in London (2,164 kcal per day).

6.3 Children's diet

6.3.1 Consumption of food and drink

The new *NDNS* Rolling Programme covers children as well as adults. The report of years 1, 2 and 3 combined (2008/09-2010/11) focuses on food consumption and nutrient intakes for children aged 18 months to 3 years, 4 to 10 years and 11 to 18 years. Some of the findings include:

- Mean consumption of fruit and vegetables for children aged 11 to 18 years was 3.0 portions per day for boys and 2.8 portions per day for girls. 11% of boys and 8% of girls in this age group met the "5-a-day" recommendation.
- Mean daily intakes for total energy were 1,137 kcal for children aged 1.5 to 3 years,

1,555 kcal for children aged 4 to 10 years and 1,791 kcal for children aged 11 to 18 years.

- Mean intakes of saturated fatty acids for all age groups exceeded the recommended level of no more than 11% of food energy and provided 13.3% food energy for children aged 4 to 10 years and 12.6% for children aged 11 to 18 years.
- Mean intakes of non-milk extrinsic sugars exceeded the recommendation of no more than 11% of food energy in all age groups most notably for children aged 11 to 18 years where mean intakes provided 15.3% food energy.

6.3.2 Fruit and vegetable consumption

The latest *HSE 2011 Child Trend Tables*¹⁶ (Table 7) shows that between 2010 and 2011, the percentage of 5-15 year old boys consuming 5 or more portions of fruit and vegetables decreased from 19% to 16%. For 5-15 year old girls the corresponding percentages showed no change between this period with the percentage remaining at 20%. Overall, the mean number of portions consumed was 3.0 portions for boys and 3.3 portions for girls in 2011.

Further detailed information on the consumption of fruit and vegetables among children aged 5 to 15 years are given in chapter 14 on pages 333 to 348 of volume 1 of the *HSE 2008*. Tables 14.1 to 14.3 (pages 342 to 345) show daily consumption and types of fruit and vegetables consumed by age and sex, Table 14.4 (page 346) shows daily consumption by Strategic Health Authority (SHA) and Table 14.5 (page 347) by equivalised household income. Some key findings in 2008 were:

- Fresh fruit was the most commonly eaten item. More girls than boys reported eating fresh fruit the previous day (72% of girls and 68% of boys). The consumption of fresh fruit was related to age, with younger children consuming more fresh fruit than older children.

- A higher proportion of boys and girls living in the South Central SHA consumed five or more portions of fruit and vegetables per day than children in other regions (25% of boys compared with 15%-23% in other regions and 33% of girls compared with 13%-24% in other regions).
- Boys and girls living in households in the highest income quintile were the most likely to meet the '5 a day' recommendations (27% of boys and 30% of girls). There was little variation among those in the lower quintiles (from 16% to 19% of boys and 17% to 20% of girls).

*Health at a Glance: Europe 2012*¹³ includes data on fruit and vegetable consumption among children. Again details of the methodologies used by each country are contained within the publications and will need to be considered when attempting comparisons.

Section 2.3 on page 54 and Figures 2.3.1 and 2.3.2 on page 55 shows the percentage of 15 year olds who eat fruit or vegetables on a daily basis. In European countries in 2009-10 only around one third of girls and one quarter of boys aged 15 years ate at least one piece of fruit daily. Overall boys in Denmark, Portugal and Italy, and girls in Denmark, Norway and former Yugoslav Republic of Macedonia and Switzerland had the highest rates of daily fruit consumption.

Daily vegetable eating was also reported by around one-third of girls and quarter of boys on average across EU member states in 2009-10. Girls in Belgium most commonly ate vegetables daily (60%), followed by Denmark, France and Switzerland (45-50%). Belgium also led the way for boys (46%), with close to 40% in France and Ireland. Eating vegetables daily was less common in Austria, Estonia and Spain, as well as in Croatia (girls), and Finland and Latvia (boys). The figures for the United Kingdom were 34% for boys and 40% for girls.

6.3.3 Knowledge and attitudes

Chapter 10 on pages 279 to 308 of the *HSE 2007* report (this remains the most up-to-date source) asked children aged between 11 and 15 about their knowledge of and attitudes towards diet and healthy eating. Tables 10.6 and 10.7 (page 300) show data on knowledge of fruit and vegetable consumption, Table 10.8 (page 301) on perception of diet, Tables 10.9 to 10.13 (pages 302 to 306) on attitudes to healthy eating and Tables 10.14 and 10.15 (page 307) on factors affecting improvement in diet. Some key findings in 2007 were:

- Around two in three boys and three in four girls accurately reported that five portions of fruit and vegetables should be

consumed each day. However, only 22% of boys and 21% of girls could correctly identify what a portion was.

- More than four in five children regarded their diet as healthy with most saying it was 'quite healthy' (70% of boys and 72% of girls) rather than 'very healthy' (13% of both boys and girls). Only 1% thought that their diet was 'very unhealthy'.
- The majority of children aged 11-15 agreed that 'Healthy foods are enjoyable' (72% of girls and 64% of boys). There was a more even spread of agreement, disagreement and neutral views about the statement 'The tastiest foods are the ones that are bad for you'.

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7 Health outcomes

7.1 Introduction

The association between obesity and increased risk of many serious diseases and mortality is well documented and has led to the National Institute for Health and Clinical Excellence (NICE) developing guidelines on identifying and treating obesity.¹ This chapter focuses on the health outcomes related to being overweight and obese.

Information from the National Audit Office² (NAO) and a House of Commons Select Committee report,³ is used to establish the broad risk of death and disease associated with obesity. The Health Survey for England 2011 (HSE 2011)⁴ is used to analyse the relationships between Body Mass Index (BMI) and waist circumference and the prevalence of selected diseases in the population.

Data on finished admission episodes and finished consultant episodes related to a diagnosis of obesity are presented using the *Hospital Episode Statistics (HES) databank*⁵ produced by the Health and Social Care Information Centre (HSCIC).

In addition information on prescription drugs used for the treatment of obesity from the Prescribing Unit at the HSCIC⁶, including data on the number of items prescribed and the net ingredient cost of drugs used in the treatment of obesity are also included. European regulators suspended the marketing authorisation for the weight loss drug Sibutramine in early 2010 amid concerns about a raised risk of heart attacks and strokes. This follows the withdrawal of the marketing authorisation for the less prescribed obesity drug Rimonabant in 2009 for similar reasons.

7.2 Relative risks of diseases and death

Obesity is a major public health problem due to its association with serious chronic diseases such as type 2 diabetes, hypertension (high blood pressure), and hyperlipidaemia (high levels of fats in the blood that can lead to narrowing and blockages of blood vessels), which are major risk factors for cardiovascular disease and cardiovascular related mortality. Obesity is also associated with cancer, disability, reduced quality of life, and can lead to premature death.

Figure 7.1 shows the extent to which obesity increases the risks of developing a number of diseases relative to the non-obese population. For example, it is estimated that an obese woman is almost 13 times more likely to develop type 2 diabetes than a woman who is not obese. These relative risks are based on a comprehensive review of international literature carried out by the NAO to provide the best estimates that could be applied to England (see [Appendix A](#) for more details). The basis of the estimates varies due to differences in the methodologies of the studies selected, but the table gives a broad indication of the strength of association between obesity and each of the diseases.

Figure 7.1 Relative risk factors for obese people of developing selected diseases, by gender

England	Numbers	
	Men	Women
Type 2 diabetes	5.2	12.7
Hypertension	2.6	4.2
Myocardial infarction	1.5	3.2
Cancer of the colon	3.0	2.7
Angina	1.8	1.8
Gall bladder diseases	1.8	1.8
Ovarian cancer	-	1.7
Osteoarthritis	1.9	1.4
Stroke	1.3	1.3

Source:

National Audit Office, NAO

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The NAO estimated that in 1998 over 30,000 deaths in England were attributable to obesity², approximately 6% of all deaths in that year. Around 9,000 of these were premature deaths (i.e. occurred before state retirement age). In 2004, research by a House of Commons Select Committee, estimated that 34,100 deaths were attributable to obesity³. This equates to 6.8% of all deaths in England.

7.3 Relationships between obesity prevalence and selected diseases

Guidance published by the National Institute for Health and Clinical Excellence (NICE) recommends the use of waist circumference in conjunction with BMI for assessing the health risks associated with being overweight or obese. A raised waist circumference is defined as greater than 102cm in men and greater than 88cm in women.

This section looks at the relationship between having an increased BMI and selected diseases and also considers the effect of having a raised waist circumference, using data from HSE 2011. For further information please see

Appendix B. In this section, where obese men and women or obesity is referred to it includes morbidly obese.

7.3.1 Blood pressure

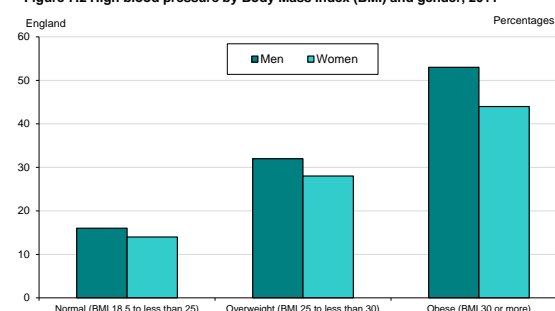
Table 1 from the HSE 2011 Adult Trend Tables⁷ shows the latest trend information on blood pressure levels by age and gender for 2003-2011.

Within this section, the latest information on blood pressure by BMI and waist circumference have been updated using HSE 2011.

Among adults aged 16 and over, the prevalence of high blood pressure (whether controlled with medication or not) was found to be affected by both increased BMI and raised waist circumference.

Table 10.14 of the HSE 2011 shows that overweight men and women were twice as likely to have high blood pressure than those in the normal weight group (32% compared to 16% in the normal weight group for men and 28% compared to 14% in the normal weight group for women), while obese men and women were most likely to have high blood pressure (53% and 44% respectively). This is also shown in **Figure 7.2**.

Figure 7.2 High blood pressure by Body Mass Index (BMI) and gender, 2011



Source: Health Survey for England 2011. Health and Social Care Information Centre

Table 10.15 of the HSE 2011 shows that men with a raised waist circumference were more than twice as likely to have high blood pressure as those with a waist

circumference of 102cm or less (52% compared with 20%). The pattern was similar for women; 42% of those with a raised waist circumference had high blood pressure, compared with 15% of those with a waist circumference of 88cm or less.

7.3.2 Longstanding illness

Table 11 from the HSE 2011 Adult Trend Tables shows the latest trend information on general health, longstanding illness and acute sickness by gender for 1993-2011.

Table 10.16 of the HSE 2011 shows that, in 2011, the prevalence of limiting longstanding illness (whereby a longstanding illness limits the respondents' activity in some way) was higher among obese men and women (30% and 34% respectively) than those in the normal weight group (14% and 16% respectively). Men and women who were obese were also more likely to report a non-limiting longstanding illness than men and women in the normal weight group. This is also shown in **Figure 7.3**.

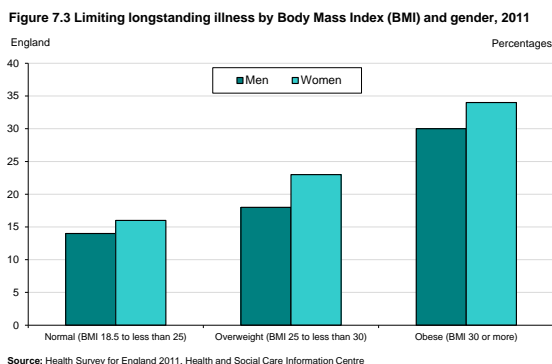


Table 10.17 of the HSE 2011 shows that both men and women with a raised waist circumference were more likely to report having a limiting longstanding illness than those without a raised waist circumference (24% compared with 17% for men and 29% compared with 19% for women).

HSE 2011 did not include any information on the GHQ12 questionnaire (designed to measure self-assessed general health, acute sickness leading to reduction in recent activity and psychosocial wellbeing) but **Table 7.5** of *Statistics on obesity, physical activity and diet: England, 2012*⁹ shows that neither men nor women who were either overweight or obese score differently on the GHQ12 questionnaire than those men and women in the normal weight group.

No recent data has been collected that discusses cardiovascular disease, diabetes and general health and their relationships with BMI and waist circumference but data using HSE 2006⁸ can be found in **Chapter 7** of *Statistics on obesity, physical activity and diet: England, 2009*¹⁰.

7.4 Hospital Episode Statistics

Data on Finished Admission Episodes (FAEs) and Finished Consultant Episodes (FCEs) are available from the *Hospital Episode Statistics (HES) databank* from the Health and Social Care Information Centre. This section presents recorded FAEs in England where there was a primary or secondary diagnosis of obesity and recorded FCEs in England where there was a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery. These data are based on the tenth revision of the International Classification of Diseases (ICD-10)¹¹. The FCE data for bariatric surgery are based on the Office for Population, Censuses and Surveys: Classification of Intervention and Procedures, 4th Revision (OPCS-4) codes¹². The most recent data available are for the financial year 2011/12.

Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case

for maintenance procedures. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See [Appendix A](#) for further detail on HES.

HES data is available from 1989-90 onwards. During this time there have been on-going improvements in data quality and coverage, which particularly affect earlier data years. As well as this, there have been a number of changes to the classifications used within HES records. Changes in NHS practice also need to be borne in mind when analysing time series. This may be particularly relevant for admissions with a primary or secondary diagnosis where some of the increases may be attributable to changes in recording practice.

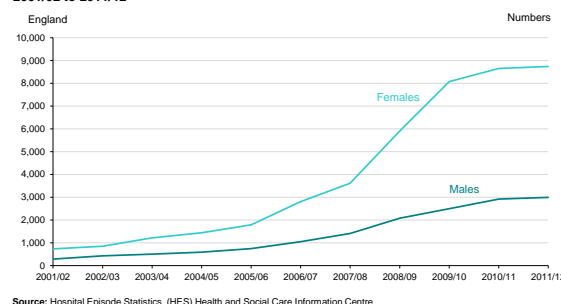
7.4.1 Finished admission episodes with a diagnosis of obesity

A Finished Admission Episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. It should be noted that admissions do not represent the number of inpatients, as a person may have more than one admission within the year. In this chapter an FAE is referred to as a 'hospital admission'.

[Table 7.1](#) shows that in 2011/12 there were 11,736 hospital admissions with a primary diagnosis of obesity among people of all ages. This is over 11 times as high as the number in 2001/02 (1,019) and more than triple five years earlier (3,862).

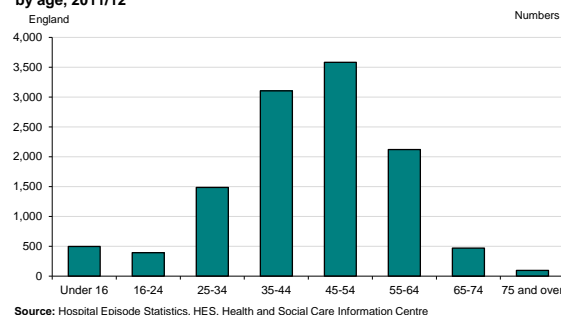
Over the period 2001/02 to 2011/12, in almost every year, more than twice as many females were admitted to hospital than males, with a primary diagnosis of obesity ([Figure 7.4](#)).

Figure 7.4 Finished Admission Episodes with a primary diagnosis of obesity, by gender, 2001/02 to 2011/12



In 2011/12, the age groups with the highest number of admissions with a primary diagnosis of obesity were those aged 35 to 44 (3,104) and those aged 45 to 54 (3,581). ([Table 7.2](#), [Figure 7.5](#)).

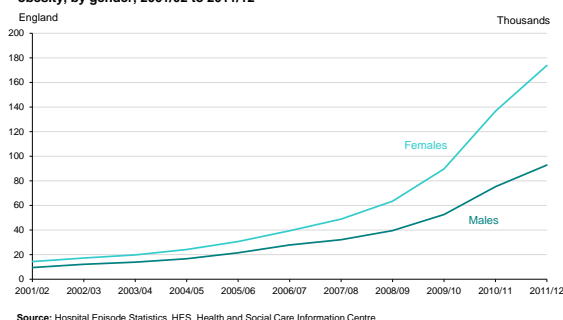
Figure 7.5 Finished Admission Episodes with a primary diagnosis of obesity, by age, 2011/12



Among Strategic Health Authorities (SHAs) in 2011/12, over one in every five admissions with a primary diagnosis of obesity occurred in London SHA (2,688), with the next highest number in East Midlands SHA (1,769). North East SHA had the highest rate of admissions per 100,000 of the population (56) and East of England SHA had the lowest (12). As with the national data, more females were admitted to hospital with a primary diagnosis of obesity than males in each of the SHAs. Note that admission figures cannot be used to compare prevalence of obesity between areas as people may travel for treatment and treatment may be concentrated in some areas. Also SHAs may adopt different treatment practices ([Table 7.3](#)).

In 2011/12, there were 266,666 admissions with a mention of obesity (i.e. a primary or a secondary diagnosis). These data show that obesity is far more likely to be recorded as a secondary than a primary diagnosis. Females are more likely than males to be admitted to hospital with either a primary or secondary diagnosis of obesity with 173,803 female admissions with a mention of obesity compared to 92,828 male admissions (but this gap between genders is not to the same extent as for primary diagnoses only) ([Table 7.4](#), [Figure 7.6](#)).

Figure 7.6 Finished Admission Episodes with a primary or secondary diagnosis of obesity, by gender, 2001/02 to 2011/12



[Table 7.5](#) shows that in 2011/12, adults aged 55 to 64 had the highest number of recorded hospital admissions with either a primary or secondary diagnosis of obesity (53,209), followed by those aged 45 to 54 years (47,514) and 65 to 74 years (45,949). This pattern differs from that for admissions with a primary diagnosis only, where it was shown that the highest number of admissions occurred in those aged 45 to 54.

The North West SHA had the largest number of admissions with either a primary or secondary diagnosis of obesity (39,000) and West Midlands SHA had the highest admission rate (619 per 100,000 population). South East Coast SHA reported the least number of admissions (14,486) and South East Coast reported the lowest admission rate (324 per 100,000 of the population). The consistency of reporting diagnoses may vary by SHA and needs to be considered when interpreting these data ([Table 7.6](#)).

7.4.2 Bariatric surgery

The term 'bariatric surgery' is used to define a group of procedures that can be performed to facilitate weight loss, although these procedures can also be performed for other conditions. It includes stomach stapling, gastric bypasses and sleeve gastrectomy, performed on the stomach and/or intestines to limit the amount of food an individual can consume. Such surgery is used in the treatment of obesity for people with a BMI above 40, or for those with a BMI between 35 and 40 who have health problems such as type 2 diabetes or heart disease.

[Table 7.7](#) shows the number of recorded Finished Consultant Episodes (FCEs) where there was a primary diagnosis of obesity and the main or secondary procedure was recorded as one of codes used to define bariatric surgery for the purpose of this report (see [Appendix B](#) for a full list of these procedure codes). An FCE is defined as a period of admitted patient care under one consultant within one healthcare provider. The figures do not represent the number of patients as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year. The figures do not show outpatient activity.

Surgical procedures are recorded using the Office of Population, Censuses and Surveys: Classification of Interventions and Procedures, 4th Revision (OPCS-4) codes. Operative procedure codes were revised from 2006/07. 2011/12 and 2010/11 data uses OPCS 4.6 codes, 2009/10 data uses OPCS 4.5 codes, 2008/09 and 2007/08 data uses OPCS 4.4 codes, 2006/07 data uses OPCS 4.3 codes, data prior to 2006/07 uses OPCS 4.2 codes. Results based on the old coding system cannot be compared with results based on the revised systems so data for 2006/07 to 2011/12 are presented separately from previous years. See [Appendix B](#) for further details.

There was a year on year increase in the number of recorded FCEs for bariatric surgery from 261 in 2000/01 to 1,038 in 2005/06. Annually the ratio of these recorded FCEs between men and women remained relatively constant with around eight in ten recorded FCEs involving female patients (Table 7.7).

Using the new classifications, in 2011/12 there were 8,794 recorded FCEs with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery. Females continue to account for the majority of these; in 2011/12 there were 2,081 such recorded FCEs for males and 6,711 for females.

London SHA had the highest number of recorded FCEs for bariatric surgery in 2011/12 (2,131), while South Central SHA had the lowest (446). East Midlands SHA had the highest number of FCEs per 100,000 of the population, this value being 36. The SHA with the lowest rate was the North West, with 6 FCEs per 100,000 of the population followed by East of England SHA with 8 FCEs per 100,000 of the population. (Table 7.8).

7.5 Prescribing

The two drugs most commonly prescribed for the treatment of obesity by GP practices, in England, were Orlistat (Xenical) and Sibutramine (Reductil). Orlistat is a capsule that prevents the absorption of some fat in the intestine, while Sibutramine works in the brain by altering the chemical messages that control how the person taking it feels and thinks about food. This drug has now been suspended following a European review, as well as the less prescribed drug Rimonabant (Acomplia), in 2009, for similar reasons.

