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# Statistics on Obesity, Physical Activity and Diet

England 2015

Published 3 March 2015



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This report may be of interest to members of the public, policy officials, commissioners and other stakeholders to gain a comprehensive picture of society at regional and national level and understand the public health challenges faced by health and social care providers.

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- are well explained and readily accessible;
- are produced according to sound methods; and
- are managed impartially and objectively in the public interest.

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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 for England.

### Main findings

- There was a marked increase in the proportion of adults that were obese from 13.2 per cent in 1993 to 26.0 per cent in 2013 for men, and from 16.4 per cent to 23.8 per cent for women. The proportions that were overweight including obese increased from 57.6 per cent to 67.1 per cent in men and from 48.6 per cent to 57.2 per cent in women.
- In reception year (aged 4-5) in 2013/14, the proportion of obese children (9.5 per cent) was higher than in 2012/13 (9.3 per cent) but lower than in 2006/07 (9.9 per cent). In Year 6 (age 10-11) in 2013/14, the proportion of obese children (19.1 per cent) was higher than in 2012/13 (18.9 per cent) and also higher than in 2006/07 (17.5 per cent).
- In 2013, fewer men than women consumed the recommended five or more portions of fruit and vegetables on the previous day (25 per cent and 28 per cent respectively). A similar proportion of boys and girls consumed five or more portions per day (16 per cent of boys, 17 per cent of girls).
- In 2013/14, there were 9,325 Finished Admission Episodes (FAEs) in NHS hospitals with a primary diagnosis of obesity. This is 15 per cent less admissions than in 2012/13 (10,957), although this is over five times as high as ten years ago in 2003/04 (1,711).<sup>a</sup>
- In 2013/14, there were 6,384 recorded Finished Consultant Episodes (FCEs) with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery. This is 20 per cent less episodes than in 2012/13 (8,024). Females continue to account for the majority of these; there were 4,823 such recorded FCEs for females and 1,560 for males. This is a similar ratio to 2012/13 (6,080 for females and 1,944 for males) and 2003/04 (378 for females and 96 for males).<sup>a</sup>
- In 2013/14, there were 3,391 recorded FCEs with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery in the 45-64 age group. This accounts for 53 per cent of all bariatric surgery procedures.<sup>a</sup>
- Drug items dispensed for treating obesity in 2013 (563,000) rose by 44 per cent from 2012 (392,000) but this may be due to a stock shortage of Orlistat in 2012. The figure for 2013 is a decrease of 61 per cent on 2009 (1,450,000) when the number of drug items dispensed for treating obesity reached a peak.

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<sup>a</sup> The data on hospital activity presented in this report are for inpatients only and therefore does not reflect all hospital activity. Outpatient procedures are not included in these figures due to the primary diagnosis code being poorly populated, and there being no certainty that procedures are for obesity diagnoses. This should be considered when interpreting changes over time as recording and clinical practice may change and in particular, practices vary between hospitals as to whether some episodes are carried out or recorded in outpatient or inpatient settings. One provider in particular, Derby Hospitals NHS Foundation Trust recorded 183 inpatient admissions in 2013/14 with a primary diagnosis of obesity compared to 920 inpatient admissions in 2012-13 which is a large part of the decrease seen on the national figures (down 1,632 or 15 per cent). They have also recorded a decrease of 739 inpatient bariatric surgical procedures this year mainly due to gastric band maintenance procedures which is a large part of the decrease seen on the national figures (down 1,640 – 20 per cent). This Trust has also recorded 594 procedures in outpatient settings in 2013/14 with a primary procedure code of gastric band maintenance compared to none in 2012/13. These procedures are not included in this report as they were performed in an outpatient setting.



# 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 team at the HSCIC.

Topics covered in this report include:

- Trends in obesity and being overweight among different groups of the population.
- Physical fitness levels and sedentary behaviour.
- Trends in purchases and expenditure on food and drink, including fruit and vegetable consumption.
- Health outcomes related to obesity including hospital admissions and drugs used for the treatment of obesity.

It has not always been possible to update the information from last year's report. Where this is the case, the latest data available is presented from earlier publications. 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* are provided.

**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. **Chapter 4** on Physical activity among adults and **Chapter 5** on Physical activity among children cover information on self-reported activity and measured activity using an accelerometer (these measure the duration, intensity and frequency of physical activity for each minute they are worn by the participant). Physical activity levels, according to physical activity guidelines, and types of physical activity are also discussed. These chapters also cover information on adults' and children's knowledge and attitudes towards exercise and physical activity. **Chapter 6** on Diet covers purchases and consumption of food and drink and related intake of energy and nutrients. 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 are also covered. **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 to sources for further information 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 (which are particularly relevant when looking at time series data elsewhere in the report), **Appendix D** gives editorial notes regarding the conventions used in presenting information, and further information regarding the topics discussed within this report. **Appendix E** covers how these statistics are used by our users.



## 2 Obesity among adults

### 2.1 Introduction

The main source of data on overweight and obesity prevalence 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 2013.<sup>1</sup>

This chapter focuses on overweight and obesity prevalence in adults, presented by Body Mass Index (BMI) and also by waist circumference. Trends are presented and relationships with various economic and lifestyle variables 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 includes a focus on future predictions of adult obesity, which refers to other research reports.