In 2011, there were 0.9 million prescription items for drugs for the treatment of obesity. This is a decrease of 19% on last year although it is still over 90% higher than in 2001, when there were 469 thousand prescription items for drugs for the treatment of obesity.

The Net Ingredient Cost (NIC) is the basic cost of a drug, not taking into account discounts, dispensing costs, fees or prescription charges income. The total NIC for drugs for the treatment of obesity increased from £19.7 million in 2001 to £30.0 million in 2011, reaching its peak in 2007 at £51.6 million. The NIC per item decreased from £42 in 2001 to £33 in 2011 (which showed a slight increase until 2006 where it peaked at £45) (Table 7.9).

Almost all of the total number of prescription items in 2011 for obesity drugs were for Orlistat. (Figure 7.7).

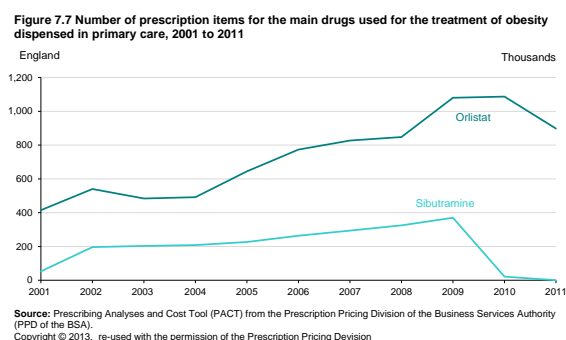
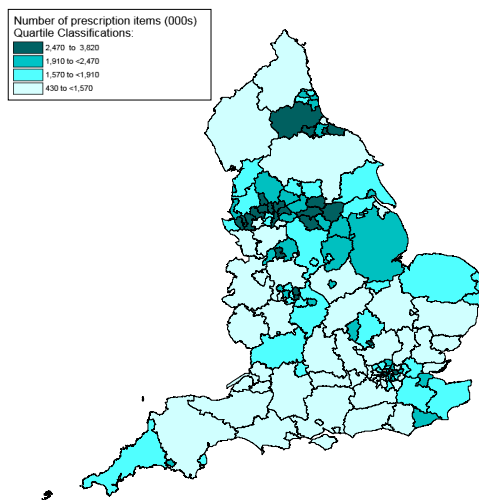


Table 7.10 shows prescription data for treatment of obesity by Strategic Health Authority. North West SHA had the greatest number of prescription items in total (153 thousand) and North East SHA had the greatest number of prescription items per head of population (2.2 thousand items per 100,000). South Central SHA had the lowest with 41 thousand items and also the lowest per head of population at 1.0 thousand items per 100,000 population.

Figure 7.8 shows that the number of prescription items dispensed for the

treatment of obesity per 100,000 of the population in each primary care trust (PCT) varies by PCT, with the lowest number of items prescribed being predominantly in the south west.

Figure 7.8 Number of prescription items dispensed for treatment of obesity per 100,000 of the population, by PCT, 2011



Data sources: ONS Boundary Files 2011, Prescribing Analyses and Cost (PACT) from the Prescription Services a division of the Business Services Authority.

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Table 7.1 Finished Admission Episodes with a primary diagnosis of obesity, by gender, 2000/01 to 2011/12

England	Numbers		
	Total	Males	Females
2000/01	1,054	309	11,736
2001/02	1,019	284	731
2002/03	1,275	427	848
2003/04	1,711	498	1,213
2004/05	2,035	589	1,442
2005/06	2,564	746	1,786
2006/07	3,862	1,047	2,807
2007/08	5,018	1,405	3,613
2008/09	7,988	2,077	5,910
2009/10	10,571	2,495	8,074
2010/11	11,574	2,919	8,654
2011/12	11,736	2,993	8,740

1. A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. FAEs are counted against the year in which the admission episode finishes. Admissions do not represent the number of inpatients, as a person may have more than one admission within the year.

2. The primary diagnosis is the first of up to 20 (14 from 2002-03 to 2006-07 and 7 prior to 2002-03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital.

3. ICD-10 Codes: E66 - Obesity.

4. Figures have not been adjusted for shortfalls in data.

5. Counts include people resident in English Strategic Health Authorities (SHAs) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was unknown.

6. Total includes admissions where the gender was unknown.

7. The quality and coverage of HES data have improved over time. These improvements in information submitted by the NHS have been particularly marked in the earlier years and need to be borne in mind when analysing time series. Some of the increase in figures for later years (particularly 2006-07 onwards) may be due to the improvement in the coverage of independent sector activity. Changes in NHS practice also need to be borne in mind when analysing time series.

8. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.2 Finished Admission Episodes with a primary diagnosis of obesity, by age group, 2000/01 to 2011/12

England	Numbers								
	Total	Under 16	16-24	25-34	35-44	45-54	55-64	65-74	75 and over
2000/01	1,054	226	11,736	2,993	8,740	214	96	56	14
2001/02	1,019	237	39	134	240	199	97	48	21
2002/03	1,275	400	65	136	289	216	94	52	23
2003/04	1,711	579	67	174	391	273	151	52	24
2004/05	2,035	547	107	287	487	364	174	36	32
2005/06	2,564	583	96	341	637	554	258	72	20
2006/07	3,862	656	184	461	1,069	872	459	118	43
2007/08	5,018	747	228	564	1,469	1,198	598	157	53
2008/09	7,988	775	322	1,013	2,359	2,133	1,099	221	63
2009/10	10,571	632	361	1,348	3,132	3,076	1,555	378	87
2010/11	11,574	525	375	1,425	3,277	3,573	1,820	456	115
2011/12	11,736	495	391	1,484	3,104	3,581	2,119	468	94

1. A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. FAEs are counted against the year in which the admission episode finishes. Admissions do not represent the number of inpatients, as a person may have more than one admission within the year.
2. The primary diagnosis is the first of up to 20 (14 from 2002-03 to 2006-07 and 7 prior to 2002-03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital.
3. ICD-10 Codes: E66 - Obesity.
4. Figures have not been adjusted for shortfalls in data.
5. Counts include people resident in English Strategic Health Authorities (SHAs) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was
6. Total includes admissions where the age was unknown.
7. The quality and coverage of HES data have improved over time. These improvements in information submitted by the NHS have been particularly marked in the earlier years and need to be borne in mind when analysing time series. Some of the increase in figures for later years (particularly 2006-07 onwards) may be due to the improvement in the coverage of independent sector activity. Changes in NHS practice also need to be borne in mind when analysing time series.
8. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.3 Finished Admission Episodes with a primary diagnosis of obesity, by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12

England			Admissions			Admissions per 100,000 of population		
			Total	Male	Female	Total	Male	Female
England			11,736	2,993	8,740	22	11	32
Q30	E18000001	North East	1,452	340	1,112	56	27	84
5ND	E16000085	County Durham PCT	353	98	255	69	39	97
5J9	E16000041	Darlington PCT	43	13	30	41	25	55
5KF	E16000050	Gateshead PCT	89	26	63	44	27	62
5D9	E16000019	Hartlepool PCT	48	8	40	52	18	85
5KM	E16000053	Middlesbrough PCT	61	15	46	44	22	65
5D7	E16000017	Newcastle PCT	92	20	72	33	14	52
5D8	E16000018	North Tyneside PCT	100	21	79	50	22	76
TAC	E17000001	Northumberland Care Trust	113	34	79	36	22	49
5QR	E16000146	Redcar & Cleveland PCT	55	13	42	41	20	60
5KG	E16000051	South Tyneside PCT	108	22	86	73	31	112
5E1	E16000020	Stockton-On-Tees Teaching PCT	146	33	113	76	35	116
5KL	E16000052	Sunderland Teaching PCT	244	37	207	89	28	146
Q31	E18000002	North West	903	295	608	13	9	17
5HG	E16000032	Ashton, Leigh & Wigan PCT	11	*	*	3	*	*
TAP	E17000006	Blackburn with Darwen Teaching Care Trust Plus	*	*	*	*	*	*
5HP	E16000033	Blackpool PCT	16	*	*	11	*	*
5HQ	E16000148	Bolton PCT	32	9	23	12	7	16
5JX	E16000043	Bury PCT	41	13	28	22	14	30
5NP	E16000095	Central & Eastern Cheshire PCT	18	7	11	4	3	5
5NG	E16000088	Central Lancashire PCT	28	12	16	6	5	7
5NE	E16000086	Cumbria PCT	35	12	23	7	5	9
5NH	E16000089	East Lancashire PCT	40	17	23	10	9	12
5NM	E16000093	Halton & St. Helens PCT	66	20	46	22	14	30
5NQ	E16000096	Heywood, Middleton & Rochdale PCT	25	14	11	12	13	10
5J4	E16000038	Knowsley PCT	54	10	44	37	14	57
5NL	E16000092	Liverpool PCT	102	27	75	22	12	32
5NT	E16000149	Manchester PCT	87	31	56	17	12	22
5NF	E16000087	North Lancashire PCT	*	*	*	*	*	*
5J5	E16000039	Oldham PCT	17	6	11	8	5	10
5F5	E16000025	Salford PCT	42	12	30	18	10	26
5NJ	E16000090	Sefton PCT	64	20	44	23	15	31
5F7	E16000026	Stockport PCT	11	*	*	4	*	*
5LH	E16000062	Tameside & Glossop PCT	59	14	45	23	11	35
5NR	E16000097	Trafford PCT	34	11	23	15	10	20
5J2	E16000037	Warrington PCT	13	7	6	6	7	6
5NN	E16000094	Western Cheshire PCT	38	15	23	16	13	19
5NK	E16000091	Wirral PCT	70	21	49	22	14	30
Q32	E18000003	Yorkshire and the Humber	1,093	291	802	21	11	30
5JE	E16000042	Barnsley PCT	88	29	59	38	25	50
5NY	E16000102	Bradford & Airedale PCT	123	38	85	24	15	32
5J6	E16000040	Calderdale PCT	24	*	*	12	*	*
5N5	E16000078	Doncaster PCT	86	24	62	28	16	40
5NW	E16000100	East Riding of Yorkshire PCT	26	9	17	8	6	10
5NX	E16000101	Hull PCT	6	*	*	2	*	*
5N2	E16000075	Kirklees PCT	42	12	30	10	6	14
5N1	E16000074	Leeds PCT	138	30	108	18	8	28
TAN	E17000005	North East Lincolnshire PCT	31	9	22	19	11	27
5EF	E16000021	North Lincolnshire PCT	56	11	45	34	14	54
5NV	E16000099	North Yorkshire & York PCT	194	54	140	24	14	34
5H8	E16000031	Rotherham PCT	74	13	61	29	10	46
5N4	E16000077	Sheffield PCT	72	22	50	13	8	18
5N3	E16000076	Wakefield District PCT	133	32	101	41	20	61
Q33	E18000004	East Midlands	1,769	352	1,417	39	16	62
5ET	E16000023	Bassetlaw PCT	49	12	37	43	21	65
5N7	E16000080	Derby City PCT	215	51	164	86	41	130
5N6	E16000079	Derbyshire County PCT	361	47	314	49	13	84
5PC	E16000113	Leicester City PCT	33	6	27	10	4	16
5PA	E16000112	Leicestershire County & Rutland PCT	122	28	94	18	8	27
5N9	E16000082	Lincolnshire PCT	342	71	271	48	20	74
5PD	E16000114	Northampton PCT	107	34	73	15	10	21
5EM	E16000022	Nottingham City PCT	153	28	125	50	18	83
5N8	E16000081	Nottinghamshire County PCT	374	74	300	56	22	88

Table 7.3 Finished Admission Episodes with a primary diagnosis of obesity, by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12 - Continued

England			Admissions			Admissions per 100,000 of population		
			Total	Male	Female	Total	Male	Female
England			11,736	2,993	8,740	22	11	32
Q34	E18000005	West Midlands	964	282	682	17	10	24
5PG	E16000117	Birmingham East & North PCT	61	18	43	14	9	20
5MD	E16000070	Coventry Teaching PCT	53	*	*	17	*	*
5PE	E16000115	Dudley PCT	84	34	50	27	22	31
5MX	E16000073	Heart of Birmingham Teaching PCT	45	19	26	15	13	18
5CN	E16000015	Herefordshire PCT	27	9	18	15	10	19
5PH	E16000118	North Staffordshire PCT	36	12	24	17	11	22
5PF	E16000116	Sandwell PCT	119	35	84	39	23	54
5M2	E16000065	Shropshire County PCT	15	*	*	5	*	*
5QW	E17000004	Solihull PCT	11	*	*	5	*	*
5M1	E16000064	South Birmingham PCT	56	15	41	16	9	23
5PK	E16000120	South Staffordshire PCT	66	18	48	11	6	15
5PJ	E16000119	Stoke on Trent PCT	98	24	74	38	19	57
5MK	E16000071	Telford & Wrekin PCT	21	*	*	13	*	*
5M3	E16000066	Walsall Teaching PCT	63	19	44	23	14	32
5PM	E16000122	Warwickshire PCT	35	13	22	6	5	8
5MV	E16000072	Wolverhampton City PCT	105	30	75	42	24	59
5PL	E16000121	Worcestershire PCT	69	23	46	12	8	16
Q35	E18000006	East of England	677	234	443	12	8	15
5P2	E16000104	Bedfordshire PCT	30	12	18	7	6	9
5PP	E16000124	Cambridgeshire PCT	64	23	41	10	7	13
5PR	E16000126	Great Yarmouth & Waveney PCT	21	*	*	10	*	*
5QV	E16000150	Hertfordshire PCT	130	47	83	12	9	15
5GC	E16000029	Luton PCT	26	11	15	13	11	15
5PX	E16000130	Mid Essex PCT	23	13	10	6	7	5
5PQ	E16000125	Norfolk PCT	100	37	63	13	10	16
5PW	E16000129	North East Essex PCT	73	19	54	23	13	34
5PN	E16000123	Peterborough PCT	27	9	18	15	10	19
5P1	E16000103	South East Essex PCT	47	15	32	14	9	18
5PY	E16000131	South West Essex PCT	40	14	26	10	7	12
5PT	E16000127	Suffolk PCT	70	19	51	11	6	16
5PV	E16000128	West Essex PCT	26	*	*	9	*	*
Q36	E18000007	London	2,688	614	2,074	33	15	50
5C2	E16000009	Barking & Dagenham PCT	51	9	42	27	10	44
5A9	E16000006	Barnet PCT	121	28	93	34	16	51
TAK	E17000002	Bexley Care Trust	83	18	65	36	16	54
5K5	E16000045	Brent Teaching PCT	112	27	85	36	17	55
5A7	E16000004	Bromley PCT	109	33	76	35	22	47
5K7	E16000047	Camden PCT	93	19	74	42	18	66
5C3	E16000010	City & Hackney Teaching PCT	75	12	63	29	9	49
5K9	E16000049	Croydon PCT	121	27	94	33	15	50
5HX	E16000035	Ealing PCT	129	40	89	38	24	53
5C1	E16000008	Enfield PCT	40	16	24	13	11	15
5A8	E16000005	Greenwich Teaching PCT	96	23	73	38	18	57
5H1	E16000030	Hammersmith & Fulham PCT	84	27	57	46	30	61
5C9	E16000013	Haringey Teaching PCT	33	10	23	13	8	18
5K6	E16000046	Harrow PCT	67	15	52	28	13	43
5A4	E16000002	Havering PCT	28	13	15	12	11	12
5AT	E16000007	Hillingdon PCT	56	16	40	20	12	29
5HY	E16000036	Hounslow PCT	108	22	86	42	17	68
5K8	E16000048	Islington PCT	91	14	77	44	14	74
5LA	E16000056	Kensington & Chelsea PCT	53	13	40	33	17	50
5A5	E16000003	Kingston PCT	48	11	37	30	14	45
5LD	E16000058	Lambeth PCT	180	23	157	59	15	103
5LF	E16000060	Lewisham PCT	171	25	146	62	18	103
5C5	E16000012	Newham PCT	85	22	63	27	14	42
5NA	E16000083	Redbridge PCT	26	10	16	9	7	11
5M6	E16000067	Richmond & Twickenham PCT	35	12	23	19	13	24
5LE	E16000059	Southwark PCT	195	21	174	68	15	119
5M7	E16000068	Sutton & Merton PCT	135	33	102	34	17	51
5C4	E16000011	Tower Hamlets PCT	60	19	41	23	14	33
5NC	E16000084	Waltham Forest PCT	31	8	23	12	6	18
5LG	E16000061	Wandsworth PCT	87	16	71	28	11	45
5LC	E16000057	Westminster PCT	85	32	53	39	29	49

Table 7.3 Finished Admission Episodes with a primary diagnosis of obesity, by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12 - Continued

England			Admissions			Admissions per 100,000 of population		
			Total	Male	Female	Total	Male	Female
England			11,736	2,993	8,740	22	11	32
Q37	E18000008	South East Coast	854	230	623	19	11	27
5LQ	E16000063	Brighton & Hove City PCT	68	20	48	25	15	35
5P7	E16000109	East Sussex Downs & Weald PCT	73	21	52	21	13	29
5QA	E16000132	Eastern & Coastal Kent PCT	166	42	124	22	11	32
5P8	E16000110	Hastings & Rother PCT	37	9	28	20	10	29
5L3	E16000055	Medway PCT	72	15	57	27	11	43
5P5	E16000107	Surrey PCT	153	49	104	14	9	18
5P9	E16000111	West Kent PCT	139	42	97	20	12	27
5P6	E16000108	West Sussex PCT	145	32	113	18	8	27
Q38	E18000009	South Central	552	174	378	13	8	18
5QG	E16000137	Berkshire East PCT	34	*	*	8	*	*
5QF	E16000136	Berkshire West PCT	54	18	36	12	8	15
5QD	E16000134	Buckinghamshire PCT	55	17	38	11	7	14
5QC	E16000133	Hampshire PCT	219	77	142	17	12	21
5QT	E16000147	Isle of Wight PCT	19	*	*	14	*	*
5CQ	E16000016	Milton Keynes PCT	51	13	38	20	10	29
5QE	E16000135	Oxfordshire PCT	35	7	28	6	2	9
5FE	E16000027	Portsmouth City Teaching PCT	40	16	24	19	15	24
5L1	E16000054	Southampton City PCT	43	16	27	18	13	23
Q39	E18000010	South West	784	181	601	15	7	22
5FL	E16000028	Bath & North East Somerset PCT	25	6	19	14	7	21
5QN	E16000143	Bournemouth & Poole PCT	42	14	28	13	9	17
5QJ	E16000139	Bristol PCT	67	12	55	16	6	26
5QP	E16000144	Cornwall & Isles Of Scilly PCT	84	14	70	16	5	25
5QQ	E16000145	Devon PCT	96	20	76	13	6	20
5QM	E16000142	Dorset PCT	36	15	21	9	7	10
5QH	E16000138	Gloucestershire PCT	41	8	33	7	3	11
5M8	E16000069	North Somerset PCT	22	*	*	11	*	*
5F1	E16000024	Plymouth Teaching PCT	74	23	51	29	18	39
5QL	E16000141	Somerset PCT	93	21	72	17	8	26
5A3	E16000001	South Gloucestershire PCT	31	12	19	12	9	14
5K3	E16000044	Swindon PCT	38	8	30	18	7	28
TAL	E17000003	Torbay Care Trust	12	*	*	9	*	*
5QK	E16000140	Wiltshire PCT	123	15	108	26	6	45

1. A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. FAEs are counted against the year in which the admission episode finishes. Admissions do not represent the number of inpatients, as a person may have more than one admission within the year.

2. The primary diagnosis is the first of up to 20 (14 from 2002-03 to 2006-07 and 7 prior to 2002-03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital.

3. ICD-10 Codes: E66 - Obesity.

4. Figures have not been adjusted for shortfalls in data.

5. Counts include people resident in English Strategic Health Authorities (SHAs) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was unknown.

6. Office for National Statistics (ONS) estimated resident population mid-2011 figures have been used to calculate admissions per 100,000 population. Information on ONS population data is available at:

<http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-england-and-wales/mid-2011-2011-census-based/index.html>

7. Totals include admissions where the gender was unknown.

8. * in this table means a figure between 1 and 5.

9. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.4 Finished Admission Episodes with a primary or secondary diagnosis of obesity, by gender, 2000/01 to 2011/12

England	Numbers		
	Total	Male	Female
2000/01	22,878	8,938	13,924
2001/02	23,777	9,448	14,320
2002/03	29,237	12,068	17,168
2003/04	33,546	13,804	19,736
2004/05	40,741	16,590	24,145
2005/06	52,019	21,432	30,552
2006/07	67,211	27,791	39,411
2007/08	80,914	32,080	48,829
2008/09	102,987	39,524	63,457
2009/10	142,219	52,517	89,657
2010/11	211,783	75,190	136,566
2011/12	266,666	92,828	173,803

1. A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. FAEs are counted against the year in which the admission episode finishes. Admissions do not represent the number of inpatients, as a person may have more than one admission within the year.
2. The primary diagnosis is the first of up to 20 (14 from 2002/03 to 2006/07 and 7 prior to 2002/03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital. As well as the primary diagnosis, there are up to 19 (13 from 2002/03 to 2006/07 and 6 prior to 2002/03) secondary diagnosis fields in Hospital Episode Statistics (HES) that show other diagnoses relevant to the episode of care. These figures represent the number of episodes where the diagnosis was recorded in any of the 20 primary and secondary diagnosis fields in the record. Each episode is only counted once in each count, even if the diagnosis is recorded in more than one diagnosis field of the record.
3. ICD-10 Codes: E66 - Obesity.
4. Figures have not been adjusted for shortfalls in data.
5. Counts include people resident in English Strategic Health Authorities (SHAs) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was unknown.
6. Total includes admissions where the gender was unknown.
7. The quality and coverage of HES data have improved over time. These improvements in information submitted by the NHS have been particularly marked in the earlier years and need to be borne in mind when analysing time series. Some of the increase in figures for later years (particularly 2006-07 onwards) may be due to the improvement in the coverage of independent sector activity. Changes in NHS practice also need to be borne in mind when analysing time series. This may be particularly relevant for admissions with a primary or secondary diagnosis where some of the increases may be attributable to changes in recording practice. Further years' data may be required to aid interpretation of these statistics.
8. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.5 Finished Admission Episodes with a primary or secondary diagnosis of obesity, by age group, 2000/01 to 2011/12

England	Numbers								
	Total	Under 16	16 to 24	25 to 34	35 to 44	45 to 54	55 to 64	65 to 74	75 and over
2000/01	22,878	781	654	2,142	3,522	4,656	4,877	4,009	2,190
2001/02	23,777	856	715	2,129	3,512	4,878	5,217	4,226	2,222
2002/03	29,237	1,117	912	2,288	4,371	5,661	6,721	5,391	2,738
2003/04	33,546	1,355	1,026	2,449	4,845	6,452	7,790	6,432	3,175
2004/05	40,741	1,506	1,457	3,449	5,953	7,424	9,086	7,813	4,036
2005/06	52,019	1,727	1,717	4,252	7,401	9,858	12,146	10,056	4,840
2006/07	67,211	1,896	2,316	5,319	9,961	12,922	15,882	12,571	6,296
2007/08	80,914	2,104	3,169	7,218	12,101	15,683	18,489	14,496	7,512
2008/09	102,987	2,229	4,326	9,899	15,508	19,971	23,136	18,234	9,531
2009/10	142,219	2,400	6,609	15,490	21,344	27,641	30,884	24,294	13,399
2010/11	211,783	2,762	12,042	26,965	30,606	39,258	43,754	36,056	20,056
2011/12	266,666	2,824	16,016	37,060	37,098	47,514	53,209	45,949	26,989

1. A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. FAEs are counted against the year in which the admission episode finishes. Admissions do not represent the number of inpatients, as a person may have more than one admission within the year.
2. The primary diagnosis is the first of up to 20 (14 from 2002/03 to 2006/07 and 7 prior to 2002/03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital. As well as the primary diagnosis, there are up to 19 (13 from 2002/03 to 2006/07 and 6 prior to 2002/03) secondary diagnosis fields in Hospital Episode Statistics (HES) that show other diagnoses relevant to the episode of care. These figures represent the number of episodes where the diagnosis was recorded in any of the 20 primary and secondary diagnosis fields in the record. Each episode is only counted once in each count, even if the diagnosis is recorded in more than one diagnosis field of the record.
3. ICD-10 Codes: E66 - Obesity.
4. Figures have not been adjusted for shortfalls in data.
5. Counts include people resident in English Strategic Health Authorities (SHAs) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was unknown.
6. Total includes admissions where the age was unknown.
7. The quality and coverage of HES data have improved over time. These improvements in information submitted by the NHS have been particularly marked in the earlier years and need to be borne in mind when analysing time series. Some of the increase in figures for later years (particularly 2006-07 onwards) may be due to the improvement in the coverage of independent sector activity. Changes in NHS practice also need to be borne in mind when analysing time series. This may be particularly relevant for admissions with a primary or secondary diagnosis where some of the increases may be attributable to changes in recording practice. Further years' data may be required to aid interpretation of these statistics.
8. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.6 Finished Admission Episodes with a primary or secondary diagnosis of obesity, by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12

England			Admissions			Admissions per 100,000 of population		
			Total	Male	Female	Total ⁷	Male	Female
England			266,666	92,828	173,803	502	355	644
Q30	E18000001	North East	15,345	5,777	9,568	591	455	721
5ND	E16000085	County Durham PCT	1,971	788	1,183	384	314	452
5J9	E16000041	Darlington PCT	188	79	109	178	154	201
5KF	E16000050	Gateshead PCT	906	364	542	452	371	530
5D9	E16000019	Hartlepool PCT	389	131	258	422	293	545
5KM	E16000053	Middlesbrough PCT	409	155	254	296	229	359
5D7	E16000017	Newcastle PCT	1,732	678	1,054	621	485	757
5D8	E16000018	North Tyneside PCT	2,499	907	1,592	1,242	934	1,529
TAC	E17000001	Northumberland Care Trust	4,151	1,561	2,590	1,312	1,012	1,598
5QR	E16000146	Redcar & Cleveland PCT	400	130	270	296	198	388
5KG	E16000051	South Tyneside PCT	577	172	405	389	240	529
5E1	E16000020	Stockton-On-Tees Teaching PCT	809	307	502	422	326	514
5KL	E16000052	Sunderland Teaching PCT	1,314	505	809	477	377	572
Q31	E18000002	North West	39,000	13,788	25,211	553	398	703
5HG	E16000032	Ashton, Leigh & Wigan PCT	1,786	464	1,322	561	294	826
TAP	E17000006	Blackburn with Darwen Teaching Care Trust Plus	757	238	519	513	323	701
5HP	E16000033	Blackpool PCT	522	220	302	367	315	418
5HQ	E16000148	Bolton PCT	980	436	544	353	318	388
5JX	E16000043	Bury PCT	756	333	423	408	367	447
5NP	E16000095	Central & Eastern Cheshire PCT	2,190	492	1,698	472	216	718
5NG	E16000088	Central Lancashire PCT	4,401	1,513	2,888	942	654	1,224
5NE	E16000086	Cumbria PCT	1,701	591	1,110	340	240	437
5NH	E16000089	East Lancashire PCT	1,855	647	1,208	485	344	622
5NM	E16000093	Halton & St. Helens PCT	2,161	677	1,484	718	459	966
5NQ	E16000096	Heywood, Middleton & Rochdale PCT	883	358	525	417	345	486
5J4	E16000038	Knowsley PCT	1,297	398	899	889	575	1,173
5NL	E16000092	Liverpool PCT	3,612	1,188	2,424	776	516	1,031
5NT	E16000149	Manchester PCT	1,572	637	935	313	252	374
5NF	E16000087	North Lancashire PCT	1,096	419	677	341	269	408
5J5	E16000039	Oldham PCT	705	325	380	313	295	331
5F5	E16000025	Salford PCT	2,148	892	1,256	916	761	1,071
5NJ	E16000090	Sefton PCT	2,379	830	1,549	868	632	1,086
5F7	E16000026	Stockport PCT	1,475	591	884	521	427	610
5LH	E16000062	Tameside & Glossop PCT	1,771	525	1,246	700	423	967
5NR	E16000097	Trafford PCT	613	260	353	270	234	304
5J2	E16000037	Warrington PCT	741	280	461	366	279	451
5NN	E16000094	Western Cheshire PCT	1,226	423	803	519	369	662
5NK	E16000091	Wirral PCT	2,548	1,092	1,456	797	710	877
Q32	E18000003	Yorkshire and the Humber	31,015	10,335	20,680	586	397	770
5JE	E16000042	Barnsley PCT	1,142	462	680	493	405	577
5NY	E16000102	Bradford & Airedale PCT	5,076	1,509	3,567	970	586	1,343
5J6	E16000040	Calderdale PCT	880	305	575	431	306	551
5N5	E16000078	Doncaster PCT	8,206	2,979	5,227	2,713	1,997	3,410
5NW	E16000100	East Riding of Yorkshire PCT	1,041	412	629	311	252	368
5NX	E16000101	Hull PCT	642	240	402	251	187	315
5N2	E16000075	Kirklees PCT	1,320	420	900	312	201	420
5N1	E16000074	Leeds PCT	2,711	694	2,017	361	189	527
TAN	E17000005	North East Lincolnshire PCT	576	241	335	357	305	408
5EF	E16000021	North Lincolnshire PCT	465	178	287	284	221	346
5NV	E16000099	North Yorkshire & York PCT	2,567	1,084	1,483	321	276	365
5H8	E16000031	Rotherham PCT	1,928	655	1,273	748	518	970
5N4	E16000077	Sheffield PCT	3,555	768	2,787	644	282	998
5N3	E16000076	Wakefield District PCT	898	385	513	275	240	309
Q33	E18000004	East Midlands	22,362	7,091	15,271	493	317	664
5ET	E16000023	Bassetlaw PCT	3,252	1,200	2,052	2,878	2,140	3,605
5N7	E16000080	Derby City PCT	2,869	208	2,661	1,152	169	2,115
5N6	E16000079	Derbyshire County PCT	3,836	979	2,857	520	270	762
5PC	E16000113	Leicester City PCT	732	292	440	222	179	264
5PA	E16000112	Leicestershire County & Rutland PCT	1,524	585	939	221	172	270
5N9	E16000082	Lincolnshire PCT	4,234	1,542	2,692	590	441	732
5PD	E16000114	Northampton PCT	1,331	563	768	192	164	218
5EM	E16000022	Nottingham City PCT	1,106	454	652	364	296	433
5N8	E16000081	Nottinghamshire County PCT	3,310	1,230	2,080	491	372	607

Table 7.6 Finished Admission Episodes with a primary or secondary diagnosis of obesity, by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12 - Continued

England			Admissions			Admissions per 100,000 of population		
			Total	Male	Female	Total ⁷	Male	Female
England			266,666	92,828	173,803	502	355	644
Q34	E18000005	West Midlands	34,721	10,948	23,771	619	396	837
5PG	E16000117	Birmingham East & North PCT	1,662	462	1,200	391	221	554
5MD	E16000070	Coventry Teaching PCT	2,981	648	2,333	941	411	1,467
5PE	E16000115	Dudley PCT	2,626	865	1,761	838	562	1,105
5MX	E16000073	Heart of Birmingham Teaching PCT	2,419	617	1,802	822	418	1,229
5CN	E16000015	Herefordshire PCT	497	217	280	271	240	300
5PH	E16000118	North Staffordshire PCT	515	201	314	242	191	291
5PF	E16000116	Sandwell PCT	2,944	863	2,081	953	567	1,326
5M2	E16000065	Shropshire County PCT	2,125	803	1,322	692	527	854
5QW	E17000004	Solihull PCT	504	165	339	244	164	319
5M1	E16000064	South Birmingham PCT	2,455	567	1,888	693	329	1,037
5PK	E16000120	South Staffordshire PCT	3,063	1,127	1,936	487	362	611
5PJ	E16000119	Stoke on Trent PCT	740	254	486	288	198	377
5MK	E16000071	Telford & Wrekin PCT	813	275	538	487	333	639
5M3	E16000066	Walsall Teaching PCT	2,297	882	1,415	852	666	1,032
5PM	E16000122	Warwickshire PCT	2,265	724	1,541	414	269	556
5MV	E16000072	Wolverhampton City PCT	3,706	1,278	2,428	1,483	1,033	1,924
5PL	E16000121	Worcestershire PCT	3,107	1,000	2,107	548	359	732
Q35	E18000006	East of England	32,540	12,327	20,211	555	427	679
5P2	E16000104	Bedfordshire PCT	1,649	722	927	399	353	443
5PP	E16000124	Cambridgeshire PCT	3,022	1,395	1,627	486	449	522
5PR	E16000126	Great Yarmouth & Waveney PCT	1,736	708	1,028	816	682	944
5QV	E16000150	Hertfordshire PCT	8,516	2,986	5,530	760	544	969
5GC	E16000029	Luton PCT	1,327	443	884	652	433	872
5PX	E16000130	Mid Essex PCT	1,007	338	669	268	183	351
5PQ	E16000125	Norfolk PCT	3,888	1,462	2,426	510	392	624
5PW	E16000129	North East Essex PCT	1,013	359	654	325	236	409
5PN	E16000123	Peterborough PCT	1,441	353	1,088	781	386	1,169
5P1	E16000103	South East Essex PCT	1,241	630	611	359	373	346
5PY	E16000131	South West Essex PCT	3,140	1,077	2,063	771	542	990
5PT	E16000127	Suffolk PCT	3,084	1,297	1,787	502	425	577
5PV	E16000128	West Essex PCT	1,474	557	917	509	395	617
Q36	E18000007	London	33,265	11,625	21,633	405	287	521
5C2	E16000009	Barking & Dagenham PCT	747	201	546	399	221	568
5A9	E16000006	Barnet PCT	1,244	476	768	348	274	417
TAK	E17000002	Bexley Care Trust	929	346	583	399	309	483
5K5	E16000045	Brent Teaching PCT	2,971	977	1,994	951	621	1,287
5A7	E16000004	Bromley PCT	1,016	426	590	327	286	366
5K7	E16000047	Camden PCT	644	241	403	293	223	360
5C3	E16000010	City & Hackney Teaching PCT	966	345	621	379	272	486
5K9	E16000049	Croydon PCT	1,121	381	740	307	215	394
5HX	E16000035	Ealing PCT	1,480	543	937	436	320	553
5C1	E16000008	Enfield PCT	1,245	485	760	397	320	468
5A8	E16000005	Greenwich Teaching PCT	1,119	344	775	438	271	603
5H1	E16000030	Hammersmith & Fulham PCT	571	212	359	313	238	385
5C9	E16000013	Haringey Teaching PCT	1,050	332	718	411	262	558
5K6	E16000046	Harrow PCT	2,469	888	1,581	1,027	747	1,300
5A4	E16000002	Havering PCT	827	351	476	348	306	386
5AT	E16000007	Hillingdon PCT	1,529	470	1,059	555	344	763
5HY	E16000036	Hounslow PCT	670	255	415	263	199	327
5K8	E16000048	Islington PCT	1,022	387	635	495	380	608
5LA	E16000056	Kensington & Chelsea PCT	332	132	200	210	169	249
5A5	E16000003	Kingston PCT	445	177	268	277	226	327
5LD	E16000058	Lambeth PCT	819	260	559	269	171	366
5LF	E16000060	Lewisham PCT	663	228	435	239	168	308
5C5	E16000012	Newham PCT	1,383	398	985	445	246	664
5NA	E16000083	Redbridge PCT	1,213	434	779	431	311	549
5M6	E16000067	Richmond & Twickenham PCT	338	162	176	180	177	183
5LE	E16000059	Southwark PCT	887	332	555	307	232	381
5M7	E16000068	Sutton & Merton PCT	1,429	448	981	365	233	491
5C4	E16000011	Tower Hamlets PCT	575	215	360	225	163	291
5NC	E16000084	Waltham Forest PCT	2,236	657	1,579	861	505	1,217
5LG	E16000061	Wandsworth PCT	712	262	450	231	176	284
5LC	E16000057	Westminster PCT	606	260	346	276	232	322

Table 7.6 Finished Admission Episodes with a primary or secondary diagnosis of obesity, by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12 - Continued

England			Admissions			Numbers		
			Total	Male	Female	Admissions per 100,000 of population		
						Total ⁷	Male	Female
England			266,666	92,828	173,803	502	355	644
Q37	E18000008	South East Coast	14,486	5,453	9,013	324	249	394
5LQ	E16000063	Brighton & Hove City PCT	1,270	494	776	465	363	567
5P7	E16000109	East Sussex Downs & Weald PCT	1,458	592	866	424	357	486
5QA	E16000132	Eastern & Coastal Kent PCT	1,888	724	1,164	249	196	299
5P8	E16000110	Hastings & Rother PCT	1,106	441	665	603	500	699
5L3	E16000055	Medway PCT	883	358	525	333	273	393
5P5	E16000107	Surrey PCT	2,873	855	2,018	256	155	352
5P9	E16000111	West Kent PCT	1,865	878	987	264	253	274
5P6	E16000108	West Sussex PCT	3,115	1,108	2,007	385	283	481
Q38	E18000009	South Central	16,147	5,469	10,677	387	265	505
5QG	E16000137	Berkshire East PCT	2,201	765	1,436	535	375	693
5QF	E16000136	Berkshire West PCT	1,701	565	1,136	366	245	487
5QD	E16000134	Buckinghamshire PCT	2,314	1,043	1,271	444	407	480
5QC	E16000133	Hampshire PCT	4,404	1,412	2,992	333	218	444
5QT	E16000147	Isle of Wight PCT	250	101	149	181	150	210
5CQ	E16000016	Milton Keynes PCT	970	339	631	380	268	489
5QE	E16000135	Oxfordshire PCT	1,659	458	1,201	264	147	378
5FE	E16000027	Portsmouth City Teaching PCT	806	317	489	392	305	481
5L1	E16000054	Southampton City PCT	1,837	466	1,371	779	391	1,175
Q39	E18000010	South West	27,720	9,983	17,735	523	384	656
5FL	E16000028	Bath & North East Somerset PCT	590	194	396	336	226	442
5QN	E16000143	Bournemouth & Poole PCT	572	201	371	173	123	222
5QJ	E16000139	Bristol PCT	1,777	679	1,098	415	318	511
5QP	E16000144	Cornwall & Isles Of Scilly PCT	5,055	1,906	3,149	943	734	1,139
5QQ	E16000145	Devon PCT	4,347	1,780	2,567	581	490	667
5QM	E16000142	Dorset PCT	922	383	539	223	190	254
5QH	E16000138	Gloucestershire PCT	1,402	614	788	234	209	258
5M8	E16000069	North Somerset PCT	827	264	563	407	267	540
5F1	E16000024	Plymouth Teaching PCT	4,796	1,536	3,260	1,869	1,207	2,520
5QL	E16000141	Somerset PCT	3,199	724	2,475	602	279	909
5A3	E16000001	South Gloucestershire PCT	1,026	449	577	389	344	435
5K3	E16000044	Swindon PCT	899	397	502	418	369	468
TAL	E17000003	Torbay Care Trust	625	260	365	476	411	537
5QK	E16000140	Wiltshire PCT	1,693	602	1,091	357	257	454

1. A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. FAEs are counted against the year in which the admission episode finishes. Admissions do not represent the number of inpatients, as a person may have more than one admission within the year.
2. The primary diagnosis is the first of up to 20 (14 from 2002/03 to 2006/07 and 7 prior to 2002/03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital. As well as the primary diagnosis, there are up to 19 (13 from 2002/03 to 2006/07 and 6 prior to 2002/03) secondary diagnosis fields in Hospital Episode Statistics (HES) that show other diagnoses relevant to the episode of care. These figures represent the number of episodes where the diagnosis was recorded in any of the 20 primary and secondary diagnosis fields in the record. Each episode is only counted once in each count, even if the diagnosis is recorded in more than one diagnosis field of the record.
3. ICD-10 Codes: E66 - Obesity.
4. Figures have not been adjusted for shortfalls in data.
5. Counts include people resident in English Strategic Health Authorities (SHAs) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was unknown.
6. Office for National Statistics (ONS) estimated resident population mid-2011 figures have been used to calculate admissions per 100,000 population. Information on ONS population data is available at: <http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-england-and-wales/mid-2011--2011-census-based/index.html>
7. Totals include admissions where the gender was unknown.
8. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.7 Finished Consultant Episodes with a primary diagnosis of obesity and a main or secondary procedure of 'Bariatric Surgery' by gender, 2000/01 to 2011/12

England	Numbers		
	Total	Male	Female
OPCS-4.2 procedure codes			
2000/01	261	46	215
2001/02	281	38	241
2002/03	345	65	280
2003/04	474	96	378
2004/05	744	137	603
2005/06	1,038	200	808
2006/07 (OPCS-4.3 procedure codes)			
2006/07	1,951	381	1,562
2007/08 (OPCS-4.4 procedure codes)			
2007/08	2,724	598	2,126
2008/09 (OPCS-4.4 procedure codes)			
2008/09	4,221	969	3,251
2009/10 (OPCS-4.5 procedure codes)			
2009/10	7,214	1,450	5,762
2010/11 (OPCS-4.5 procedure codes)			
2010/11	8,087	1,771	6,315
2011/12 (OPCS-4.6 procedure codes)			
2011/12	8,794	2,081	6,711

1. A finished consultant episode (FCE) is a continuous period of admitted patient care under one consultant within one healthcare provider. FCEs are counted against the year in which they end. Figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year.

2. The primary diagnosis is the first of up to 20 (14 from 2002-03 to 2006-07 and 7 prior to 2002-03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital.

3. ICD-10 Codes: E66 - Obesity.

4. These figures represent the number of episodes where the procedure (or intervention) was recorded in any of the 24 (12 from 2002/03 to 2006/07 and 4 prior to 2002/03) operative procedure fields in a Hospital Episode Statistics (HES) record. A record is only included once in each count, even if the procedure is recorded in more than one operative procedure field of the record. Please note that more procedures are carried out than episodes with a main or secondary procedure. For example, patients under going a 'cataract operation' would tend to have at least two procedures – removal of the faulty lens and the fitting of a new one – counted in a single episode.