#### 2.1.1 Measurement of overweight and 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).

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

The calculation of BMI is a widely accepted method used to define overweight and obese. Guidance published by the National Institute for Health and Clinical Excellence (NICE)<sup>2</sup> states 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  $35\text{kg/m}^2$ . Hence, the focus on using BMI combined with waist circumference in order to define overweight and obesity in adults.

## 2.1.2 Measurement of Body Mass Index

BMI is defined as weight in kilograms divided by the square of the height in metres ( $\text{kg/m}^2$ ). 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  $30\text{kg/m}^2$  or over) unless otherwise stated.

**Figure 2.1 BMI ranges used to define BMI status**

Definition	BMI range ( $\text{kg/m}^2$ )
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

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

## 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  $35\text{kg/m}^2$ . For adults with a BMI of  $35\text{kg/m}^2$  or more, risks are assumed to be very high with any waist circumference ([Figure 2.2](#)).

**Figure 2.2 NICE risk categories**

BMI classification	Waist circumference		
	Low	High	Very high
Normal weight ( $18.5$ to less than $25\text{kg/m}^2$ )	No increased risk	No increased risk	Increased risk
Overweight ( $25$ to less than $30\text{kg/m}^2$ )	No increased risk	Increased risk	High risk
Obesity I ( $30$ to less than $35\text{kg/m}^2$ )	Increased risk	High risk	Very high risk
Obesity II ( $35$ to less than $40\text{kg/m}^2$ )	Very high risk	Very high risk	Very high risk
Obesity III ( $40\text{kg/m}^2$ or more)	Very high risk	Very high risk	Very high risk

## 2.2 Overweight and obesity prevalence

### 2.2.1 Body Mass Index

Chapter 10 of the HSE 2013 report provides information on overweight and obesity as well as anthropometric measures (height, weight, waist and hip circumference). In particular, Table 10.2 shows BMI prevalence among adults by age and gender for 2013.

The key findings show that in 2013:

- Just over a quarter of men (26 per cent) and just under a quarter of women (24 per cent) were obese, and 41 per cent of men and 33 per cent of women were overweight. In comparison 31 per cent of men and 41 per cent of women had a BMI in the normal range.
- Overall, mean BMI in men was 27.4kg/m<sup>2</sup> and in women it was 26.9kg/m<sup>2</sup>.
- 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 10B on page 7 of Chapter 10 of the HSE 2013 report shows prevalence of obesity and overweight, by age and gender for 2013.

### 2.2.2 Waist circumference

Table 10.6 Chapter 10 of the HSE 2013 report shows the distribution of mean waist circumference and prevalence of high or very high waist circumference by age and gender for 2013.

In 2013:

- Women were significantly more likely than men to have a very high waist circumference (44 per cent and 34 per cent respectively).
- Both mean waist circumference and the prevalence of a very high waist circumference were generally higher in older age groups.

### 2.2.3 Health risk associated with BMI and waist circumference

Table 10.10 Chapter 10 of the HSE 2013 shows the increased health risks associated with high and very high waist circumference, when combined with BMI to classify the risks (see paragraph 2.1.3 for definition of high and very high waist circumference).

Using combined categories of BMI and waist circumference to assess overall health risk:

- 18 per cent of men were at increased risk, 13 per cent at high risk and 23 per cent at very high risk. The equivalent proportions for women were: 14 per cent, 18 per cent and 23 per cent.