5. The term 'bariatric surgery' is often used to define a group of procedures that can be performed to facilitate weight loss although these procedures can be performed for conditions other than weight loss. It includes stomach stapling, gastric bypasses and sleeve gastrectomy. The procedures for tables 7.7 and 7.8 show the defined range of procedures when a corresponding main diagnosis of Obesity (ICD10-E66) is also present. Definition of codes can be found in Appendix B.

6. All OPCS-4.2, OPCS-4.3, OPCS-4.4, OPCS-4.5 and OPCS-4.6 procedure codes used to define bariatric surgery are described in Appendix B.

7. Figures have not been adjusted for shortfalls in data.

8. Counts include people resident in English Strategic Health Authorities (SHAs) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was unknown.

9. Total includes episodes where the gender was unknown.

10. The quality and coverage of HES data have improved over time. These improvements in information submitted by the NHS have been particularly marked in the earlier years and need to be borne in mind when analysing time series. Some of the increase in figures for later years (particularly 2006-07 onwards) may be due to the improvement in the coverage of independent sector activity. Changes in NHS practice also need to be borne in mind when analysing time series.

11. Figures before 2009-10 were based on decisions as to which operative procedures constituted 'Bariatric Surgery' at that time. Changes to the figures over time need to be interpreted in the context of improvements in data quality and coverage (particularly in earlier years). In particular, improvements in how 'Bariatric surgery' is coded, with the change of codes in various versions of OPCS, means that had the previous years been based on OPCS-4.5, figures would have been slightly lower and affects earlier

12. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.8 Finished Consultant Episodes with a primary diagnosis of obesity and a main or secondary procedure of 'Bariatric Surgery' by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12

England			Numbers					
			Finished Consultant Episodes			Finished Consultant Episodes per 100,000 of population		
			Total	Male	Female	Total	Male	Female
England			8,794	2,081	6,711	17	8	25
Q30	E18000001	North East	805	195	610	31	15	46
5ND	E16000085	County Durham PCT	199	54	145	39	21	55
5J9	E16000041	Darlington PCT	22	*	*	21	*	*
5KF	E16000050	Gateshead PCT	51	15	36	25	15	35
5D9	E16000019	Hartlepool PCT	29	7	22	31	16	46
5KM	E16000053	Middlesbrough PCT	36	13	23	26	19	33
5D7	E16000017	Newcastle PCT	48	11	37	17	8	27
5D8	E16000018	North Tyneside PCT	58	12	46	29	12	44
TAC	E17000001	Northumberland Care Trust	61	19	42	19	12	26
5QR	E16000146	Redcar & Cleveland PCT	28	*	*	21	*	*
5KG	E16000051	South Tyneside PCT	55	12	43	37	17	56
5E1	E16000020	Stockton-On-Tees Teaching PCT	83	19	64	43	20	66
5KL	E16000052	Sunderland Teaching PCT	135	22	113	49	16	80
Q31	E18000002	North West	457	144	313	6	4	9
5HG	E16000032	Ashton, Leigh & Wigan PCT	*	*	*	*	*	*
TAP	E17000006	Blackburn with Darwen Teaching Care Trust Plus	*	*	*	*	*	*
5HP	E16000033	Blackpool PCT	6	*	*	4	*	*
5HQ	E16000148	Bolton PCT	19	*	*	7	*	*
5JX	E16000043	Bury PCT	31	10	21	17	11	22
5NP	E16000095	Central & Eastern Cheshire PCT	11	*	*	2	*	*
5NG	E16000088	Central Lancashire PCT	9	*	*	2	*	*
5NE	E16000086	Cumbria PCT	12	*	*	2	*	*
5NH	E16000089	East Lancashire PCT	14	*	*	4	*	*
5NM	E16000093	Halton & St. Helens PCT	37	12	25	12	8	16
5NQ	E16000096	Heywood, Middleton & Rochdale PCT	13	7	6	6	7	6
5J4	E16000038	Knowsley PCT	29	*	*	20	*	*
5NL	E16000092	Liverpool PCT	48	14	34	10	6	14
5NT	E16000149	Manchester PCT	37	12	25	7	5	10
5NF	E16000087	North Lancashire PCT	*	*	*	*	*	*
5J5	E16000039	Oldham PCT	10	*	*	4	*	*
5F5	E16000025	Salford PCT	27	8	19	12	7	16
5NJ	E16000090	Sefton PCT	30	12	18	11	9	13
5F7	E16000026	Stockport PCT	*	*	*	*	*	*
5LH	E16000062	Tameside & Glossop PCT	47	11	36	19	9	28
5NR	E16000097	Trafford PCT	16	6	10	7	5	9
5J2	E16000037	Warrington PCT	9	*	*	4	*	*
5NN	E16000094	Western Cheshire PCT	25	10	15	11	9	12
5NK	E16000091	Wirral PCT	28	11	17	9	7	10
Q32	E18000003	Yorkshire and the Humber	826	207	619	16	8	23
5JE	E16000042	Barnsley PCT	82	25	57	35	22	48
5NY	E16000102	Bradford & Airedale PCT	95	28	67	18	11	25
5J6	E16000040	Calderdale PCT	*	*	*	*	*	*
5N5	E16000078	Doncaster PCT	72	21	51	24	14	33
5NW	E16000100	East Riding of Yorkshire PCT	18	7	11	5	4	6
5NX	E16000101	Hull PCT	*	*	*	*	*	*
5N2	E16000075	Kirklees PCT	27	10	17	6	5	8
5N1	E16000074	Leeds PCT	115	21	94	15	6	25
TAN	E17000005	North East Lincolnshire PCT	28	7	21	17	9	26
5EF	E16000021	North Lincolnshire PCT	51	10	41	31	12	49
5NV	E16000099	North Yorkshire & York PCT	101	28	73	13	7	18
5H8	E16000031	Rotherham PCT	66	12	54	26	9	41
5N4	E16000077	Sheffield PCT	53	12	41	10	4	15
5N3	E16000076	Wakefield District PCT	99	23	76	30	14	46
Q33	E18000004	East Midlands	1,616	302	1,314	36	14	57
5ET	E16000023	Bassetlaw PCT	47	*	*	42	*	*
5N7	E16000080	Derby City PCT	200	45	155	80	37	123
5N6	E16000079	Derbyshire County PCT	345	43	302	47	12	81
5PC	E16000113	Leicester City PCT	21	*	*	6	*	*
5PA	E16000112	Leicestershire County & Rutland PCT	88	20	68	13	6	20
5N9	E16000082	Lincolnshire PCT	324	61	263	45	17	72
5PD	E16000114	Northampton PCT	89	27	62	13	8	18
5EM	E16000022	Nottingham City PCT	138	25	113	45	16	75
5N8	E16000081	Nottinghamshire County PCT	353	67	286	52	20	83

Table 7.8 Finished Consultant Episodes with a primary diagnosis of obesity and a main or secondary procedure of 'Bariatric Surgery' by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12 - Continued

England			Numbers					
			Finished Consultant Episodes			Finished Consultant Episodes per 100,000 of population		
			Total	Male	Female	Total	Male	Female
England			8,794	2,081	6,711	17	8	25
Q34	E18000005	West Midlands	749	203	546	13	7	19
5PG	E16000117	Birmingham East & North PCT	40	12	28	9	6	13
5MD	E16000070	Coventry Teaching PCT	33	*	*	10	*	*
5PE	E16000115	Dudley PCT	68	27	41	22	18	26
5MX	E16000073	Heart of Birmingham Teaching PCT	23	7	16	8	5	11
5CN	E16000015	Herefordshire PCT	16	*	*	9	*	*
5PH	E16000118	North Staffordshire PCT	35	11	24	16	10	22
5PF	E16000116	Sandwell PCT	91	23	68	29	15	43
5M2	E16000065	Shropshire County PCT	12	*	*	4	*	*
5QW	E17000004	Solihull PCT	6	*	*	3	*	*
5M1	E16000064	South Birmingham PCT	43	11	32	12	6	18
5PK	E16000120	South Staffordshire PCT	56	13	43	9	4	14
5PJ	E16000119	Stoke on Trent PCT	82	19	63	32	15	49
5MK	E16000071	Telford & Wrekin PCT	16	*	*	10	*	*
5M3	E16000066	Walsall Teaching PCT	49	14	35	18	11	26
5PM	E16000122	Warwickshire PCT	27	9	18	5	3	6
5MV	E16000072	Wolverhampton City PCT	90	23	67	36	19	53
5PL	E16000121	Worcestershire PCT	62	21	41	11	8	14
Q35	E18000006	East of England	465	157	308	8	5	10
5P2	E16000104	Bedfordshire PCT	21	10	11	5	5	5
5PP	E16000124	Cambridgeshire PCT	46	18	28	7	6	9
5PR	E16000126	Great Yarmouth & Waveney PCT	13	*	*	6	*	*
5QV	E16000150	Hertfordshire PCT	91	30	61	8	5	11
5GC	E16000029	Luton PCT	16	6	10	8	6	10
5PX	E16000130	Mid Essex PCT	15	7	8	4	4	4
5PQ	E16000125	Norfolk PCT	55	20	35	7	5	9
5PW	E16000129	North East Essex PCT	55	14	41	18	9	26
5PN	E16000123	Peterborough PCT	21	8	13	11	9	14
5P1	E16000103	South East Essex PCT	41	12	29	12	7	16
5PY	E16000131	South West Essex PCT	27	10	17	7	5	8
5PT	E16000127	Suffolk PCT	43	13	30	7	4	10
5PV	E16000128	West Essex PCT	21	*	*	7	*	*
Q36	E18000007	London	2,131	443	1,688	26	11	41
5C2	E16000009	Barking & Dagenham PCT	40	8	32	21	9	33
5A9	E16000006	Barnet PCT	95	21	74	27	12	40
TAK	E17000002	Bexley Care Trust	74	14	60	32	12	50
5K5	E16000045	Brent Teaching PCT	74	14	60	24	9	39
5A7	E16000004	Bromley PCT	99	27	72	32	18	45
5K7	E16000047	Camden PCT	65	10	55	30	9	49
5C3	E16000010	City & Hackney Teaching PCT	61	*	*	24	*	*
5K9	E16000049	Croydon PCT	103	22	81	28	12	43
5HX	E16000035	Ealing PCT	101	33	68	30	19	40
5C1	E16000008	Enfield PCT	28	12	16	9	8	10
5A8	E16000005	Greenwich Teaching PCT	82	17	65	32	13	51
5H1	E16000030	Hammersmith & Fulham PCT	77	24	53	42	27	57
5C9	E16000013	Haringey Teaching PCT	10	*	*	4	*	*
5K6	E16000046	Harrow PCT	50	12	38	21	10	31
5A4	E16000002	Havering PCT	19	9	10	8	8	8
5AT	E16000007	Hillingdon PCT	40	11	29	15	8	21
5HY	E16000036	Hounslow PCT	78	16	62	31	12	49
5K8	E16000048	Islington PCT	66	12	54	32	12	52
5LA	E16000056	Kensington & Chelsea PCT	47	12	35	30	15	44
5A5	E16000003	Kingston PCT	33	6	27	21	8	33
5LD	E16000058	Lambeth PCT	159	21	138	52	14	90
5LF	E16000060	Lewisham PCT	145	17	128	52	13	91
5C5	E16000012	Newham PCT	66	19	47	21	12	32
5NA	E16000083	Redbridge PCT	18	6	12	6	4	8
5M6	E16000067	Richmond & Twickenham PCT	26	7	19	14	8	20
5LE	E16000059	Southwark PCT	171	17	154	59	12	106
5M7	E16000068	Sutton & Merton PCT	104	23	81	27	12	41
5C4	E16000011	Tower Hamlets PCT	39	8	31	15	6	25
5NC	E16000084	Waltham Forest PCT	22	*	*	8	*	*
5LG	E16000061	Wandsworth PCT	67	10	57	22	7	36
5LC	E16000057	Westminster PCT	72	24	48	33	21	45

Table 7.8 Finished Consultant Episodes with a primary diagnosis of obesity and a main or secondary procedure of 'Bariatric Surgery' by Strategic Health Authority (SHA) of residence, Primary Care Trust (PCT) of residence and gender, 2011/12 - Continued

England				Numbers		
				Finished Consultant Episodes per 100,000 of population		
				Total	Male	Female
England				8,794	2,081	6,711
				17	8	25
Q37	E18000008	South East Coast		706	171	534
5LQ	E16000063	Brighton & Hove City PCT		58	14	44
5P7	E16000109	East Sussex Downs & Weald PCT		62	14	48
5QA	E16000132	Eastern & Coastal Kent PCT		144	35	109
5P8	E16000110	Hastings & Rother PCT		33	6	27
5L3	E16000055	Medway PCT		50	11	39
5P5	E16000107	Surrey PCT		129	40	89
5P9	E16000111	West Kent PCT		106	27	79
5P6	E16000108	West Sussex PCT		123	24	99
Q38	E18000009	South Central		446	132	314
5QG	E16000137	Berkshire East PCT		19	*	*
5QF	E16000136	Berkshire West PCT		51	16	35
5QD	E16000134	Buckinghamshire PCT		46	14	32
5QC	E16000133	Hampshire PCT		184	60	124
5QT	E16000147	Isle of Wight PCT		18	*	*
5CQ	E16000016	Milton Keynes PCT		40	9	31
5QE	E16000135	Oxfordshire PCT		25	*	*
5FE	E16000027	Portsmouth City Teaching PCT		29	11	18
5L1	E16000054	Southampton City PCT		33	11	22
Q39	E18000010	South West		593	127	465
5FL	E16000028	Bath & North East Somerset PCT		16	*	*
5QN	E16000143	Bournemouth & Poole PCT		31	10	21
5QJ	E16000139	Bristol PCT		27	*	*
5QP	E16000144	Cornwall & Isles Of Scilly PCT		61	10	51
5QQ	E16000145	Devon PCT		86	18	68
5QM	E16000142	Dorset PCT		23	7	16
5QH	E16000138	Gloucestershire PCT		38	7	31
5M8	E16000069	North Somerset PCT		12	*	*
5F1	E16000024	Plymouth Teaching PCT		56	18	38
5QL	E16000141	Somerset PCT		76	17	59
5A3	E16000001	South Gloucestershire PCT		18	*	*
5K3	E16000044	Swindon PCT		34	6	28
TAL	E17000003	Torbay Care Trust		11	*	*
5QK	E16000140	Wiltshire PCT		104	14	90

1. A finished consultant episode (FCE) is a continuous period of admitted patient care under one consultant within one healthcare provider. FCEs are counted against the year in which they end. Figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year.

2. The primary diagnosis is the first of up to 20 (14 from 2002-03 to 2006-07 and 7 prior to 2002-03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital.

3. ICD-10 Codes: E66 - Obesity.

4. These figures represent the number of episodes where the procedure (or intervention) was recorded in any of the 24 (12 from 2002/03 to 2006/07 and 4 prior to 2002/03) operative procedure fields in a Hospital Episode Statistics (HES) record. A record is only included once in each count, even if the procedure is recorded in more than one operative procedure field of the record. Please note that more procedures are carried out than episodes with a main or secondary procedure. For example, patients under going a 'cataract operation' would tend to have at least two procedures – removal of the faulty lens and the fitting of a new one – counted in a single episode.

5. The term 'bariatric surgery' is often used to define a group of procedures that can be performed to facilitate weight loss although these procedures can be performed for conditions other than weight loss. It includes stomach stapling, gastric bypasses and sleeve gastrectomy. The procedures for tables 7.12 and 7.13 show the defined range of procedures when a corresponding main diagnosis of Obesity (ICD10-E66) is also present. Definition of codes can be found in Appendix B.

6. All OPCS-4.2, OPCS-4.3, OPCS-4.4, OPCS-4.5 and OPCS-4.6 procedure codes used to define bariatric surgery are described in Appendix B.

7. Figures have not been adjusted for shortfalls in data.

8. Counts include people resident in English Strategic Health Authorities (SHA) only, including admissions where the SHA of residence was England but not further specified and excludes admissions where the SHA of residence was unknown.

9. Office for National Statistics (ONS estimated resident population mid-2011 figures have been used to calculate FCEs per 100,000 population. Information on ONS population data is available at:

<http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-england-and-wales/mid-2011-2011-census-based->

10. Totals include episodes where the gender was unknown.

11. * in this table means a figure between 1 and 5.

12. Practices vary between hospitals as to whether some bariatric procedures are carried out in outpatient or inpatient settings. This may particularly be the case for maintenance procedures. OPCS-4.5 introduced a specific code for maintenance of gastric band. OPCS-4.5 was introduced in 2009/10. Use of this code may have contributed to the increase seen from this year. The data presented in this report are for inpatients only, so may not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. See Appendix A for further detail on HES.

Source:

Hospital Episode Statistics (HES), Health and Social Care Information Centre.

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Table 7.9 Number of prescription items, net ingredient cost and average net ingredient cost per item of drugs for the treatment of obesity prescribed in Primary Care and dispensed in the community, 2000 to 2011

England	Thousands / £											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Prescription Items (thousands)												
Orlistat	156	415	540	484	492	645	774	827	848	1,080	1,087	898
Sibutramine	-	53	196	203	208	226	263	294	325	370	22	0
Rimonabant	-	-	-	-	-	-	23	112	106	-	0	0
Mazindol	-	-	-	-	-	-	-	-	-	-	-	0
Total	157	469	737	688	699	871	1,060	1,233	1,278	1,450	1,109	898
Net Ingredient Cost (£ 000)												
Orlistat	6,573	17,575	23,401	21,036	21,391	27,020	32,476	32,047	29,980	36,769	36,297	30,015
Sibutramine	-	2,030	7,752	8,458	9,314	10,984	13,654	13,093	9,595	10,024	595	1
Rimonabant	-	-	-	-	-	-	1,411	6,440	5,237	-	1	0
Mazindol	-	-	-	-	-	-	-	-	-	-	-	1
Total	6,613	19,659	31,203	29,532	30,706	38,004	47,541	51,580	44,812	46,793	36,892	30,017
Net Ingredient Cost per item (£)												
Orlistat	42	42	43	43	44	42	42	39	35	34	33	33
Sibutramine	-	38	39	42	45	49	52	45	30	27	27	31
Rimonabant	-	-	-	-	-	-	62	58	50	-	53	50
Mazindol	-	-	-	-	-	-	-	-	-	-	-	120
Total	42	42	42	43	44	44	45	42	35	32	33	33

1. Prescriptions are written on a prescription form known as a FP10. Each single item written on the form is counted as a prescription item.

2. Net Ingredient Cost (NIC) is the basic cost of a drug. It does not take account of discounts, dispensing costs, fees or prescription charge income.

3. This information was obtained from the Prescribing Analysis and Cost Tool (PACT) system, which covers prescriptions prescribed by GPs, nurses, pharmacists and others in England and dispensed in the community in the UK. Prescriptions written in hospitals /clinics that are dispensed in the community, prescriptions dispensed in hospitals, dental prescribing and private prescriptions are not included in PACT data.

4. Prescriptions written in England but dispensed outside England are included.

5. Rimonabant was only available on prescription from July 2006, therefore figures for Rimonabant in 2006 only reflect six months worth of data.

6. On 16th January 2009, the European Commission issued a decision to withdraw the marketing authorisation for Rimonabant (Acomplia) following an assessment of the benefits and risks of taking this medicine.

7. Up until 2007 'total' included other drugs that may be used to treat obesity which include Mazindol, Phentermine and Diethylpropion Hydrochloride.

8. On 21st January 2010, the European Medicines Agency (EMA) released a statement advising the suspension of sibutramine following a study which showed that there was an increased risk of non-fatal heart attacks and strokes outweighing the benefits of this weight loss drug. Therefore, data on Sibutramine will be limited for 2010.

Source:

Prescribing Analyses and Cost (PACT) from the Prescription Pricing Division of the NHS Business Services Authority (PPD of the NHS BSA). Health and Social Care

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Table 7.10 Number of prescription items of drugs for the treatment of obesity prescribed in Primary Care and dispensed in the community, by Strategic Health Authority (SHA), 2011

England

	Prescription Items (thousands)		(thousands) per 100,000 population	
	Total	Orlistat	Total	Orlistat
England	898	898	1.69	1.69
North East SHA	58	58	2.23	2.23
North West SHA	153	153	2.17	2.17
Yorkshire and the Humber SHA	111	111	2.10	2.10
East Midlands SHA	74	74	1.63	1.63
West Midlands SHA	103	103	1.84	1.84
East of England SHA	83	83	1.42	1.42
London SHA	137	137	1.67	1.67
South East Coast	63	63	1.41	1.41
South Central	41	41	0.99	0.99
South West SHA	73	73	1.37	1.37

1. Prescriptions are written on a prescription form known as a FP10. Each single item written on the form is counted as a prescription item.