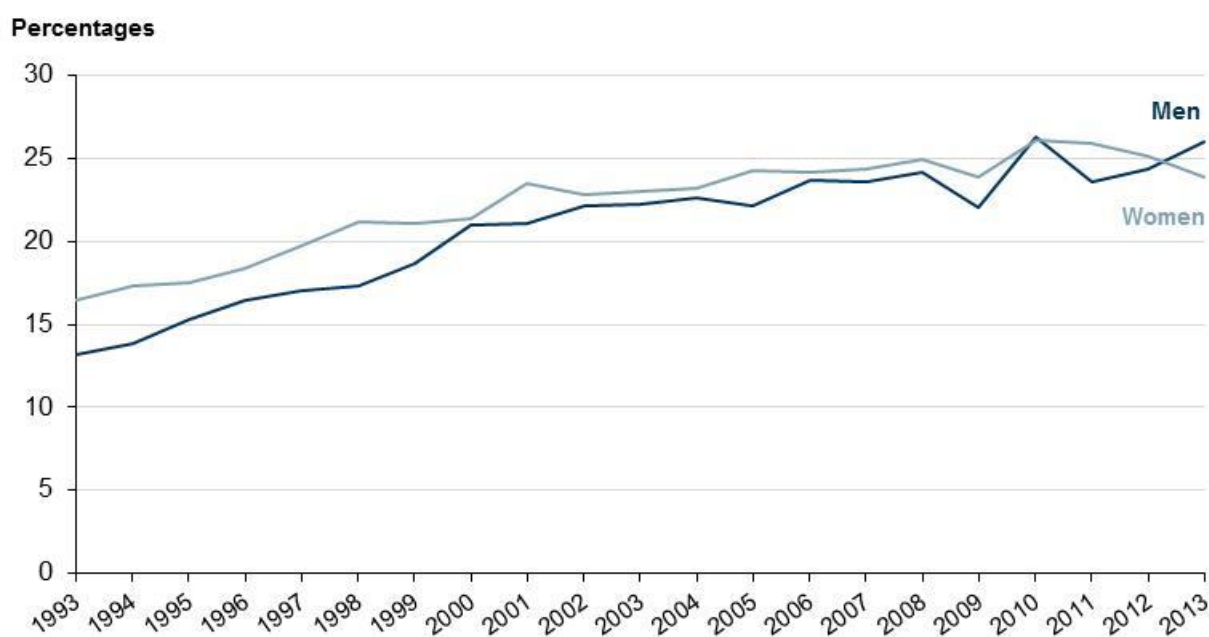
## 2.3 Trends in overweight and obesity

### 2.3.1 Body Mass Index

Table 4 from the HSE 2013 Adult Trend Tables<sup>3</sup> shows that in England:

- The proportion of adults with a normal BMI between 1993 and 2013 decreased from 41.0 per cent to 31.2 per cent among men and from 49.5 per cent to 40.8 per cent among women.
- For both men and women, the proportions that were overweight were stable over the same period (remaining between 41 and 46 per cent for men and remaining at approximately 32 per cent for women).
- There was however a marked increase in the proportion that were obese from 13.2 per cent in 1993 to 26.0 per cent in 2013 for men and from 16.4 per cent to 23.8 per cent for women (see Figure 2.3).
- The proportions that were overweight including obese increased from 57.6 per cent to 67.1 per cent in men and from 48.6 per cent to 57.2 per cent in women between 1993 and 2013.

Figure 2.3 - Obesity prevalence of adults (16+) in England 1993 to 2013



Source: Health Survey for England 2014. Health and Social Care Information Centre

This increase is also shown in Figure 10J Chapter 10 of the HSE 2013 report (based on a 3 year moving average).

### 2.3.2 Waist circumference

Table 5 from the HSE 2013 Adult Trend Tables shows that:

- Between 1993 and 2013, the proportion of adults with a very high waist circumference also increased, from 23 per cent to 39 per cent (from 20 per cent to 34 per cent among men and from 26 per cent to 44 per cent among women).

## 2.4 Obesity and demographic characteristics

The HSE 2013 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 10.4 Chapter 10](#) of the HSE 2013 report shows:

- There was very little difference 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 (26 per cent - 31 per cent) and lower in the highest quintiles (15 per cent - 18 per cent).
- For men, the proportions who were obese were also higher in the lowest income quintiles (29 per cent - 30 per cent) and lower in the highest quintiles (23 per cent - 24 per cent).

[Table 10.8 Chapter 10](#) of the HSE 2013 report shows:

- The proportion of women with a very high waist circumference was lower in the highest income quintiles (36 per cent - 39 per cent) and higher in the lowest income quintiles (47 per cent - 54 per cent).
- The proportion of men with a very high waist circumference was also lower in the highest income quintiles (30 per cent) and higher in the lowest income quintiles (39 per cent to 42 per cent).

## 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 report<sup>4</sup> 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 report<sup>5</sup> included a regression analysis exploring the risk factors associated with a raised waist circumference; and the HSE 2003 report<sup>6</sup> included a regression analysis of risk factors associated with overweight and obesity.

The HSE 2007 report used logistic regression (see HSE 2007 [Section 3.3.7](#) 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

HSE 2012<sup>7</sup> [Table 2B](#) (the latest HSE report that contains a chapter on physical activity), shows the proportion of the population aged 19 and over who meet the physical activity guidelines for participation in at least moderate intensity activity.

The key finding is:

- 66 per cent of men and 56 per cent of women meet the guidelines.

These results were also published early in the HSE 2012, early report.<sup>8</sup>

The HSE 2008<sup>9</sup> report had a special focus on physical activity and [Figure 2C](#) and [Table 2.5](#) show self-reported activity levels by BMI category.

The main findings are:

- Both men and women who were overweight (BMI 25 kg/m<sup>2</sup> to less than 30 kg/m<sup>2</sup>) or obese (BMI 30 kg/m<sup>2</sup> 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/m<sup>2</sup>).
- Forty-six per cent of men who were not overweight or obese met the recommendations, compared with 41 per cent of overweight men and 32 per cent of obese men.
- A similar pattern emerged for women, with 36 per cent of women who were not overweight or obese meeting recommendations, compared with 31 per cent of overweight and 19 per cent of obese women.
- Given these findings, it is not surprising that obese men and women had the highest rates of low activity (36 per cent and 46 per cent respectively).

[Table 3.6 Chapter 3](#) 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.

They show:

- 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 Region

[Table 10.3 Chapter 10](#) of the HSE 2013 report shows that:

- Among the different Regions in England, no significant statistical differences were observed in men or women in mean BMI or prevalence of overweight and obesity.

[Table 10.7 Chapter 10](#) of the HSE 2013 report shows that:

- There was no significant variation in the distribution of mean waist circumference or very high waist circumference by Region.



## 2.7.2 Obesity by Local Authority

Data by Public Health England (PHE) are available for prevalence of excess weight (overweight including obesity, BMI  $\geq 25\text{kg/m}^2$ ) in adults (aged 16 and over) at local authority level. These data are an indicator in the Public Health Outcomes Framework (PHOF) Health Improvement domain. PHE also produced a set of supporting indicators for adult underweight, healthy weight, overweight, and obesity prevalence.<sup>10</sup>

## 2.7.3 Quality and Outcomes Framework

The Quality and Outcomes Framework (QOF) for 2012/13<sup>11</sup> 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  $30\text{kg/m}^2$ , 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 2013/14, it was calculated that:

- The prevalence rate based on GP obesity registers was 9.4 per cent; much lower than the 24.9 per cent for adults reported in HSE 2013. 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  $30\text{kg/m}^2$  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 2013/14<sup>11</sup> show a breakdown of obesity at a regional level:

- Prevalence rates based on the QOF ranged from 10.7 per cent in North of England to 7.8 per cent in London commissioning region in 2013/14.

[Figure 2.4](#) shows the obesity prevalence rates from QOF for each region in England in 2013/14. 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, by Region – 2013/14**

Commissioning Region	Obesity prevalence (%)
NORTH	10.7
MIDLANDS AND EAST	9.9
LONDON	7.8
SOUTH	8.5



## 2.7.4 National and international comparisons

Scotland and Wales carry out their own health surveys. Adult BMI information can be found in [Section 7 \(Tables 7.1 to 7.2\)](#) of the *Scottish Health Survey 2013*<sup>10</sup>. The Scottish Government also published an *Obesity Topic Report*<sup>11</sup> alongside the Scottish Health Survey 2010. This report investigates the most appropriate measure of adult obesity using Scottish Health Survey data, and also investigates 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 4.8](#) on pages 60 and 61 and [Table 4.12](#) of the *Welsh Health Survey 2013*<sup>13</sup>.

In 2013:

- In Scotland, 27 per cent of adults were classified as obese, and 65 per cent of adults were classified as being overweight or obese.
- In Wales, 22 per cent of adults were classified as obese, and 58 per cent of adults were classified as being overweight or obese.
- This compares with 25 per cent of adults being obese in England and 62 per cent 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 2014 published *Health at a Glance: Europe 2014*<sup>14</sup> which includes data on overweight and obese populations across different countries in Europe.

Based on latest available health surveys:

- More than half (53 per cent) of the adult population in the European Union reported that they were overweight or obese.
- Obesity, which presents even greater health risks than being overweight, currently affects one in six adults (16.7 per cent) in the EU, an increase from one in eight a decade ago. However, there are considerable variations between countries.

In 2013, the OECD published *Health at a Glance: 2013*<sup>15</sup> which, in addition to Europe, also included data on overweight and obese populations across different countries worldwide.

Based on latest available health surveys, [Section 2.7](#) of the report, states that:

- More than half (52.6 per cent) of the adult population in the European Union reported that they were overweight or obese. This compares to just two years ago when half (50.3 per cent) of the adult population in the OECD reported that they were overweight or obese.
- The least obese countries were India (2.1 per cent), Indonesia (2.4 per cent) and China (2.9 per cent) and the most obese countries were the US (36.5 per cent), Mexico (32.4 per cent) and New Zealand (28.4 per cent). The equivalent figure for United Kingdom was 24.8 per cent.

## 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* report<sup>16</sup> 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.

In 2007, the Foresight report estimated that:

- By 2025, 47 per cent of men and 36 per cent of women (aged between 21 and 60) will be obese.
- By 2050, it is estimated that 60 per cent of males and 50 per cent of females could be obese.

More recent modelling suggests that:

- By 2030, 41 per cent to 48 per cent of men and 35 per cent to 43 per cent of women could be obese if trends continue.<sup>17</sup>

In a few years we will be able to compare against these modelled estimates. At the moment, the HSE 2013 data shows that the current rate for obesity is 26 per cent for men and 24 per cent for women.

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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) 2013.<sup>1</sup> The HSE is an annual survey and has provided information about the health of children since 1995. Information is presented showing relationships between obesity and income, parental Body Mass Index (BMI) and children's physical activity levels. Regional comparisons are also provided along with information on children's attitudes to physical activity and obesity.

This chapter also presents 2013/14 data from the National Child Measurement Programme for England (NCMP).<sup>2</sup> The NCMP provides the most comprehensive data on overweight and obesity among children aged between 4 and 5 years (reception school year) and 10 and 11 years (year 6); in 2013/14 over 1.1 million children were measured. The findings of the NCMP 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 *Scottish Health Survey 2013*<sup>3</sup>, *Welsh Child Measurement Programme 2012/13*<sup>4</sup>, *Welsh Health Survey 2012*<sup>5</sup> (the latest year to contain child obesity updates) and the *Health at a Glance: Europe 2014*<sup>6</sup> report published by the Organisation for Economic Co-operation and Development (OECD).