2. This information was obtained from the Prescribing Analysis and Cost Tool (PACT) system, which covers prescriptions prescribed by GPs, nurses, pharmacists and others in England and dispensed in the community in the UK. Prescriptions written in hospitals /clinics that are dispensed in the community, prescriptions dispensed in hospitals, dental prescribing and private prescriptions are not included in PACT data.

3. For data at Strategic Health Authority (SHA) level, prescriptions written by a prescriber located in a particular SHA but dispensed outside that SHA will be included in the SHA in which the prescriber is based.

4. Prescriptions written in England but dispensed outside England are included.

used to calculate prescription items per 100,000 population. Information on ONS population data is available at:

<http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-england-and-wales/mid-2011--2011-census-based-/index.html>

6. The 'Total' column includes Sibutramine which is not shown separately due to limited data for 2010 and may not equal the sum of the individual drugs due to rounding.

7. The England figures include an unidentified Doctors element (where it is not possible for the Prescription Pricing Division of the Business Service Authority to allocate to a SHA).

Source:

Services Authority (PPD of the NHS BSA). Health and Social Care Information Centre, Lifestyles Statistics.

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Appendix A: Key sources

Active People Survey

Allied Dunbar National Fitness Survey

Foresight Tackling Obesities: Future Choices – Project report

Health Survey for England

Hospital Episode Statistics

Living Costs and Food Survey

Low Income Diet and Nutrition Survey

National Diet and Nutrition Survey

National Travel Survey

Organisation for Economic Co-operation and Development (OECD) Health Data 2012

Prescription Pricing Division

Quality Outcomes Framework

School Meals Research Project

School Sport Survey

PE and Sport Survey

Tackling obesity in England

Taking Part Survey

Most of the sources referred to in this publication are National Statistics. National Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. It is a statutory requirement that National Statistics should observe the Code of Practice for Official Statistics. The United Kingdom Statistics Authority (UKSA) assesses all National Statistics for compliance with the Code of Practice.

Some of the statistics included in this publication are not National Statistics and are included here to provide a fuller picture; some of these are Official Statistics, whilst others are neither National Statistics nor Official Statistics. Those which are Official Statistics should still conform to the Code of Practice for Official Statistics, although this is not a statutory requirement. Those that are neither National Statistics nor Official Statistics may not conform to the Code of Practice for Official Statistics. Unless otherwise stated, all sources contained within this publication are considered robust. A brief explanation and short review of the quality of each of the sets of statistics used in this publication are provided below.

Active People Survey

The Active People Survey (APS) is the largest ever survey of sport and active recreation to be undertaken in Europe. The APS, first conducted by Ipsos MORI on behalf of Sport England, started on the 15th October 2005 and was completed on 16th October 2006. The sample was evenly divided over each month and spread across the whole year for each LA to ensure the results are not biased by variations associated with different seasons.

Due to the success of the Active People Survey 2005/06, Sport England repeated the survey and plan to run it as a continuous survey. The latest APS started in the middle of October 2011 and ran for twelve months until mid October 2012. Headline results were published in December 2012.

The primary objective of the APS is to measure levels of participation in sport and active recreation and its contribution to improving the health of the nation. Sport and active recreation includes walking and cycling for recreation in addition to more traditional formal and informal sports. When measuring sports participation the survey were concerned with not only the type of activity but also the frequency, intensity and duration.

Data from the APS is described in [Chapter 4](#) (Physical activity among adults).

The latest report, Active People Survey 2011/12 Headline results. Available at:

http://www.sportengland.org/research/active_people_survey/active_people_survey_6.aspx

Since 2009, the Active People Survey provides Official Statistics under the Statistics and Regulations Act 2007

Allied Dunbar National Fitness Survey

The survey was designed to measure the activity and fitness levels of the adult population (aged 16 and over) in England. A representative sample of 6,000 adults was selected at random throughout the country. The fieldwork was carried out between February and November 1990. A total of 4,316 people completed the home interview stage - a response rate of 75%. Seventy per cent of those interviewed took part in a physical appraisal with 62% attending for tests at a specially equipped mobile laboratory and 8%, primarily the elderly and infirm, being tested on a recurred set of measurements in their homes.

Many aspects of behaviour, attitudes and beliefs were measured in the home interview. These included:

- Levels of participation in sport and active recreation, current and past, including access to facilities and barriers to participation;
- Physical activity at work, in housework, DIY and gardening and in moving about, that is walking, cycling and stair-climbing;
- Other lifestyle and health-related behaviour, including smoking, alcohol and dietary habits;
- Current health status and history of illness;
- Sports-related injuries;
- Knowledge about exercise and attitudes towards physical activity, fitness and health;
- Psychological variables including well-being, social support, stress and anxiety.

Information on the Allied Dunbar National Fitness Survey can be found in [Chapter 4](#) (Physical activity among adults).

Allied Dunbar National Fitness Survey. Available at:

<http://www.esds.ac.uk/findingData/snDescription.asp?sn=3303>

Foresight Tackling Obesities: Future Choices – Project report

One of the Foresight programmes based in the Government Office for Science. The report considers how society might deliver a sustainable response to obesity in the UK over the next 40 years. One objective of the project was to analyse how future levels of obesity might change and to identify the most effective future responses. The report presents key messages and implications for the UK. These are based on an extensive analysis of a wide range of evidence, including several commissioned evidence reviews, a systems analysis of the primary determinants of obesity, scenarios of possible futures and a quantitative model of future trends in obesity and associated diseases.

To achieve this aim Foresight commissioned a model which utilises the dataset of the Health Survey for England from 1994 to 2004 and employs extrapolation and microsimulation techniques to predict the distribution of people across various BMI categories, to 2050. The report also models current and future costs of obesity and obesity related diseases to the NHS. Foresight used the 2002 Health Select Committee's findings and uses £1 billion as the baseline for obesity attributable healthcare costs in the modeling exercise. The model used forecasted costs solely on the basis of anticipated additional morbidity arising from the increasing prevalence of obesity. Factors other than BMI, including costs of disease were fixed at current levels.

Data used from this report are presented in [Chapters 2 and 3](#) (Obesity among adults and children).

Tackling Obesities: Future Choices 2nd Edition – Modelling Future Trends in Obesity and Their Impact on Health. Foresight, Government Office for Science, 2007. Available at:

<http://www.bis.gov.uk/assets/bispartners/foresight/docs/obesity/17.pdf>

Health Survey for England

The Health Survey for England (HSE) is an annual survey, monitoring the health of the population which is currently commissioned by the Health and Social Care Information Centre (HSCIC), and before April 2005 was commissioned by the Department of Health. The HSE has been designed and carried out since 1994 by the Joint Health Surveys Unit of the National Centre for Social Research (NatCen) and the Department of Epidemiology and Public Health at the Royal Free and University College Medical School (UCL). All surveys have covered the adult population aged 16 and over living in private households in England. Since 1995, the surveys have also covered children aged two to 15 living in households selected for the survey, and since 2001 infants aged under two have been included as well as older children. Trend tables are also published each year updating key trends on a number of health areas.

Each survey in the series includes core questions and measurements such as blood pressure, anthropometric measurements and analysis of saliva and urine samples, as well as modules of questions on specific issues that vary from year to year. In recent years, the core sample has also been augmented by an additional boosted sample from a specific population subgroup, such as minority ethnic groups, older people or, as in 2006, 2007 and 2008, children.

This statistical report mainly uses data from HSE 2011. When referring to chapters on physical activity and fitness ([Chapters 4 and 5](#)) however, we have referred to the 2008 HSE report as this was the last time the HSE had a primary focus in this area. The next HSE report to have a primary focus on physical activity and fitness will be the 2012 report expected to be published in December 2013.

The 2008 report also investigated associated lifestyle factors such as diet, smoking and drinking, and also assessed the immediate impact of the smoking ban in public places introduced in England in July 2007 as a secondary focus.

This report contains data and information from different HSE years. This is to provide the most current information for the general population that was available at the time of publishing. Where possible, data has been used from the HSE 2011, however there are some restrictions to this. For further details of the HSE data used please see [Appendix B \(Technical notes\)](#).

In 1999, the survey concentrated on the health of adults in six minority ethnic groups: Black Caribbean, Indian, Pakistani, Bangladeshi, Chinese and Irish. In 2004, the survey once again investigated the health of minority ethnic groups; the category of Black African was added to the six groups in the 1999 survey. Some information from the HSE 04 is included in [Chapter 2](#) (Obesity among adults).

Non-response weighting was introduced to the HSE in 2003, and has been used in all subsequent years. Both weighted and unweighted bases are given in each table. The unweighted bases show the number of participants involved. The weighted bases show the relative sizes of the various sample elements after weighting, reflecting their proportions in the English population, so that data from different columns can be combined in their correct proportions. The absolute size of the weighted bases has no particular significance, since they have been scaled to the achieved sample size.

Since 1995, children's data each year have been weighted to adjust for the probability of selection, since a maximum of two children are selected in each household. This ensures that children from larger households are not under-represented. Since 2003, non-response weighting has also been applied in addition to selection weighting.

Data from the HSE are used in [Chapters 2, 3, 4, 5, 6 and 7](#).

Health Survey for England – 2011: Respiratory Health, available at:

Main report:

www.ic.nhs.uk/pubs/hse11report

Trend tables:

www.ic.nhs.uk/pubs/hse11trends

The Health Survey for England 2008: Physical Activity and Fitness. Available at:

Main report:

www.ic.nhs.uk/pubs/hse08physicalactivity

Trend tables:

www.ic.nhs.uk/pubs/hse08trends

The Health Survey for England is a National Statistic.

Hospital Episode Statistics

Hospital Episode Statistics (HES) is a data warehouse containing details of all admissions to NHS hospitals in England. NHS hospital admissions in England have been recorded using the HES system since April 1987. It includes private patients treated in NHS hospitals, patients who were resident outside of England and care delivered by treatment centres (including those in the independent sector) funded by the NHS. HES also contains details of all NHS outpatient appointments in England as well as detailed records of attendances at major A&E departments, single specialty A&E departments, minor injury units and walk-in centres in England. HES data is available from 1989-90 onwards. During this time there have been ongoing improvements in data quality and coverage, which particularly affect earlier data years. As well as this, there have been a number of changes to the classifications used within HES records. Changes have also been made to the organisation of the NHS. Figures have not been adjusted for shortfalls in data (i.e. the data are ungrossed)

HES data are classified using International Classification of Diseases (ICD). The ICD is the international standard diagnostic classification for all general epidemiological and many health management purposes. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and hospital records. The International Classification of Diseases, Tenth Revision (ICD-10), published by the World Health Organisation (WHO) is currently in use.

A finished admission episode (FAE) is the first period of inpatient care under one consultant within one healthcare provider. Finished admission episodes are counted against the year in which the admission episode finishes. Please note that admissions do not represent the number of inpatients, as a person may have more than one admission within the year.

The primary diagnosis is the first of up to 20 (14 from 2002-03 to 2006-07 and 7 prior to 2002-03) diagnosis fields in the Hospital Episode Statistics (HES) data set and provides the main reason why the patient was admitted to hospital. As well as the primary diagnosis, there are up to 19 (13 from 2002-03 to 2006-07 and 6 prior to 2002-03) secondary diagnosis fields in Hospital Episode Statistics (HES) that show other diagnoses relevant to the episode of care.

Data from HES used in the report show Finished Admission Episodes with a primary diagnosis or secondary diagnosis of obesity. Within HES, diagnoses are recorded using International Classification of Diseases (ICD) codes. From the financial year beginning April 1995 onwards these were classified using the tenth revision of ICD (ICD-10). Details of ICD-10 codes used are included in [Tables 7.1 to 7.8](#). The primary diagnosis is defined as the main condition treated or investigated during the relevant episode of healthcare.

HES data used in [Table 7.7](#) and [7.8](#) show the number of Finished Consultant Episodes (FCEs) for “bariatric surgery”. The term “bariatric surgery” is often used to define a group of procedures that can be performed to facilitate weight loss although these procedures can be performed for conditions other than weight loss. It includes stomach stapling, gastric bypasses and sleeve gastrectomy. An FCE is a period of care under one consultant and patients may experience more than one FCE in a single hospital admission. The figures do not represent the number of patients, as a person may have more than one episode of care within the year or more than one episode of care within a visit to hospital. Bariatric surgery procedures identified using a primary diagnosis of obesity and a main or secondary procedure code for bariatric surgery. Within HES, procedures and interventions are recorded using the Office of Population, Censuses and Surveys: Classification of Interventions and Procedures, 4th Revision (OPCS-4) codes. OPCS-4.2 were used to identify bariatric surgery

procedure codes between the years 1996/97 to 2005/06 and OPCS-4.3 codes were used for 2006/07, OPCS-4.4 codes were used for 2007/08 and 2008/09, OPCS-4.5 codes were used for 2009/10 and OPCS-4.6 codes were used for 2011/12 and 2010/11, however there were no changes to the codes used to define bariatric surgery between OPCS-4.3 and OPCS-4.4. Details of the OPCS-4.6 codes used are included in [Appendix B](#). The main procedure is usually the most resource intensive procedure performed during the episode.

HES data are shown in [Chapter 7](#) (Health outcomes).

Living Costs and Food Survey (LCF), formerly Expenditure and Food Survey (EFS)

The LCF collects information on the type and quantity of food and drink purchased in households. The LCF was previously known as the *Expenditure and Food Survey (EFS)*. It was renamed in 2008 when it became a module of the *Integrated Household Survey (IHS)*.

The Expenditure and Food Survey (EFS) was created in 2001 to replace the National Food Survey (NFS) and the Family Expenditure Survey (FES). The EFS provides data on spending and food purchases since the 1950s. Each household member over the age of seven kept a diary of all their expenditure and quantities of purchased food and drink over a two week period.

Historical estimates of household purchases between 1974 and 2000 have been adjusted to align with the level of estimates from the FES in 2000. Whilst estimates of household consumption from the NFS have been adjusted, a break in the series between 2000 and 2001 remains and should be borne in mind when interpreting reported changes before and after this period.

The aligned estimates are generally higher than the original ones and indicate that the scaling has partially corrected for under-reporting in the NFS. Under-reporting may be lower in the EFS because it does not focus on consumption but on expenditure across the board and is largely based on till receipts.

Reliable estimates on food and drink eaten out from the EFS start in 2001/02, less reliable estimates are available from the NFS going back to 1994.

LFC is the data source for two publications, Family Food, published by the Department for Environment, Food and Rural Affairs and Family Spending, published by the Office for National Statistics.

[Chapter 6](#) (Diet) of this report presents data published in Family Food using the LFC. Throughout the chapter figures used prior to 2001/02 are adjusted NFS estimates. The adjustments brought the results of the NFS into line with the EFS, and tended to increase estimates of food and drink purchases. The largest adjustments were for confectionery, alcoholic drinks, beverages and sugar and preserves. Adjustments for eggs and carcass meat resulted in reduced NFS estimates. Details of the adjustments to the NFS estimates can be found in Family Food 2002/03.

In 2005/06 significant revisions were made affecting estimates from 2001/02 to 2004/05. The revisions introduce estimates of free food into both eating out and household food and quantity and nutrient content for a range of unspecified food purchases which are estimated based on averages of

other food purchases recorded in the survey. Examples of free food estimates now included in the survey are meals on wheels, free welfare milk in the home, free milk, fruit and vegetables provided by schools, free meals provided by schools and employers, food purchased for business that is paid for by employer and buffet meals where items are not specified (such as Indian, Chinese, salad bar etc).

In 2006 the survey moved from a financial year to a calendar year basis in preparation for its integration to the Integrated Household Survey in January 2008. As a consequence there is an overlap of results, data collected between January 2006 and March 2006 are included in the 2005/06 results and the 2006 results. Where the report looks at 3 year averages and 4 year trends this duplication of data has been removed.

As this survey collects information on purchases, consumption is approximated using a wastage estimate. Purchases may differ from actual food consumption for a number of reasons e.g. food may be discarded during preparation, food maybe left on the plate at the end of a meal or food may become inedible before it can be consumed and is thrown away. When average intakes are compared with reference nutrient intakes, a figure of 10% is used for wastage on all types of food and drink. Trends in energy and nutrient content of the purchases are based on a database of nutrient profiles for different types of food which are kept up to date by the Food Standards Agency.

Data from the latest Family Food and LCF can be found in [Chapter 6](#) (Diet).

Expenditure and Food Survey. Available at:

<http://www.esds.ac.uk/government/efs/>

Family Food 2011, Department for Environment, Food and Rural Affairs, 2012. Available at:

<http://www.defra.gov.uk/statistics/foodfarm/food/familyfood/>

Family Spending. Available at:

<http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=361>

Family Food conforms fully to National Statistics Standards.

National Diet and Nutrition Survey (NDNS)

The National Diet and Nutrition Survey (NDNS) programme aims to provide a comprehensive picture of the dietary habits and nutritional status of the population of the Britain. In its original form the NDNS was a series of cross-sectional surveys covering the whole population from age 1½ years upwards, split into four different population age groups: children aged 1½ to 4½ years (fieldwork 1992/93), young people aged 4 to 18 years (1997), adults aged 19 to 64 years (2000/01) and people 65 years and over (1994/95).

Following a review of the Food Standards Agency's dietary survey programme in 2002/03 the NDNS has now moved to a rolling programme in which the survey will run continuously with fieldwork every year, (which started in 2008) covering a UK representative sample of both adults and children. This will strengthen the ability to track changes over time and give flexibility to respond more rapidly to changing data requirements

In July 2012, the Department of Health published the combined results from the first three years of the National Diet and Nutrition Survey (NDNS) rolling programme (2008/09 -2010/11). These results supersede the results from the first two years of the survey combined, published in 2011.

Data from the NDNS are essential for underpinning a wide range of the Food Standards Agency's work to protect consumer safety and promote healthy diets. The survey provides detailed data on foods consumed by individuals and nutrient intakes with additional information on nutritional status (derived from analysis of blood samples), physical measurements and lifestyle habits such as smoking, drinking and physical activity.

The components of the survey

The survey includes various components (described below) in order to obtain the wide range of information required. Respondents may choose to participate in some components but not in others. The components of the most recent NDNS of adults aged 19-64 years are described below.

Dietary interview

Initially a face-to-face dietary interview was carried out with the household member selected to take part in the survey (the respondent), to provide information about their eating and drinking habits, their socio-demographic circumstances (e.g. age and marital status) and the socio-demographic circumstances of their household (e.g. benefit status).

Seven-day weighed intake dietary record

Respondents were also invited to complete a dietary record for seven days. This involved weighing and recording all food and drink consumed both at home and away from home, including medicines taken by mouth and drinks of water. The dietary record collected detailed information in order to look at the range of food consumption and nutrient intake within the population. Food and nutrient intake data could also be related to physical activity and various nutritional status and health measures.

Other components

These included a 24-hour urine collection (used to estimate salt intake); physical measurements (BMI, blood pressure and waist and hip circumferences); a seven-day physical activity record (to allow an investigation of the relationships between dietary intakes, body composition and physical activity levels); and a blood sample (which was analysed for a range of nutritional status indicators which reflect the levels of certain nutrients available for use in the body).

The information from the dietary record was linked to a nutrient databank and nutrient intakes were calculated from the quantities of foods consumed. No attempt has been made to adjust the nutrient intakes presented here to take account of underreporting.

Data from the NDNS can be found in [Chapter 6](#) (Diet).

National Diet Nutrition Survey: headline results from years 1, 2 and 3 (combined) of the rolling programme (2008/2009 – 2010/2011), Department of Health, 2012. Available at: <http://transparency.dh.gov.uk/2012/07/25/ndns-3-years-report/>

National Diet and Nutrition Survey: adults aged 19-64 years. available at: <http://www.ons.gov.uk/ons/about-ons/surveys/social-surveys/our-publications/health-and-care/national-diet---nutrition-survey---adults-aged-19-to-64-years/index.html>

National Diet and Nutrition Survey: young people aged 4 to 18 years. The Food Standards Agency, 2000. Available at:

<http://www.ons.gov.uk/ons/about-ons/surveys/social-surveys/our-publications/health-and-care/national-diet---nutrition-survey---children-aged-4-to-18-years/index.html>

Issues associated with reporting food consumption in dietary surveys

Mis-reporting of food consumption in dietary surveys, generally under-reporting, is known to be a problem in dietary surveys worldwide. Under-reporting can cause biased low estimates of intake as respondents under-report their actual intake or modify their diet during the recording period. The level of under-reporting needs to be borne in mind when interpreting findings from dietary surveys, for example in comparing intakes with recommendations. Analysis of data from the NDNS adults 2000/01 indicated that energy intake could be under-reported by about 25%. It is not possible to ascertain whether under-reporting was higher in this survey than in the 1986/87 survey because there was no assessment of physical activity or energy expenditure in the earlier survey. Doubly labelled water studies suggest similar levels of under-reporting for other age groups except for pre-school children where levels were lower. There is evidence that under-reporting is selective – fatty, sugary and snack foods and alcohol are more likely to be under-reported than are other foods such as fruit and vegetables. However the level of under-reporting for specific macro and micronutrients is not known.

The National Diet and Nutrition Survey is an official statistic.