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

#### 3.1.1 Measurement of overweight and obesity in 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 overweight and obesity among children needs to take account of the different growth patterns among boys and girls at each age, and 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 85<sup>th</sup> (overweight) or 95<sup>th</sup> (obese) BMI percentiles based on the 1990 UK reference population.

### 3.2 Trends in overweight and obesity

The key findings from the *HSE 2013* are:

- The prevalence of obesity has increased since 1995, when 11 per cent of boys and 12 per cent of girls aged 2-15 were obese.
- There was a steady increase up to around 2004 and 2005, where obesity peaked at 18 per cent to 19 per cent among both boys and girls, but levels have been slightly lower since then.

- The levels in 2013, at 16 per cent for boys and 15 per cent for girls, were not statistically significantly different from those over the last three or four years.
- There were differences in trends according to age. Among children aged 11-15, the proportion who were obese has remained at a broadly similar level (with some fluctuation) since the peak in 2004/2005.
- Among those aged 2-10 the proportion who were obese has decreased significantly from 17 per cent of both boys and girls in 2005 to 13 per cent of boys and 12 per cent of girls in 2013.

Further information is available in [Table 4](#) of the *HSE 2013 Child Trend Tables*<sup>7</sup>.

The key findings from the National Child Measurement Programme (NCMP) for England, 2013/14 school year are:

- In Reception the proportion of obese children (9.5 per cent) was higher than in 2012-13 (9.3 per cent) but lower than in 2006-07 (9.9 per cent).
- In Year 6 the proportion of obese children (19.1 per cent) was higher than in 2012-13 (18.9 per cent) and also higher than in 2006-07 (17.5 per cent).
- As in previous years, a strong positive relationship existed between deprivation and obesity prevalence for children in each school year with obesity prevalence being significantly higher in deprived areas.
- Obesity prevalence was significantly higher in urban areas than rural areas for each age group, as was the case in previous years.

Further information is available in the *National Child Measurement Programme - England, 2013/14: Report*<sup>2</sup>.

[Chapter 11](#) of the *HSE 2013* 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 11C Chapter 11](#) of the *HSE 2013* report shows that among children aged 2-15, there was significant variation in the proportion who were obese according to equivalised household income.

- Boys in the lowest quintile were most likely to be obese (22 per cent), which was also the most prevalent quintile for girls (21 per cent).
- Boys and girls in the highest income quintile were least likely to be obese (7 per cent and 6 per cent respectively).
- Mean BMI varied between 17.4 for boys and 17.5 for girls in the highest income quintile, rising to 18.7 and 19.2 respectively in the lowest income quintile (Table 11.3, page 18, [Chapter 11](#) of *HSE 2013*.)

### 3.4 Child perceptions of their own weight

- [Table 11.5](#) from [Chapter 11](#) of the HSE 2013 shows that more than half of boys and girls aged 8-15 thought they were about the right weight (58 per cent and 52 per cent respectively).
- 11 per cent of boys and 15 per cent of girls thought they were too heavy, while 10 per cent of boys and 4 per cent of girls thought they were too light.
- A substantial proportion of children were not sure whether they were about the right weight (21 per cent of boys and 28 per cent of girls).
- [Figure 11E](#) ([Chapter 11](#) of the HSE 2013) shows the results among younger and older children. While the pattern was broadly similar across the age groups, a higher proportion of those aged 11-15 than 8-10 thought that they were too heavy.

### 3.5 Regional, national and international comparisons for children

The *NCMP report* provides figures by region and local authority.

The key findings for 2013/14 are:

- Obesity prevalence varied by region. The South East, East of England and East Midlands had the lowest obesity prevalence in reception (8.0 per cent, 8.5 per cent and 8.9 per cent respectively) and the South East, South West and East of England had the lowest obesity prevalence in year 6 (16.4 per cent, 16.7 per cent and 17.2 per cent respectively).
- London reported the highest level of obesity prevalence for both years (10.8 per cent for reception and 22.4 per cent for year 6).
- Obesity prevalence varied by Local Authority (LA). For reception this ranged from 5.5 per cent in the Royal Borough of Windsor and Maidenhead and 6.0 per cent in the Royal Borough of Kingston-upon-Thames to 14.4 per cent in the London Borough Of Hackney although it should be noted the participation rate for Royal Borough of Windsor and Maidenhead was particularly low at 34.2 per cent.
- In year 6 the range was from 11.1 per cent, in the London Borough of Richmond Upon Thames Council, to 26.7 per cent in London Borough Of Southwark Council.

Further information is available in Section 3.2 of the *National Child Measurement Programme - England, 2013/14: Report<sup>2</sup>*.

National information for Scotland and Wales can be found from their own health surveys.

Child Obesity information for Scotland can be found in [Chapter 7, Section 7.6](#) of the *Scottish Health Survey 2013<sup>3</sup>*.

The key findings are:

- Obesity prevalence of children in Scotland aged 2 to 15 rose from 14.3 per cent to 16.6 per cent between 1998 and 2008 but has remained stable since then (16.0 per cent in 2013).
- The prevalence of overweight including obese of 2 to 15 year olds rose from 29.1 per cent in 1998 to 32.8 per cent in 2008 but has fluctuated since then and is showing a



reduction in 2013 (28.8 per cent). However, further years' data are required to see if this is the start of a decline.

Child obesity information for children in Reception year (aged 4 and 5) in Wales can be found in [Section 4](#) of the *Public Health Wales Child Measurement Programme report 2012/13*.<sup>4</sup>

The key findings are:

- Over 1 in 10 (11.3 per cent) of 4 and 5 year olds had a BMI that was classified as obese.
- Just over a quarter (26.2 per cent) of 4 and 5 years olds measured were either overweight or obese.
- There was a slight difference between the levels of those classified as overweight or obese in boys and girls, with girls apparently having lower prevalence (25.6 per cent) than boys (26.8 per cent) although this is not statistically significant.

Earlier Welsh reports provide data for a wider age range of children. Child obesity information for children aged 2 to 15 in Wales can be found in [Section 6.7](#) of the *Welsh Health Survey 2012*.<sup>5</sup>

The key findings are:

- Around a fifth (19 per cent) of children aged 2 to 15 were classified as obese.
- Around a third (34 per cent) of children aged 2 to 15 were classified as overweight including obese.
- There was little difference between the levels of those classified as overweight or obese in boys and girls.

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

In 2013, the Organisation for Economic Co-operation and Development (OECD) published *Health at a Glance 2013: OECD Indicators*<sup>6</sup> which includes data on overweight and obese populations across OECD countries.

The key findings are:

- Overweight (including obesity) rates based on measured height and weight are about 23 per cent for boys and 21 per cent for girls, on average, in OECD countries, although rates are measured in different age groups in different countries. (UK figures are 22 per cent for boys and 26 per cent for girls).
- Boys tend to carry excess weight more often than girls, with the largest gender differences observed in Slovenia, China and Iceland.
- In contrast, Turkey and South Africa show larger overweight rates among girls. More than 30 per cent of boys and girls are overweight in Greece, Italy, New Zealand and the United States, and this is also the case for boys in Slovenia.

Further information is available in [Section 2.2](#) of *Health at a Glance 2013: OECD Indicators*.

This is the most recent year for which figures are available.

## 3.6 The future

Trends over time show that there has been little significant change in the levels of obesity over the last few years among children aged 11-15, after a steady increase between 1995 and the early 2000s. However, there has been a significant decrease in the proportion of children aged 2-10 that were obese, from 17 per cent of both boys and girls in 2005 to 13 per cent of boys and 12 per cent of girls in 2013. When making comparisons over time it is important to consider the different policies which have been in place during this period which may have had an impact on any observed changes. More details are given in [Appendix C](#).

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*<sup>9</sup> 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, and information on this can be found in [Appendix B](#). The report's predictions suggest a growth in the prevalence of obesity among people under 20 to 14 per cent by 2025 based on HSE 2004 data. However, these figures should be viewed with caution due to the widening confidence intervals on the extrapolation and the fact it is based on an HSE report which is now 10 years old.

Information and guidance for parents is needed to improve understanding and lead to more accurate perceptions of their children's needs. Campaigns such as Change4Life<sup>10</sup> can play a role in this, providing parents with information about healthy eating and the importance of physical activity.

The NCMP is a key element of the Government's approach to tackling child obesity. NCMP statistics are used to inform policy and set national ambitions such as those detailed in the Department of Health's 'Healthy Lives, Healthy People: A call to action on obesity in England'<sup>11</sup>.

Public Health England (PHE) is responsible for the Public Health Outcomes Framework (PHOF) which sets out the desired outcomes for public health and how these will be measured. The NCMP provides robust data for the child excess weight indicators in the PHOF.

The PHE Obesity Knowledge and Information team (formerly the National Obesity Observatory) conduct additional analyses on the NCMP data, including regional and local analyses, and produce a range of reports<sup>12</sup>.

This includes the 'Changes in children's BMI between 2006/7 and 2012/13' report which is the fifth in a series of yearly reports which use National Child Measurement Programme (NCMP) data to examine the changes in children's body mass index (BMI) that have taken place since 2006/07<sup>13</sup>.

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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 a reduced incidence of many chronic conditions. Physical activity contributes to a wide range of health benefits and regular physical activity can improve health outcomes<sup>1</sup> irrespective of whether individuals achieve weight loss.

Revised 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 duration<sup>2</sup>. 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 self-reported 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 published is the *Health Survey for England – 2013*<sup>3</sup> but the most recent HSE that included questions about physical activity and fitness was 2012<sup>4</sup> when physical activity and fitness was the main focus of the report. In addition to self-reported physical activity, objective measures of physical activity were collected for the HSE in 2008<sup>5</sup>. Independent measures of physical activity were recorded in the week following the interview. Physical activity was recorded using accelerometry<sup>b</sup>, allowing an objective and accurate estimation of activity to be recorded. Fitness levels were also measured using a step test. The HSE in 2007<sup>6</sup> included questions about people's perceptions and attitudes towards physical activity. This is the most up to date source of information on perceptions and attitudes towards physical activity. Scotland and Wales also publish Health Survey's along similar lines to the Health Survey for England.

*The National Travel Survey (NTS)*<sup>8</sup> 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. It also asked respondents how often they took walks of 20 minutes or more without stopping, for any reason.