National Travel Survey

The National Travel Survey (NTS) is a survey on personal travel. It provides the Department for Transport, Local Government and the Regions (DTLR) with data to answer a variety of policy and transport research questions. The 2011 NTS is the latest in a series of household surveys designed to provide a databank of personal travel information for Great Britain. It is part of a continuous survey that began in July 1988, following ad hoc surveys since the mid-1960s. The survey is designed to identify long-term trends and is not suitable for monitoring short-term trends.

NTS respondents keep a travel diary of their trips within Great Britain over a seven day period. Travel details provided by respondents include trip purpose, method of travel, time of day and trip length. The households also provided personal information, such as their age, gender, working status and driving licence holding, and details of the cars available for their use. In order to minimise the burden of completing the diaries respondents include walks of under one mile on the seventh day only, but all tables in this publication include data on short walks (over 50 yards) grossed up for the full seven day period.

The National Travel Survey 2011. The Department for Transport, 2012. Available at:

<https://www.gov.uk/government/organisations/department-for-transport/series/national-travel-survey-statistics>

This is a National Statistic.

Organisation for Economic Co-operation and Development (OECD) Health Data 2012 – Frequently Requested Data

Released during November 2012, this report offers the most comprehensive source of comparable statistics on health and health systems across OECD countries. It is an essential tool for health researchers and policy advisors in governments, the private sector and the academic community, to carry out comparative analyses and draw lessons from international comparisons of diverse health care systems.

Data from this report can be found in [Chapter 2](#) (Obesity among adults) and in [Chapter 3](#) (Obesity among children).

Health at a Glance 2012. Organisation for Economic Co-operation and Development, 2012. Available at:

<http://www.oecd.org/els/healthpoliciesanddata/HealthAtAGlanceEurope2012.pdf>

Definitions. Sources and Methods can be found at:

<http://www.oecd.org/els/healthpoliciesanddata/TableofContentMetadataOECDHealthData2012.pdf>

Prescription Pricing Division

Prescription statistics in this report are for calendar years. All prescription statistics in this report are based on information systems at the NHS Business Services Authority Prescription Pricing Division (NHSBSA (PPD)). The system used is the Prescription Analysis and Cost Tool (PACT). This system is based on an analysis of all prescriptions dispensed in the community, i.e. by community pharmacists and appliance contractors, dispensing doctors, and prescriptions submitted by doctors for items personally administered.

Each item written on the prescription form (FP10) is counted a single prescription item regardless of the quantity prescribed. Therefore differences in prescribing practices between GPs are not reflected in this data. The counts include items that are prescribed by GPs, nurses, pharmacists and others in England and then subsequently dispensed in the community. Therefore prescriptions that are written but not actually dispensed to the patient (or their representative) are not counted. Prescriptions written in hospitals or clinics that are dispensed in the community, prescriptions dispensed in hospitals, dental prescribing and private prescriptions are also not included.

Data from the Prescription Pricing Division can be found in [Chapter 7](#) (Health outcomes).

Quality and Outcomes Framework

The Quality and Outcomes Framework (QOF) was introduced as part of the new General Medical Services (GMS) contract on 1 April 2004. It is a voluntary annual reward and incentive programme for all GP surgeries in England, detailing practice achievement results. The QOF contains four main components, known as domains. Each domain consists of a set of measures of achievement, known as indicators, against which practices score points according to their level of achievement

QOF is measured by QMAS, a national IT system developed by NHS Connecting for Health (CfH). It is not a comprehensive source of data on quality of care in general practice, but it is potentially a rich and valuable source of such information, providing the limitations of the data are acknowledged. The Prescribing Support Unit (PSU), part of the Health and Social Care Information Centre, works on behalf of the Department of Health and in collaboration with CfH to obtain extracts from QMAS to support the publication of QOF information.

QMAS captures the number of patients on the clinical register for each practice. The number of patients on the clinical registers can be used to calculate measures of disease prevalence expressing the number of patients on each register as a percentage of the number of patients on each practice lists.

Data from the QMAS database can be found in [Chapter 2](#) (Obesity among adults).

Quality and Outcomes Framework Information. Available at:

<http://www.ic.nhs.uk/statistics-and-data-collections/audits-and-performance/the-quality-and-outcomes-framework>

This is an Official Statistic

School Meals Research Project

In 2001 National Nutritional Standards were reintroduced to set out the frequency with which school caterers must provide items from the main food groups. The Department for Education and Skills (DfES) and the Food Standards Agency (FSA) commissioned a survey in 2003 to assess compliance with the standards and to measure food consumption in school among secondary school pupils. The survey was conducted in a nationally representative sample of 79 secondary schools across England providing information about catering practise and food provisions at lunchtime and information about the food selections and nutrient intake of 5,695 secondary school pupils aged 11 to 18.

This document is referred to in [Chapter 6](#) on Diet.

School Meals in Secondary Schools in England. Available at:

<http://www.food.gov.uk/science/dietarysurveys/primaryschoolmeals>

School Sport Survey

The Department for Education (DfE, formerly Department for Children, Schools and Families (DCSF)) commissioned Target Nutrient Specifications (TNS), an independent research company, to conduct the fifth and final annual survey of school sport in England covering the academic year 2007/08. The survey aimed to collect information about levels of participation in physical education (PE) and school sport in partnership schools. In total, 21,631 schools within school sport partnerships took part in the survey between May 2008 and July 2008. The 2007/08 survey reported on what over 6 million school children are doing in terms of physical activity. The survey is the largest of its kind in Europe.

School sports partnerships bring primary, special and secondary schools together in a network benefiting from extra staff and funding to increase sports opportunities for pupils. At the time of the 2007/08 survey 90% of pupils in schools within the School Sport Partnership programme participated in at least two hours of high quality PE and out of hours school sport in a typical week. This compared to 86% in 2006/07, 80% in 2005/06, 62% in 2003/04 and the estimated position of 25% in 2002.

The 2007/08 School Sport Survey. Available at:

<http://publications.dcsf.gov.uk/default.aspx?PageFunction=productdetails&PageMode=publications&ProductId=DCSF-RW063&>

PE and Sport Survey

In 2008/09 TNS-BMRB (formerly TNS), an independent research company, was commissioned to conduct a further survey of school sport and to provide a consistent dataset to help understand further progress that has been made within partnership schools. The latest 2009/10 survey continued in its aims to collect information from all partnership schools in the mainstream sector in England and from all Further Education (FE) colleges. Information was collected on the proportion of pupils receiving 2 hours of curriculum PE and the proportion of pupils participating in at least 3 hours of PE and school sport.

Data from the School Sport Survey can be found in [Chapter 5](#) (Physical activity among children).

The PE and School Sport Survey 2009/10 is available at:

<http://www.education.gov.uk/publications/RSG/publicationDetail/Page1/DFE-RR032>

This is an official statistic.

Tackling obesity in England

In 2001, the National Audit Office (NAO) produced this report which among other subjects, estimated the cost of treating obesity. Costs of obesity were estimated by taking a prevalence-based, cost of illness approach based on extensive literature review and using published data. The cost of treating obesity covers the costs of GP consultations related to obesity, hospital admissions and outpatient attendances and drugs prescribed to help obese patients lose weight. The most recent published data on incidence of these events in England was multiplied by unit costs to calculate a total cost. Prescription costs for obesity were taken from Prescription Cost Analyses reports for England.

The cost of treating the consequences of obesity covered the cost of treating diseases such as coronary heart disease which can be directly attributed to obesity. The cost of treating these diseases was estimated by calculating the relevant population risk proportion. A systematic review of literature was undertaken to establish for each disease, the best data available on the proportion of that disease in the population that was attributable to obesity. This proportion was defined by the relative risk of developing the associated diseases for individuals with obesity compared to the risk for non-obese individuals.

To establish the cost of treating associated diseases in 1998, data on GP consultation rates, hospital inpatient admissions and hospital outpatient attendances were obtained. These were multiplied by unit costs to derive an estimate of the NHS treatment costs for each disease. Prescription costs were taken from Prescription Cost Analyses reports for England. These cost estimates were then applied to the data on relative risk and age and sex specific prevalence of obesity from the HSE to give an estimate of the cost of treating the consequences of obesity.

Also, the cost of treating the consequences of obesity is likely to be under-estimated. There are a number of potentially important diseases that were excluded from the analyses because of the lack of data to allow an estimate of the proportion of treatment costs that could be attributed to obesity, for example, depression, hyper-lipidemia and back pain, because no studies were identified in the review that reported the relative risk for obese individuals of developing these conditions. Other limitations of the study are the differing definition of obesity in some of the studies (although no bias was determined), the application of the international studies to the UK population and the cost to other public organisations is not covered e.g. costs to social services.

Tackling Obesity in England. Available at:

www.nao.org.uk/publications/0001/tackling_obesity_in_england.aspx

Taking Part Survey

The Taking Part Survey collects data on many aspects of leisure, culture and sport in England, as well as an in-depth range of socio-demographic information on respondents.

The need for consistent, high quality national data on engagement with culture and sport led to DCMS and three partners ([Arts Council England](#), [English Heritage](#) and [Sport England](#)) commissioning the Taking Part survey, the first of its kind to provide data of this quality.

The DCMS' current Public Service Agreements (PSAs) have a significant focus on increasing participation in Arts, Sport, Museums and Heritage, particularly by a range of 'priority groups'. The TPS has now become the mechanism for monitoring progress against several of these targets.

Since mid-July 2005, BMRB Social Research (now integrated with TNS Social Research) has been conducting continuous face to face interviews with adults aged 16 or over living in private households in England

From January 2006, children aged 11-15 were included within the survey and in 2008/09, children aged 5-15 were surveyed.

Data from the Taking Part Survey are used in [Chapters 4 and 5](#) (Physical activity among adults and children).

The Taking Part 2011/12 Adult and Child Report, Statistical Release. Available at:

Main Report:

http://www.culture.gov.uk/images/research/Y7_Taking_Part_2011_12_Annual_Report_REVISED0812.pdf

This is a National Statistic.

Other related information:

Taking Part: The National Survey of Culture, Leisure and Sport – Final assessment of progress on PSA3: complete estimates from year three, 2007/08. Available at:

http://www.culture.gov.uk/reference_library/publications/5653.aspx

2007 Comprehensive Spending Review (PSA21 : indicator 6).

http://www.hm-treasury.gov.uk/pbr_csr07_psacommunities.htm

Appendix B: Technical notes

Overweight and obesity

Adults BMI

Children - UK National BMI percentile classification

Children - International Obesity Task Force (IOTF)

NICE guidance

Physical activity among adults

Activity types, frequency, duration, and intensity

Objective measures of physical activity - Accelerometry

Objective measures of physical activity - Summary activity levels

Objective measures of physical activity - Fitness

English, Scottish and Welsh comparisons among adults

Physical activity among children

Summary activity levels

Active sport

Diet and nutrition

Fruit and vegetable portions

Estimated Average Requirements and Reference Nutrient Intakes

Health Survey for England

Data collection and burden

Use of HSE data from different years

General Health Questionnaire GHQ12

Blood pressure

Equivalised household income quintiles

Logistic regression

Hospital Episode Statistics: coding for bariatric surgery

Overweight and obesity

Adults BMI

Overweight and obesity among adults is measured in the Health Survey for England (HSE) using Body Mass Index (BMI). The BMI is calculated by dividing weight in kilograms, by the square of the height in metres (kg/m²).

$$BMI = \frac{Weight(kg)}{Height^2(m^2)}$$

Adults are classified into the following BMI groups:

BMI range (kg/m ²)	Definition
Under 18.5	Underweight
18.5 to less than 25	Normal
25 to less than 30	Overweight
30 and over	Obese
40 and over	Morbidly obese
25 and over	Overweight including obese

Children

British 1990 growth reference percentiles

Due to differences in growth rates among boys and girls at each age, it is not possible to apply a universal formula in calculating obesity and overweight prevalence in children. Each sex and age group therefore needs its own level of classification for obesity. The British 1990 growth reference (UK90) percentiles is therefore used which gives a BMI threshold for each age above which a child is considered overweight or obese; those children whose BMI is above the 85th percentile are classified as overweight and those children whose BMI is above the 95th percentile are classified as obese. The percentiles are given for each sex and age. According to this method, 15% and 5% of children in 1990 had a BMI above this level and were thus classified as overweight/obese. Increases over 15% and 5% in the proportion of children who exceed the reference 85th/95th percentiles over time indicate an upward trend in the prevalence of overweight and obesity. Unless otherwise specified figures relating to the prevalence of childhood obesity in this report are determined by this method.

International Obesity Task Force (IOTF)

This is an alternative method of determining childhood obesity. It is based on BMI reference data from six different countries around the world (over 190,000 subjects in total aged 0 to 25 from UK, Brazil, Hong Kong, the Netherlands, Singapore, and the United States). The BMI percentile curves that pass through the values of 25kg/m² and 30 kg/m² (standard cut-off points for overweight and obesity, respectively) at age 18 were smoothed for each national dataset and then averaged. The averaged curves were then used to provide age and sex-specific BMI cut-off points for children and adolescents aged 2 to 18. The benefit of this approach is that it allows international comparisons of levels of obesity in children to be made. Figures derived using this method are discussed in [Chapter 3 \(Obesity among children\)](#) of this bulletin commenting upon results from Foresight: Tackling Obesities: Future Choices. For further information this report is available at:

<http://www.foresight.gov.uk/OurWork/ActiveProjects/Obesity/KeyInfo/Index.asp>

National Institute for Health and Clinical Excellence (NICE) guidance

NICE guidance suggests that the measurement of waist circumference should be used for people with a BMI less than 35kg/m² to assess health risks (as shown in the table below). For adults with a BMI of 35kg/m² or more, risks are assumed to be very high with any waist circumference.

Assessing risk from overweight and obesity

BMI classification	Waist circumference		
	Low	High	Very high
Normal weight	No increased risk	No increased risk	Increased risk
Overweight (25 to less than 30 kg/m ²)	No increased risk	Increased risk	High risk
Obesity I (30 to less than 35 kg/m ²)	Increased risk	High risk	Very high risk

For men, low waist circumference is defined as less than 94 cm, high as 94–102 cm, and very high as greater than 102 cm. For women, low waist circumference is less than 80 cm, high is 80–88 cm and very high as greater than 88 cm.

Source:

National Institute for Health and Clinical Excellence (NICE) guidelines

Further information on the NICE guidelines is available at: <http://www.nice.org.uk/guidance/CG43>

Physical activity among adults

The Health Survey for England (HSE) 2008 presented information on physical activity and fitness. Information on Adults' self-reported physical activity in the last four weeks was collected using an enhanced version of the HSE physical activity questionnaire, developed and tested in 2007. The physical activity module was first used in the HSE in 1991, repeated in 1992 to 1994 with minor changes, and received more substantial revisions in 1997 and 1998 (producing what is generally referred to as the 'long' version of the questionnaire). A 'shorter' version of the questionnaire was introduced in 1999, when the focus was minority ethnic groups; the shorter questionnaire was repeated in 2002, 2003 and 2004. In 2006, a slightly modified version of the long (1998) form of the questionnaire was used. In 2008, a new occupational physical activity set of questions were included within the questionnaire and additional questions on sedentary behaviour were also asked. To enable continuation of these trend data, the same methods for analysis were used in 2008, as well as the more detailed definition possible for 2008 using the enhanced questionnaire.

Activity types, frequency, duration, and intensity

Details about four main types of physical activity were included in the questionnaire. For most activities in which they had participated, respondents were asked on how many days in the last four weeks they had done the activity for at least 10 minutes, and the average length of time spent on those days.

1. Home activity consisted of housework and gardening/DIY/building that lasted 10 minutes or more. The lead-in question was 'Have you done any housework in the last four weeks?' Participants were shown a card with a list of examples of light housework and were asked if they had done any of the listed activities. They were then asked about heavy housework by showing another card with higher intensity activities, for which frequency was assessed. A similar sequence of questions was asked for gardening/DIY/building work. Frequency of light home activity (i.e. those activities listed in the first set of show cards) was not assessed.

2. Walks of 10 minutes or more. The key question was 'During the past four weeks, on how many days did you do a walk of least 10 minutes?' Walking intensity was assessed by asking participants to rate their usual walking pace (slow / average / fairly brisk / fast).

3. Sports and exercise activities that lasted 10 minutes or more. For sports and exercise activities in the four weeks prior to interview, participants were asked 'Can you tell me on how many separate

days did you do (name of specific sport and exercise activity) for at least 10 minutes at a time during the past four weeks...?', followed by a question about the activity's usual duration on these days. The intensity of these activities was assessed by asking participants whether or not the activity had made them 'out of breath or sweaty'.

4. Occupational activities that lasted 10 minutes or more. After establishing whether participants did any paid or unpaid work in the last four weeks, the key question was 'Which of these did you do whilst working? Sitting down or standing up; walking at work; climbing stairs or ladders; lifting, carrying or moving heavy loads', followed by a question about the time spent on that type of activity on these days. As in previous years, participants were also asked 'Thinking about your job in general would you say that you are...very physically active; fairly physically active; not very physically active; not at all physically active?'

Objective measures of physical activity

Accelerometry

Accelerometers provide objective information on the frequency, intensity, and duration of both physical activity and sedentary behaviour. Using an accelerometer to collect activity data has the advantages of being objective and providing standardised measures, unlike self-report of activity. Direct monitoring reduces recall bias and other problems of subjectivity.

Within the HSE 2008, a sub-sample of adults were asked to wear an accelerometer for the week following the completion of the questionnaire. Participants wore the monitor during waking hours and kept a record of activities when the monitor was not worn, for example while swimming.

Summary activity levels

At the time the HSE 2008 was written the Chief Medical Officer (CMO) physical activity guidelines recommended that adults should achieve a total of at least 30 minutes of at least moderate activity, either in one session or in multiple bouts of at least 10 minutes duration, on five or more days of the week. The CMO also recommended that at least twice a week this should include activities to improve bone health, muscle strength and flexibility¹. Moderate intensity activities have an energy cost of at least 5 kcal/min but less than 7.5 kcal/min and include heavy housework or gardening and sports which make the individual breathe heavily and become sweaty.

The summary activity level classification for both the self-reported and objective measures of physical activity for the HSE 2008 are as follows:

- **Meets recommendations:** 20 or more occasions of moderate or vigorous activity of at least 30 minutes duration in the last four weeks (i.e. at least five occasions per week on average). This category corresponds to the minimum activity level required to gain general health benefits (e.g. reduction in the relative risk for cardiovascular morbidity). However, it does not necessarily

¹ These recommendations have now been revised. The latest CMO guidelines for physical activity, published in July 2011 can be found here: http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_127931

indicate the extent of activity required for optimal cardiovascular fitness or for optimal weight control.

- **Some activity:** Four to 19 occasions of moderate or vigorous activity of at least 30 minutes duration in the last four weeks (i.e. at least one but fewer than five occasions per week on average).
- **Low activity:** Fewer than four occasions of moderate or vigorous activity of at least 30 minutes duration in the last four weeks (i.e. less than once per week on average).

For comparisons of summary activity levels over time, HSE 2008 self-report data have been analysed with the lower duration for activities set to 30 minutes, to be comparable with results obtained from the shorter questionnaire used in 2003 and 2004. 1997 and 1998 data were also reanalysed using this longer minimum duration, to enable data for the five years to be compared. In 2008 bouts of activity lasting at least 10 minutes counted towards meeting the recommendations. Therefore, three bouts of activity lasting at least 10 minutes each would be considered sufficient to meet the recommendations on that day. Because bouts of activity lasting a minimum of 30 minutes are being used for comparison with results from previous years, the results presented in this chapter are likely to be an underestimate of the proportion of the population that meets the revised recommendations.

Fitness

Physical fitness, also called functional capacity, is the ability of an individual to perform work. The most common form of work capacity assessed is the aerobic component, measured by the maximal oxygen uptake (VO_2max). Oxygen uptake refers to the use of oxygen by the body's cells. Oxygen uptake rises rapidly on starting exercise and reaches a plateau (steady state VO_2) by three to five minutes of steady exercise. Maximal oxygen uptake is reached when oxygen uptake does not increase despite further increase in intensity of the exercise (e.g. running faster or up a steeper incline), although not everyone has such a plateau. VO_2max is typically achieved by exercise that involves only about half the total body musculature.

In the HSE 2008, a sub-sample of adults aged 16 to 74 had their fitness levels assessed using a step test. An indirect method of measuring physical fitness was chosen because of the survey design of conducting the tests in participants' homes; direct measurement of oxygen consumption was therefore not possible. The decision to use a step test rather than a treadmill or cycle ergometer was also made for practical reasons. A single step was chosen as this was easier for the nurses to transport to participants' homes than the double step that was piloted with considerable problems in 2005.

The physical fitness test consisted of the step test originally developed by researchers at Medical Research Council (MRC) Cambridge. The test involved the subject stepping up and down a single step. The pace was given digitally by the nurse's laptop and the stepping lasted a maximum of eight minutes. The pace of stepping increased through the duration of the test. The participant stepped up and down first at a slow pace for one minute, at a rate of one leg movement per second. This equates to one body lift (i.e. the respondent stepping up and back down from the step) over four seconds. Then the stepping pace gradually increased over the next seven minutes until, by the end of the eighth minute, the frequency was 33 body lifts per minute (i.e. one body lift in just under two seconds).