*The Active People Survey (APS)*<sup>9</sup>, published by Sport England, provides information on participation in sport and recreation. It provides the measurements for the Public Health and Outcomes Framework for England<sup>10,11</sup> – Domain 2 Health Improvement. This is an annual survey, first undertaken in 2005/06 and the latest survey presents data for 2013/14. It measures sport participation amongst adults (aged 16+). The main measure is based on the percentage of adults playing at least 30 minutes of sport at moderate intensity at least once a week. The APS 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.

<sup>b</sup> Accelerometers measure the movement in one or more planes and can be used to measure physical activity. The advantage of accelerometry is that it provides objective information on the frequency, intensity, and duration of both physical activity and sedentary behaviour

*Allied Dunbar National Fitness Survey (ADNFS)*<sup>12</sup> 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 per cent. 70 per cent of those interviewed took part in a physical appraisal.

## 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 four categories:

- **Meets recommendations:** a minimum of 150 minutes of moderate intensity physical activity (MPA) per week in bouts of 10 minutes or more or 75 minutes of vigorous intensity physical activity (VPA) per week or an equivalent combination of the two.
- **Some activity:** 60-149 minutes/week of MPA, 30-74 minutes/week of VPA, or an equivalent combination of these.
- **Low activity:** 30-59 minutes/week of MPA, 15-29 minutes/week of VPA, or an equivalent combination of these.
- **Inactive:** less than 30 minutes/week of MPA, less than 15 minutes/week of VPA, or an equivalent combination of these.

### 4.2.1 Self-reported physical activity

Self-reported physical activity in adults aged 16 and over is presented in [Chapter 2, Section 2.3](#) of the *HSE 2012*<sup>4</sup>.

Key findings from the chapter are:

- Current UK guidelines for aerobic activity recommend that adults aged 19 and over should spend at least 150 minutes per week in moderately intensive physical activity, in bouts of ten minutes or longer, or 75 minutes per week of vigorous physical activity, or a combination of the two. The Health Survey for England (HSE) assumes that those aged 16 and over are adults; in 2012, 67 per cent of men and 55 per cent of women aged 16 and over met these new guidelines. In both sexes, the proportion who met the guidelines generally decreased with age.
- The proportion of participants meeting the current UK guidelines for aerobic activity increased as equivalised household income increased. 76 per cent of men and 63 per cent of women in the highest income quintile met the new guidelines, falling to 55 per cent of men and 47 per cent of women in the lowest quintile.
- There was a clear association between meeting the guidelines for aerobic activity and body mass index (BMI) category. 75 per cent of men who were not overweight or obese met the guidelines, compared with 71 per cent of overweight men and 59 per cent of obese men. The equivalent figures for women were 64 per cent, 58 per cent and 48 per cent, respectively.



- The previous recommendation was that adults aged 16 and over should achieve at least 30 minutes activity per day of at least moderate intensity, on at least five days per week. The proportion of adults meeting this recommendation has increased steadily since 1997 for men and 1998 for women. In 1997, 32 per cent of men met the recommendation, increasing to 43 per cent in 2012. Among women, 21 per cent met the recommendation in 1997 and 1998, increasing to 32 per cent in 2012. In both sexes, the proportion meeting the recommendation was similar in 2008 and 2012. To make the analyses comparable with previous years, results for the trend data did not take account of the detailed information on occupational activity introduced in 2008, nor use the new additional questions on occupational activity and walking introduced in 2012.
- In addition to aerobic activity, current UK guidelines also recommend that adults aged 19 and over should undertake muscle-strengthening activities on at least two days per week to increase bone strength and muscular fitness. Using the HSE's definition of adults, 34 per cent of men and 24 per cent of women aged 16 or over met this guideline. Overall 49 per cent of men and 56 per cent of women did no muscle-strengthening activity in the last four weeks, with a sharp decline in this type of activity as age increased.
- Among adults aged 16 and over, more men (33 per cent) than women (23 per cent) met both the aerobic and muscle-strengthening guidelines for physical activity. Very few participants (1 per cent of men, 2 per cent of women) met only the recommendations for muscle strengthening; a third of men and women (34 per cent and 33 per cent, respectively) met only the guidelines for aerobic activity.
- Current UK guidelines recommend that older adults at risk of falls should spend at least two days a week in exercise that improves balance and co-ordination. However, the HSE is not able to identify those specifically at risk of falls. The proportion of older participants who met the guidelines increased as levels of aerobic activity increased. 31 per cent of men who met the guidelines for aerobic activity spent at least two days a week in exercises that improve balance/co-ordination, compared with 9 per cent of men with low/some levels of aerobic activity and 3 per cent of men classed as inactive. The equivalent figures for women were 22 per cent, 10 per cent and 2 per cent respectively.

*The APS 2013/14<sup>11</sup> shows:*

- 15.6 million adults now play sport at least once a week. That's 1.7 million more than in 2005/6
- In addition, over 900,000 14-15 year olds play sport at least once a week
- Most adults – 58 per cent – still do not play sport
- 17.4 per cent of adults now take part in at least three sport sessions a week – up from 15.5 per cent in 2005/6
- There have been statistically significant increases in six out of the nine English regions (<https://www.sportengland.org/research/who-plays-sport/local-picture/>) from 2005/6 to 2013/14.