The participant's heart rate was the primary outcome measure of the step test. The heart rate was recorded at 30 second intervals during the test and at 15 second intervals for two minutes after the step test ended. The participant wore a Polar heart rate monitor round the chest which transmitted the heart rate to a receiver worn on the participant's wrist. Using a stop watch to mark the time intervals, the nurse recorded the heart rate detected by the monitor. These heart rate measurements were then combined with the resting heart rate obtained earlier during blood pressure measurement to determine the submaximal relationship between heart rate and oxygen uptake. This relationship was then extrapolated up to age-predicted maximal heart rate to provide an estimate of the individual's maximal oxygen uptake (VO_{2max}), the overall level of fitness.

Fitness categories in the HSE 2008 were defined as follows:

- Light exertion: requiring less than 30% of that person's VO_{2max}
- Moderate exertion: requiring 30-64% of that person's VO_{2max}
- Severe exertion: requiring 65-100% of that person's VO_{2max} (therefore unsustainable for any substantial length of time)
- Maximal exertion: requiring more than 100% of that person's VO_{2max}

English, Scottish and Welsh comparisons among adults

The Scottish Health Survey (SHS) 2008 physical activity module is based on the Allied Dunbar National Fitness Survey (ADNFS). A very similar questionnaire was used in both the 1998 and 2003 SHS and therefore comparisons over time are uncomplicated. Participants were asked about their participation in 4 types of activities:

- Home-based activities (housework, gardening, building work and DIY);
- Walking;
- Sports and exercise;
- Activity at work.

Prior to the SHS 2008, duration of participation in physical activities was set to 15 minutes. However, as the CMO recommendations state that activity can be accumulated in bouts of 10 minutes the questionnaire was updated in 2008 to include activities of 10 to 14 minutes duration.

The SHS 2008 also collected information on the amount of time that participants spent in sedentary behaviours.

The Welsh Health Survey asked adults on which days in the past week they did at least 30 minutes of light, moderate, and vigorous exercise or physical activity. In this survey blocks of activity lasting more than 10 minutes, which were done on the same day, count towards the full 30 minutes. Respondents were asked to include physical activity which is part of their job. Examples of each type of activity are:

- Light activity - housework or golf
- Moderate activity - heavy gardening or fast walking
- Vigorous activity - running or aerobics.

Physical activity among children

The Chief Medical Officer (CMO) of England recommends that children and young people should do a minimum of 60 minutes of at least moderate intensity physical activity each day. Children should also participate in activities that improve bone health, muscle strength and flexibility at least twice a week.

In HSE 2008, the children's physical activity questionnaire was completely revised. The key changes to the 2008 questionnaire were:

- A new division of sports and activities into formal and informal; and as well as the activities on the show cards, participants were asked about any other similar activities they had done, and these were recorded individually;
- For each activity undertaken, participants were asked on which specific days of the week they had done them, rather than on how many weekdays and weekend days;
- For each day that the participant had done an activity, they were asked how long they had done it (in hours and minutes), rather than giving an average for all the days using half hour bands.

Due to the significant revisions to the 2008 children's physical activity questionnaire, the results reported here are not directly comparable with previous HSE reports that present findings on child physical activity.

The HSE 2008 self-report questionnaire collected details about the out-of-school activity of children aged 2 to 15. The decision to exclude activities which are part of the school curriculum was taken for three reasons. Firstly, it was assumed that, generally speaking, the amount of activity carried out by children as part of school lessons would be similar for all children (according to their age) and would contribute to a 'standard' additional amount of activity for each child. Secondly, activities as part of the school curriculum would generally be compulsory and the survey was more concerned with what children would do of their own choice. Thirdly, since a large proportion of data would be collected by proxy from a parent, it was felt that information about activities during school lessons would be less accurate than information about leisure time activities. However, any activities carried out on school premises but not as part of school lessons (e.g. after school clubs, during break times) were covered by the questions asked. For pre-school children, activities done at any nursery or playgroup that the child attended were included.

The groups of activities for children:

1. Walking (not including to or from school): Walking was presented as part of the informal group of activities. It has been analysed separately as an activity of policy interest. The walks included are of any duration.
2. Informal activities: Activities in this group include cycling, dancing, skating, trampolining, hopscotch, active play, skipping rope, and housework and gardening.
3. Formal sports: Activities in this group include any organised team sports such as football, rugby, cricket, and netball, as well as running or athletics, all types of swimming, gymnastics, weight

training, aerobics and tennis. Where the 'total physical activity' variable has been included in the tables, it is an aggregate of the grouped activities listed above.

4. Walking or cycling to and from school is reported separately from other walking and cycling in these analyses, because active travel to and from school is an important opportunity for physical activity amongst children. The structure of the questions about active travel to school differed from the structure for all other types of physical activity, since journeys were not related to specific weekdays. Thus it is not possible to combine walking and cycling to school with other occasions of walking and cycling in assessing the total amount of activity for the summary activity levels.

Objective measures of physical activity

A sub-sample of children aged 4 to 15 were asked to wear an accelerometer during the week following the interview. The accelerometer provides a measure of frequency, intensity and duration of physical activity, allowing classification of activity levels as sedentary, light, moderate and vigorous. The accelerometer was worn on a specially provided belt and each child was asked to wear the accelerometer during waking hours for seven consecutive full days; parent co-operation was also required, particularly for younger children. The device was taken off for activities such as showering or swimming, as the Actigraph is not waterproof. Also, some children removed their monitor during contact sports such as karate or rugby.

For adults, current evidence suggests that moderate or vigorous activity should be accumulated in bouts of at least 10 minutes to count towards meeting government at the time recommendations, as it is these bouts of sustained activity that provide health benefits. However, this is not a realistic requirement for children, since the nature of children's physical activity typically differs from adults', being less likely to involve clearly defined periods of specific activities. Thus children's activity is much more likely to be sporadic, occurring in short bursts. For this reason, in keeping with other studies, all of children's moderate or vigorous activity has been taken into account in assessing whether they have met the then government guidelines for physical activity, rather than imposing a requirement for bouts of 10 minutes or more.

Summary activity levels for both self-reported and objective measures of physical activity in children are:

- **Meets recommendations:** At least 60 minutes of moderate activity on all seven days in the last week.
- **Some activity:** 30-59 minutes of moderate activity on all seven days in the last week.
- **Low activity:** Fewer than 30 minutes of moderate activity on each day, or moderate activity of 60 minutes or more on fewer than seven days in the last week.

Active sport

The Department for Culture, Media and Sport Public Service Agreement (PSA) and the Taking Part Survey define the following as active sports: swimming or diving; BMX, cyclo-cross, mountain biking; cycling; bowls; tenpin bowling; health, fitness, gym or conditioning activities; keep fit, aerobics, dance exercise; judo; karate; taekwondo; other martial arts; weight training; weightlifting; gymnastics; snooker, pool, billiards; darts; rugby league and union; American football; football; cricket; hockey; baseball/softball; netball; tennis; badminton; squash; basketball; table tennis; track and field athletics;

jogging, cross-country, road running; angling or fishing; canoeing; windsurfing or boardsailing; ice skating; golf, pitch and putt, putting; skiing; horse riding; climbing/mountaineering; hill trekking or backpacking; karting; volleyball; orienteering; rounders; rowing; boxing; waterskiing; lacrosse; yoga; fencing; and other types of sport for example roller-blading, street hockey, skateboarding, water polo, surfing, scuba diving, gliding, hang/paragliding, parachuting or parascending are also included in the valid activities which are recorded in the 'other sports' category. Utility cycling and all forms of walking are excluded from the active sport target.

Diet and nutrition

Fruit and vegetable portions

Fruit and vegetable consumption is measured in portions; using guidelines specified in the '5 a day' programme. The government recommends that people should eat five portions of fruit and vegetables a day. Five portions are defined as 400g of fruit and vegetables per day, an average of 80g per portion. A variety of foodstuffs represent a portion, including vegetables (fresh, frozen, canned), vegetables in composite dishes (such as pies or curries), salads, pulses, fruit (fresh, frozen, canned, dried), fruit in composites (such as pies or crumbles) and fruit juice. Below is a table showing the recommended portions sizes of the different types of fruit and vegetables in terms of everyday household measures. These measures have been used by the Health Survey for England when collecting data through dietary recall and for estimation of the number of portions respondents have consumed. The Low Income Diet and Nutrition Survey also followed the government guidelines in terms of what and how much counts as a portion, but estimated the weight of the fruit and vegetables consumed and divided by 80 (or 157 in the case of fruit juice to convert to millilitres) to determine the number of portions.

According the current guidelines, fruit juice, regardless of how much is drunk in excess of one small glass (150ml), only counts as a maximum of one portion per day. This is due to its low fibre content and its high content of non-milk extrinsic sugars, which, when consumed in too high a quantity can lead to tooth decay and dental health problems. Pulses (such as beans, lentils and chick peas) can also only contribute a maximum of one portion per day regardless of how much is consumed; whilst they do contain fibre, they do not provide the same mixture of vitamins, minerals and other nutrients that can be obtained from fruit and vegetables. Due to their high starch content, potatoes in any form (including sweet potato varieties) and other starchy vegetables, such as plantain and green bananas, do not count towards the '5 a day' portions. Nuts and seeds do not count towards the '5 a day' portions. These guidelines and quantities are based on adult requirements and while the government recommends that children over the age of five should also consume five portions of a variety of the foodstuffs shown below, their portion sizes may be smaller. However, survey measures of fruit and vegetable consumption among children are based on adult portion sizes.

Food item	Portion size
Vegetables (fresh, raw, tinned and frozen)	3 tablespoons
Pulses	3 tablespoons
Salad	1 cereal bowl
Vegetables in composites, such as vegetable chilli	3 tablespoons
Very large fruit, such as melon	1 average slice
Large fruit, such as grapefruit	Half a fruit
Medium fruit, such as apples	1 fruit
Small fruit, such as plums	2 fruits
Very small fruit, such as blueberries	2 average handfuls
Dried fruit	1 tablespoon
Frozen fruit / tinned fruit	3 tablespoons
Fruit in composites, such as stewed fruit	3 tablespoons
Fruit juice	1 small glass (150ml)

Estimated Average Requirements and Reference Nutrient Intakes

In 1991 the Committee on Medical Aspects of Food and Nutrition Policy (COMA) recommended that population average intakes of different macronutrients should not exceed specified limits. For example the population average intakes of total fat, saturated fatty acids and non-milk extrinsic sugars (principally added sugars) should not exceed 35 per cent, 11 per cent and 11 per cent of food energy respectively.

Energy intake is compared against the Estimated Average Requirement (EAR) for a group. Estimates of energy requirements for different populations are termed EARs and are defined as the energy intake estimated to meet the average requirements of the group. About half the people in the group will usually need more energy than the EAR and half the people in the group will usually need less.

Nutrient intakes derived from surveys are compared with Reference Nutrient Intakes (RNIs). These RNIs represent the best estimate of the amount of a nutrient that is enough, or more than enough, for about 97 per cent of people in a group. If average intake of a group is at the level of the RNI, then the risk of deficiency in the group is very small.

Health Survey for England (HSE)

Data Collection and Burden

Data for the Health Survey for England (HSE) are collected from the adult population aged 16 and over living in private households in England. Since 1995 the surveys have also covered children aged 2 – 15 living in households selected for the survey, and since 2001 infants aged under two have been included as well as older children.

As with all previous years the HSE 2011 involved a stratified random probability of households. The core sample comprised of 8,992 addresses selected at random in 562 postcode sectors. Adults and children were interviewed at households identified at the selected addresses where there were three or more children in a household, two of the children were selected at random to limit the respondent

burden for parents. More detailed information about survey design is presented in [Chapters 2-7](#), Volume 2 of the HSE report. It should be noted that, for the first time for several years, there was no child boost sample in 2011. Thus the scope for analyses of some data for children may be limited by relatively small sample sizes.

Footnotes have been provided in this report on tables where age standardised figures have been presented and include the following variables: equivalised household income quintile and Government Office Region.

Further information on overweight and obesity prevalence across Strategic Health Authorities (SHAs) is given in 'HSE: Health and Lifestyle Indicators for Strategic Health Authorities 1994 - 2002'. This includes an age-standardised time series of overweight and obesity prevalence levels by SHA. This publication is available at:

http://www.dh.gov.uk/PublicationsAndStatistics/PublishedSurvey/HealthSurveyForEngland/HealthSurveyResults/HealthSurveyResultsArticle/fs/en?CONTENT_ID=4077728&chk=5Mjlqy

Use of HSE data from different years

This report contains data and information from different years of the HSE. This is to provide the most recent information for the general population that was available at the time of publishing. Where possible, data has been used from the most recent HSE 2011 results, however there are some restrictions to this.

When referring to chapters on physical activity and fitness (Chapters 4 and 5), we have referred to the 2008 HSE report as this was the last time the HSE had a primary focus in this area. The next HSE report to have a primary focus on physical activity and fitness will be the 2012 report due to be published in December 2013. The 2008 report investigated associated lifestyle factors such as diet, smoking and drinking, and also assessed the immediate impact of the smoking ban in public places introduced in England in July 2007 as a secondary focus.

[Chapter 7](#) discusses blood pressure, longstanding illnesses and GHQ12 (12-item General Health Questionnaire – see below) by BMI and waist circumference.

GHQ12

GHQ12 is the 12-item General Health Questionnaire designed to measure self-assessed general health, acute sickness leading to reduction in recent activity and psychosocial wellbeing.

Blood pressure

The levels of blood pressure used to define hypertension in the HSE are in accordance with the latest guidelines on hypertension management. To compute the prevalence of hypertension, adult informants were classified in one of four groups on the basis of their SBP (systolic blood pressure) and DBP (diastolic blood pressure) readings and their current use of anti-hypertensive medication.

- Normotensive-untreated SBP<140 mmHg and DBP<90 mmHg, not currently taking any prescribed drugs that lower blood pressure

- Hypertensive-controlled SBP<140 mmHg and DBP<90 mmHg, currently taking medication prescribed to lower blood pressure
- Hypertensive-uncontrolled SBP≥140 mmHg and DBP≥90 mmHg, currently taking medication prescribed to lower blood pressure
- Hypertensive-untreated SBP≥140 mmHg and DBP≥90 mmHg, not currently taking any prescribed drugs that lower blood pressure

The last three categories together are considered as 'hypertensive' for the purpose of this report. The definition of hypertension used for clinical purpose talks about 'sustained' levels of high blood pressure, while HSE only measures blood pressure at one point in time. This needs to be taken into account when interpreting the results. Hypertensive controlled and hypertensive uncontrolled groups are all those who take drugs that were prescribed to lower their blood pressure.

Equivalised household income quintiles

Household income was established in the HSE by means of a show-card on which banded incomes were presented. There has been increasing interest recently in using measures of equivalised income that adjust income to take account of the number of persons in the household. To derive this, each household member is given a score depending, for adults, on the number of adults apart from the household reference person, and for dependent children, on their age. The total household income is divided by the sum of the scores to provide the measure of equivalised household income. All individuals in each household were allocated to the equivalised household income quintile to which their household had been allocated.

Logistic Regression

Logistic regression is a statistical technique that examines the relationship between an outcome variable and a number of predictor variables. In the table presented, the outcome variable is being in the high health risk category.

Results are displayed as odds ratios for the final model. Odds are expressed relative to a reference category. An odds ratio of above 1 implies that people within the category are more likely to be in the high health risk category. The 95% confidence interval is also shown. Where the interval does not include 1, the association is unlikely to be due to random chance and we say the category is significantly different from the reference category.

For example, the odds ratio for women in the category 'Used to smoke cigarettes regularly' is 1.36, with a 95% confidence interval of 1.08-1.72. The reference category for this variable is 'Never smoked.' As the odds ratio is greater than 1 and the 95% confidence interval does not contain 1, we say that women who used to smoke cigarettes are more likely to be in the high risk health category than women who have never smoked.

Hospital Episode Statistics codes: coding for Bariatric Surgery used in Tables 7.7 and 7.8

The term “bariatric surgery” is often used to define a group of procedures that can be performed to facilitate weight loss although these procedures can be performed for conditions other than weight loss. It includes stomach stapling, gastric bypasses and sleeve gastrectomy. Using Hospital Episode Statistics (HES) data held at The Health and Social Care Information Centre, the number of Finished Consultant Episodes (FCEs) for bariatric surgery has been determined where the primary diagnosis was obesity (ICD-10 code E66) and the main or secondary procedure was one of the following OPCS codes for the relevant time periods. OPCS-4.2 codes were used between 1996/97 to 2005/06, OPCS-4.3 codes for 2006/07, OPCS-4.4 codes for 2007/08 and 2008/09, OPCS-4.5 codes for 2009/10 and OPCS-4.6 codes for 2010/11 and 2011/12.

The following OPCS 4.2 codes have been used for bariatric surgery from 1996/97 to 2005/06 inclusive:

G27.2 Total gastrectomy and anastomosis of oesophagus to duodenum
G27.3 Total gastrectomy and interposition of jejunum
G27.4 Total gastrectomy and anastomosis of oesophagus to transposed jejunum
G27.5 Total gastrectomy and anastomosis of oesophagus to jejunum nec
G27.8 Other specified total excision of stomach
G27.9 Unspecified total excision of stomach
G28.1 Partial gastrectomy and anastomosis of stomach to duodenum
G28.2 Partial gastrectomy and anastomosis of stomach to transposed jejunum
G28.3 Partial gastrectomy and anastomosis of stomach jejunum nec
G28.8 Other specific partial excision of stomach
G28.9 Unspecified partial excision of stomach
G30.1 Gastroplasty nec
G30.2 Partitioning of stomach nec
G30.8 Other specified plastic operations on stomach
G30.9 Unspecified plastic operations on stomach
G31.1 Bypass of stomach by anastomosis of oesophagus to duodenum
G31.2 Bypass of stomach by anastomosis of stomach to duodenum
G31.3 Revision of anastomosis of stomach to duodenum
G31.4 Conversion to anastomosis of stomach to duodenum
G31.8 Other specified connection of stomach to duodenum
G31.9 Unspecified connection of stomach to duodenum
G31.0 Conversion from pervious anastomosis of stomach to duodenum
G32.0 Conversion from previous anastomosis of stomach to transposed jejunum
G32.1 Bypass of stomach by anastomosis of stomach transposed to jejunum
G32.2 Revision of anastomosis of stomach to transposed jejunum
G32.3 Conversion to anastomosis of stomach to transposed jejunum
G32.8 Other specified connection of stomach to transposed jejunum

G32.9 Unspecified connection of stomach to transposed jejunum
 G33.1 Bypass of stomach by anastomosis of stomach to jejunum nec
 G33.2 Revision of anastomosis of stomach to jejunum
 G33.3 Conversion of anastomosis of stomach to jejunum nec
 G33.8 Other specified other connection of stomach to jejunum
 G33.9 Unspecified other connection of stomach to jejunum
 G33.0 Conversion from previous anastomosis of stomach to jejunum nec
 G38.8 Other specified other open operations on stomach
 G48.1 Insertion of gastric bubble
 G48.2 Attention of gastric bubble

The following OPCS 4.3/OPCS 4.4 codes in addition to the above have been used for bariatric surgery from 2006/07 to 2008/09 inclusive:

G28.4 Sleeve gastrectomy and duodenal switch
 G28.5 Sleeve gastrectomy nec
 G30.3 Partitioning of stomach using band
 G30.4 Partitioning of stomach using staples
 G31.5 Closure of connection of stomach and duodenum
 G31.6 Attention of connection of stomach and duodenum
 G32.4 Closure of connection of stomach to transposed jejunum
 G32.5 Attention to connection of stomach to transposed jejunum
 G33.5 Closure of connection of stomach to jejunum nec
 G33.6 Attention to connection of stomach to jejunum
 G38.7 Removal of gastric band
 G71.6 Duodenal switch

The following OPCS-4.5 procedure codes have been used for bariatric surgery for 2009/10:

G27.1 Total gastrectomy and excision of surrounding tissue
 G27.2 Total gastrectomy and anastomosis of oesophagus to duodenum
 G27.3 Total gastrectomy and interposition of jejunum
 G27.4 Total gastrectomy and anastomosis of oesophagus to transposed jejunum
 G27.5 Total gastrectomy and anastomosis of oesophagus to jejunum nec
 G27.8 Other specified total excision of stomach
 G27.9 Unspecified total excision of stomach
 G28.1 Partial gastrectomy and anastomosis of stomach to duodenum
 G28.2 Partial gastrectomy and anastomosis of stomach to transposed jejunum
 G28.3 Partial gastrectomy and anastomosis of stomach to jejunum nec
 G28.8 Other specified partial excision of stomach *(removed for 2011/12)
 G28.9 Unspecified partial excision of stomach
 G31.1 Bypass of stomach by anastomosis of oesophagus to duodenum
 G31.2 Bypass of stomach by anastomosis of stomach to duodenum

G31.3 Revision of anastomosis of stomach to duodenum
 G31.4 Conversion to anastomosis of stomach to duodenum
 G31.8 Other specified connection of stomach to duodenum
 G31.9 Unspecified connection of stomach to duodenum
 G31.0 Conversion from previous anastomosis of stomach to duodenum
 G32.0 Conversion from previous anastomosis of stomach to transposed jejunum
 G32.1 Bypass of stomach by anastomosis of stomach to transposed jejunum
 G32.2 Revision of anastomosis of stomach to transposed jejunum
 G32.3 Conversion to anastomosis of stomach to transposed jejunum
 G32.8 Other specified connection of stomach to transposed jejunum
 G32.9 Unspecified connection of stomach to transposed jejunum
 G33.1 Bypass of stomach by anastomosis of stomach to jejunum nec
 G33.2 Revision of anastomosis of stomach to jejunum
 G33.3 Conversion of anastomosis of stomach to jejunum nec
 G33.8 Other specified other connection of stomach to jejunum
 G33.9 Unspecified other connection of stomach to jejunum
 G33.0 Conversion from previous anastomosis of stomach to jejunum nec
 G48.1 Insertion of gastric bubble
 G48.2 Attention to gastric bubble
 G28.4 Sleeve gastrectomy and duodenal switch
 G28.5 Sleeve gastrectomy NEC
 G30.3 Partitioning of stomach using band
 G30.4 Partitioning of stomach using staples
 G30.5 Maintenance of gastric band
 G31.5 Closure of connection of stomach to duodenum
 G31.6 Attention to connection of stomach to duodenum
 G32.4 Closure of connection of stomach to transposed jejunum
 G32.5 Attention to connection of stomach to transposed jejunum
 G33.5 Closure of connection of stomach to jejunum NEC
 G33.6 Attention to connection of stomach to jejunum
 G38.7 Removal of gastric band
 G71.6 Duodenal switch

The following OPCS-4.6 procedure codes, in addition to the above codes used in 2009/10, have been used for bariatric surgery for 2010/11:

G48.5 Insertion of gastric balloon
 G48.6 Attention to gastric balloon
 G71.7 Reversal of duodenal switch

The following OPCS-4.6 procedure codes, in addition to the codes used in 2009/10, and 2010/11 above have either been used or removed for bariatric surgery for 2011/12:

G28.8 Other specified partial excision of stomach - removed

G30.1 Gastroplasty nec

G30.9 Unspecified plastic operations on stomach

G33.4 Open reduction of intussusception of gastroenterostomy

Appendix C: Government policy, targets and outcome indicators

Public Health Outcomes Framework

Recently launched in **January 2012**, the Public Health Outcomes Framework is comprised of a number of indicators against which Public Health delivery partners will be encouraged to demonstrate improvement. The introduction of the framework will act as a stimulus to encourage public health delivery partners to make significant improvements in services and share best practice more widely. The intention is that the introduction of benchmarking (through the indicator measures) will have a strong impact on improving public health outcomes – this is consistent with recent evidence that the introduction of indicator measures can have a strong influence on achieving successful Health Outcomes - and will have a direct effect on protecting and improving the nation's health. For further information, see link:

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132358

Healthy Lives, Healthy People: A call to action on obesity in England

This document published in **October 2011** sets out how the new approach to public health will enable effective action on obesity and encourages a wide range of partners to play their part. For a full copy of the report, follow the link below:

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_130401

The eatwell plate

Updated from the Balance of Good Health in **September 2007**, the eatwell plate is a policy tool that defines the Government's recommendations on healthy diets. It makes healthy eating easier to understand by giving a visual representation of the types and proportions of foods needed for a healthy and well balanced diet. For further information, see link:

www.dh.gov.uk/en/Publichealth/Nutrition/DH_126493

Start active, stay active: a report on physical activity from the four home countries' Chief Medical Officers

Launched in **July 2011**, this UK-wide report presents guidelines on the volume, duration, frequency and type of physical activity required across the lifecourse to achieve general health benefits. It is aimed at the NHS, local authorities and a range of other organisations designing services to promote physical activity. The document is intended for professionals, practitioners and policymakers concerned with formulating and implementing policies and programmes that utilise the promotion of physical activity, sport, exercise and active travel to achieve health gains. For further information, see link:

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128209

National Ambition for Physical Activity

In January 2012 the Secretary of State for Health announced a new National Ambition for Physical Activity:

A year on year increase in the proportion of adults achieving at least 150 minutes of physical activity each week and a similar decrease in the proportion of those achieving less than 30 minutes of physical activity each week.

This is mirrored by the Public Health Outcomes Framework Indicator for physical activity and represents what could be achieved if all sector work together to drive up participation.

Public Health Responsibility Deal

What we eat, how much we drink and how active we are is heavily shaped by our environment. Creating the right environment can encourage and empower people to take responsibility for their health and make healthy choices.

Launched on **15 March 2011**, the Public Health Responsibility Deal has been established to tap into the potential for businesses and other organisations to improve public health and tackle health inequalities through their influence over food, alcohol, physical activity and health in the workplace. For further information, see link:

www.dh.gov.uk/en/Publichealth/Publichealthresponsibilitydeal/index.htm

Plans for the Legacy from the 2012 Olympic and Paralympic Games

The Coalition Government published its plans in **December 2010** for producing a safe and secure Games that would leave a lasting legacy. This has focused on four areas:

- Harnessing the United Kingdom's passion for sport to increase grass roots participation, particularly by young people – and to encourage the whole population to be more physically active
- Exploiting to the full the opportunities for economic growth offered by hosting the Games
- Promoting community engagement and achieving participation across all groups in society through the Games; and
- Ensuring that the Olympic Park can be developed after the Games as one of the principal drivers of regeneration in East London.

For further information, see link: <http://www.culture.gov.uk/publications/7674.aspx>

Following the Games, the Minister of State for Sport and Tourism published a written statement on Sporting Legacy, which included the Government's plans for community sport, the Youth Sport Strategy, volunteering for sport, school sport and disability sport. Key to this is establishing a sporting habit for life in children and young people and investment in the School Games and Change4Life Sports Clubs in Schools will help ensure that every child has the opportunity to play competitive sport.

Healthy Lives, Healthy People: Our Strategy for Public Health in England

This latest White Paper, published in **November 2010**, sets out the Government's long-term vision for the future of public health in England. The aim is to strengthen both national and local leadership. For a full copy of the report follow the link:

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_121941

Public Service Agreements

The new coalition government ended the system of Public Service Agreements (PSAs) set at national level in 2010. For the meantime these are to be replaced by Departmental business plans, which each Government department has recently published setting out the details of its reform plans, including its:

- vision and priorities to 2014-15;
- structural reform plan, including actions and deadlines for implementing reforms over the next two years; and
- contribution to transparency, including the key indicators against which it will publish data to show the cost and impact of public services and departmental activities. However some PSA targets have been included in this report as they may have been in place when the data were collected.

A link to the Department of Health's Business Plan (2011-2015) can be found following this link:

www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_121393

National Indicator Set

The Audit Commission was commissioned by the previous government to publish the National Indicator Set (NIS) as part of the assessment of local areas' 'Comprehensive Area Assessment' (CAA). In **May 2010**, the new government announced their intention to abolish CAA. The Audit Commission stopped work on updates to the assessments and decided not to update the National Indicator data on the CAA website.

Change4Life

In **January 2009**, the previous government launched an ambitious new campaign Change 4 Life – a society wide movement that aims to prevent people from becoming overweight by encouraging them to eat better and move more. The coalition government sets out in the White Paper, *Healthy Lives, Healthy People: Our Strategy for Public Health in England*, its plans to broaden the Change4Life programme to take a more holistic approach to childhood issues, for instance covering strategies to help parents talk to their children about other health issues and behaviour, such as alcohol.

For further information on this campaign, follow the link below:

www.nhs.uk/change4life/Pages/change-for-life.aspx

The Change4Life campaign has recently been expanded to focus on adults to encourage them to increase their physical activity levels.

For further information, follow the link below:

<http://www.nhs.uk/Change4Life/Pages/daily-activity-tips.aspx>

NICE guidance

The guidance on the prevention, identification, assessment, treatment and weight management of overweight and obesity in adults and children was intended to provide recommendations on the clinical management of overweight and obesity in the NHS. It also provides guidance on primary prevention approaches aimed at supporting adults and children to maintain a healthy weight.

The guidance was published in **December 2006** and can be accessed on the NICE website:

<http://www.nice.org.uk/guidance/CG43>

The various pieces of NICE guidance relating to physical activity are referenced in the Physical Activity Pathway published by NICE in May 2011. This can be accessed on the NICE website

<http://pathways.nice.org.uk/pathways/physical-activity>

5-A-Day programme

The 5-A-DAY programme was launched in March 2003 as part of the health promotion activity by the Department of Health to encourage people to eat more fruit and vegetables. It aims to increase fruit and vegetable consumption by:

- raising awareness of the health benefits through targeted communications
- and improving access to fruit and vegetables
- working with national, regional and local organisations.

The Food Standards Agency (FSA) Consumer Attitudes Survey 2007 showed that 79% of adults were aware that they should eat at least five portions of fruit and vegetables a day, up from 43% in 2000.

There is continued support for the Programme from the coalition government.

For further information, please see link: www.nhs.uk/5aday

Current Government nutrient based recommendations

Current Government nutrient based recommendations for the population are based on advice from the Committee on Medical Aspects of Food and Nutrition Policy (COMA) and its successor, the Scientific Advisory Committee on Nutrition (SACN). In 1991, the Department of Health published Dietary Reference Values (DRVs) which cover a range of intakes for most nutrients. For total fat, saturated and trans fatty acids and non-milk extrinsic sugars, dietary reference values (DRV) are the

recommended maximum contribution these nutrients should make to the population average diet. For total carbohydrate, cis monounsaturated fatty acids and non-starch polysaccharides (NSP) the DRVs are recommended population averages. For protein, vitamins and minerals, reference nutrient intake (RNI) values are set at the levels of intake considered likely to be sufficient to meet the requirements of 97.5% of the population and the lower reference nutrient intake (LRNI) values (for vitamins and minerals) are set at levels considered likely to be sufficient to meet the needs of only the 2.5% of the population with the lowest requirements.

Table 1 shows the current DRVs for macronutrients and Table 2 shows the maximum daily salt intakes for children and adults.

Table 1: Current recommendations for fat, carbohydrates (including sugars) and fibre for adults²

Population average % of food energy	
Saturated fatty acids	Not more than 11
Polyunsaturated fatty acids	6.5
Monounsaturated fatty acids	13
Trans fatty acids	Not more than 2
Total fat	Not more than 35
Non-milk extrinsic sugars	Not more than 11
Intrinsic and milk sugars, and starch	39
Total carbohydrate	50
Fibre as non-starch polysaccharide (g/day)	18

Table 2 Recommended maximum daily salt intakes for infants, children & adults³

Age	Target average salt intake (g/d)
0-6 mths	Less than 1
7-12 mths	1
1 – 3 yrs	2
4-6yrs	3
7-10yrs	5
11yrs +	6

² Report on Health and Social Subjects 41 *Dietary Reference Values (DRVs) for Food Energy and Nutrients for the UK*, Report of the Panel on DRVs of the Committee on Medical Aspects of Food Policy (COMA) 1991. The Stationery Office. London

³ Scientific Advisory Committee on Nutrition (2003) *Salt and Health*. The Stationery Office. London

Appendix D: Further information

This new report (published 20th February 2013) draws together statistics on obesity, physical activity and diet. This report forms part of a suite of statistical reports covering, in addition, drug misuse, alcohol and smoking.

Constructive comments on this report would be welcomed. Any questions concerning any data in this publication, or requests for further information, should be addressed to:

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This report is available on the internet at:
www.ic.nhs.uk/pubs/opad13

Previous reports on Statistics on obesity, physical Activity and diet: England can be found on the Health and Social Care Information Centre website:
<http://www.ic.nhs.uk/>

Information on data sources used within this report are described in [Appendix A](#) and government plans and targets discussed in [Appendix C](#). However further information regarding the topics discussed within this report maybe found from the following sources:

5-a-day

The 5-a-day website provides lots of useful information and resources for health professionals as well as the general public about healthy eating and fruit and vegetable consumption
<http://www.nhs.uk/LiveWell/5ADAY/Pages/5ADAYhome.aspx>

Annual Report of the Chief Medical Officer

Over the last 150 years, annual reports have been published by the Chief Medical Officer, almost every year. These reports provide an important record of the nation's health and the major challenges faced by government in tackling the main problems. In the last twenty years or so, the annual report has also provided detailed accounts of a wide range of initiatives taken by the government on public health and in the NHS.

<http://www.dh.gov.uk/health/2012/11/cmo-annual-report/>

Association for the Study of Obesity

The Association for the Study of Obesity (ASO) was founded in 1967 and is the UK's foremost organisation dedicated to the understanding and treatment of obesity. The ASO has three key objectives:

- To promote professional awareness of obesity and its impact on health.
- To educate and disseminate recent research on the causes, consequences, treatment, and prevention of obesity
- To prioritise obesity and provide opinion leadership in the UK.
- <http://www.aso.org.uk>

Change 4 Life

Change4Life is a public health programme in the UK which began in January 2009, organised by the Department of Health. It is the country's first national social marketing campaign to reduce obesity.

The campaign aims to encourage people to lead healthier lives, using the slogan "eat well, move more, live longer". The campaign is backed by major food and beverage companies such as Tesco and Unilever, as well as NGOs such as the Ramblers Association and the British Heart Foundation.

Change4Life covers eight areas of behaviour change for families:

- Up and About
- 60 Active Minutes
- 5 a Day
- Meal Time
- Snack Check
- Me Size Meals
- Cut Back Fat
- Sugar Swaps

Change4Life is arranged six sub-brands that promote a single issue with either a food or an activity focus (Bike, Breakfast, Let's Dance, Play, Swim and Walk). Walking is promoted using walk4life; swimming is promoted via swim4life.

<http://www.nhs.uk/Change4Life/Pages/change-for-life.aspx>

Eatwell Plate

The Eatwell Plate is a pictorial summary of the main food groups and their recommended proportions for a healthy diet. It is the method for illustrating dietary advice by the Department of Health, issued officially by the government.

This was previously known as The Balance of Good Health

<http://www.nhs.uk/Livewell/Goodfood/Pages/eatwell-plate.aspx>

Eurostat

Data presented on BMI by European Union (EU) countries, collected by Eurostat uses Health Interview Surveys (HIS). The HIS data are collected in different years depending on the country, ranging from 1996 to 2003. There is no fixed periodicity in these kinds of health surveys. Very few countries have a yearly survey on these topics. Data are disseminated simultaneously to all interested parties through a database update and on Eurostat's website.

There are other sources available which present international figures on BMI. A source of such data is the World Health Organisation (WHO). The source of BMI from WHO varies from country to country. The prevalence of obesity among EU countries is broadly similar between Eurostat and WHO.

Eurostat. Available at:

<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>

Food Standards Agency

The Food Standards Agency (FSA) is an independent government department set up by an Act of Parliament in 2000 to protect the public's health and consumer interests in relation to food. The FSA provides advice and information to the public and government on food safety from farm to fork, nutrition and diet. It also protects consumers through effective food enforcement and monitoring. Although the FSA is a government agency, it works at 'arm's length' from government because it does not report to a specific minister and is free to publish any advice it issues.

<http://www.food.gov.uk/>

General Lifestyle Survey (formerly General Household Survey)

The General Lifestyle Survey (GLF) is a multi purpose continuous survey carried out by the Office of National Statistics (ONS) which collects information on a range of topics from people living in households in Great Britain. The survey started in 1971.

<http://www.ons.gov.uk/ons/guide-method/surveys/list-of-surveys/survey.html?survey=General+Lifestyle+Survey>

Healthy lives, healthy people: a call to action on obesity in England

This document sets out how the new approach to public health will enable effective action on obesity and encourages a wide range of partners to play their part.

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_130401

International Obesity TaskForce

The International Obesity TaskForce (IOTF) is a global network of expertise, a research-led think tank and advocacy arm of the IOTF. The IOTF is working to alert the world to the growing health crisis threatened by soaring levels of obesity. It works with the World Health Organisation, other NGOs and stakeholders to address this challenge.

www.ietf.org

National Institute for Health and Clinical Excellence (NICE)

The NICE website includes some information and clinical guidelines on the prevention, identification, assessment and management of overweight and obesity in adults and children.

<http://www.nice.org.uk/CG43>

National Obesity Forum

The National Obesity Forum (NOF) was established by medical practitioners in May 2000 to raise awareness of the growing health impact that being overweight or obese was having on patients and the NHS

<http://www.nationalobesityforum.org.uk/>

National Child Measurement Programme

The National Child Measurement Programme (NCMP) weighs and measures children in Reception (aged 4–5 years) and Year 6 (aged 10–11 years). The findings are used to inform local planning and delivery of services for children, and gather population-level surveillance data to allow analysis of trends in excess weight. The latest NCMP data, for the school year 2011/12, has been collected by the Health and Social Care Information Centre (HSCIC) and a national report is available from:

www.ic.nhs.uk/ncmp

National Obesity Observatory

The National Obesity Observatory provides a single point of contact for wide-ranging authoritative information on data, evaluation and evidence related to weight status and its determinants. NOO works closely with a wide range of organisations and provides support to policy makers and practitioners involved in obesity and related issues.

<http://www.noo.org.uk/>

School Fruit and Vegetable Scheme

Under the scheme, all four to six year old children in Local Education Authority maintained infant, primary and special schools are now entitled to a free piece of fruit or vegetable each school day. It was introduced after the NHS Plan 2000 included a commitment to implement a national school fruit scheme by 2004.

www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/FiveADay/FiveADaygeneralinformation/DH_4002149

Scientific Advisory Committee on Nutrition

The Scientific Advisory Committee on Nutrition (SACN) is an advisory committee of independent experts that provides advice to the Food Standards Agency and Department of Health as well as other government agencies and departments. Its remit includes matters concerning nutrient content of individual foods, advice on diet and the nutritional status of people.

www.sacn.gov.uk/

Scottish Health Survey

The Scottish Health Survey provides information on the health and health-related behaviours of people living in private households in Scotland. Among the Surveys' aims are to estimate the prevalence of a range of health conditions and to monitor progress towards Scottish health and dietary targets. The 2011 survey is the seventh in a series which began in 1995 with a survey of adults aged 16 to 64. The 1998 survey also included children aged 2 to 15 and adults aged 65 to 74 for the first time. From 2003, the survey did not have any age limits and included children from 0 upwards and adults aged 16 and over. All seven surveys were commissioned by what is now the Scottish Executive Health Department.

The Scottish Health Survey 2011. Available at:

<http://www.scotland.gov.uk/Publications/2012/09/7854>

Tackling child obesity

This report was based on a joint study conducted by the Audit Commission, the then Healthcare Commission and the National Audit Office, one of a series that looks at the "delivery chains" between important national policy intentions (set out in government departments' Public Service Agreement targets agreed with HM Treasury) and local delivery.

www.nao.org.uk/publications/nao_reports/05-06/0506801.pdf

Time Use Survey

The UK Time Use Survey is conducted on behalf of a funding consortium consisting of: the Economic and Social Research Council; the Department of Culture, Media and Sport; the Department for Education and Skills; the Department of Health; the Department of Transport, Local Government and the Regions; and the Office for National Statistics.

The main aim of the survey was to measure the amount of time spent by the UK population on various activities. The UK 2000 Time Use Survey was the first time that a major survey of this type has been conducted in the UK and as such provides an opportunity to inform a cross-section of policy areas as well as having interest for academia, social research centres and the advertising and retail sector.

In 2000, the first Time Use Survey was carried out using a combination of questionnaires and diaries. In 2005, a pre-coded time use diary was used to collect the results from adults aged 16 and over as part of the National Statistics Omnibus Survey. The Omnibus diary results are compared with the data collected in the UK 2000 Time Use Survey.

[Time Use Survey 2005](#)

Welsh Health Survey 2011

The Welsh Health Survey is a source of information about the health of people living in Wales, the way they use health services, and the things that can affect their health and is produced by the Welsh Assembly Government. This survey replaced two previous surveys: the former Welsh Health Survey (undertaken in 1995 and 1998) and the former Health in Wales Survey (undertaken every two to three years between 1985 and 1996). Results from this survey are not comparable with those from the previous surveys because of differences in the questionnaires and the way the survey is designed and conducted. One addition to the survey is the collection of some limited information on children's health. More detailed information for children is collected from 2007 onwards.

The Welsh Health Survey 2011. Available at:

<http://wales.gov.uk/topics/statistics/headlines/health2012/120919/?lang=en>

World Health Organisation

The World Health Organisation (WHO) have created a global database on BMI. This database provides both national and sub-national adult underweight, overweight and obesity prevalence rates by country, year of survey and gender. The information is presented interactively as maps, tables, graphs and downloadable documents.

www.who.int/bmi/index.js

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This publication may be requested in large print or other formats.

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