#### 4.2.2 Objective measures physical activity

Objective measures of physical activity in adults aged 16 and over are given in the *HSE 2008*<sup>5</sup>. 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. The *HSE 2008* is the most up to date source of information on objective measures of physical activity and has therefore been included in this publication.

Some key findings are:

- Based on the results of the accelerometer study, 6 per cent of men and 4 per cent 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 per cent and 8 per cent 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 are available in [Chapter 3](#) of the *HSE 2008*. Included within this chapter is information on the activity patterns for adults on weekdays and weekend days, analyses by BMI [Table 3.6](#), gender and age; as well as a comparison between the self-reported physical activity and the objective measures [Tables 3.10 to 3.12](#).

## 4.3 Physical fitness

Low levels of cardiovascular fitness are associated with increased risk of many health conditions. The *HSE 2008*<sup>5</sup> is the most up to date source of information on cardiovascular fitness. [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<sub>2</sub>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)*<sup>12</sup>, tested participants' fitness on a treadmill, by measuring VO<sub>2</sub>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<sup>c</sup> 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 per cent incline.

Key findings from *HSE 2008* [Chapter 4](#) are:

- Men had higher cardiovascular fitness levels than women, with an average level of VO<sub>2</sub>max of 36.3 ml O<sub>2</sub>/min/kg for men and 32.0 ml O<sub>2</sub>/min/kg for women. In both sexes, the mean VO<sub>2</sub>max decreased with age.

<sup>c</sup> Cardiovascular fitness was measured in the HSE 2008 among a sub-sample of survey participants aged 16-74. A step test was used, which involved the participant stepping up and down a single step to a rhythm given digitally by the nurse's laptop, for a maximum of eight minutes. The pace of stepping increased throughout the test. Heart rate measurements were taken during and after the test, and combined with the resting heart rate to provide an estimate of the individual's maximal oxygen uptake (VO<sub>2</sub>max), a measure of the overall level of fitness.



- Cardiovascular fitness was lower on average among those who were obese (32.3 ml O<sub>2</sub>/min/kg among men and 28.1 ml O<sub>2</sub>/min/kg among women) than among those who were neither overweight nor obese (38.8 ml O<sub>2</sub>/min/kg and 33.9 ml O<sub>2</sub>/min/kg respectively).
- Virtually all participants were deemed able to walk at 3 mph on the flat but 84 per cent of men and 97 per cent of women would require moderate exertion for this activity. Thirty two per cent of men and 60 per cent of women were not fit enough to sustain walking at 3 mph up a 5 per cent incline. Lack of fitness increased with age.
- Physical fitness was related to self-reported physical activity. Average VO<sub>2</sub>max decreased, and the proportion classified as unfit increased, as self-reported physical activity level decreased.

Details of physical fitness in adults in 1990 can be found in the *ADNFS*<sup>12</sup> report.

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 2012*<sup>4</sup>.

Respondents were asked about time spent sitting or standing, walking around, climbing stairs or ladders and lifting, carrying or moving heavy loads.

Some key findings are:

- Among adults aged 16-74 who did any paid or unpaid work in the last four weeks, men spent more time than women sitting down or standing up while at work (median 6.0 and 5.0 hours per day worked, respectively). Both sexes spent similar amounts of time walking around at work (men 0.8 hours and women 0.5 hours per work day). 61 per cent of men and 57 per cent of women considered themselves to be very or fairly physically active at work.

Further information is available in [Chapter 2, Section 2.4.3](#) of the *HSE 2012*.

### 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 2012*. Physical activities were grouped into four main categories: walking, heavy housework, heavy manual/ gardening/ DIY and sports and exercise (all for bouts of ten minutes or more).

Some key findings are:

- Men participated in all non-occupational physical activities except heavy housework on more days than women. On average, men participated in some non-occupational activity on 14.7 days in the past four weeks, compared with 12.9 days for women.

- On days that they participated, men spent more time than women in heavy manual/gardening/DIY activities and sports/exercise. Women spent more time in heavy housework; both sexes spent similar amounts of time walking. Overall men averaged 388 minutes (6.5 hours) and women 324 minutes (5.4 hours) in any non-occupational physical activity per week.

Further information is available in [Chapter 2, Section 2.4.1](#) of the *HSE 2012*.

The *National Travel Survey (NTS)* reports on the frequency of travel by different modes of transport including walking and cycling.

Some of the key findings from *NTS 2013* are:

- Walking trips in particular have fallen significantly over time from 292 trips per person per year in 1995/97 to 203 trips in 2013, a 30 per cent decrease. The 2013 walking trip rate was the lowest over this period and when asked, 20 per cent of respondents said that they walk for 20 minutes or more, less than once a year or never.
- 1 per cent of all stages<sup>d</sup> were made by bicycle. Between 1995/97 and 2013 the average number of bicycle stages per person per year has fallen from 20 stages in 1995/97 to 15 stages in 2013; a fall of 25 per cent.
- *NTS 2013* shows that bus use, as a proportion of all trips, was highest among those aged 17-20, accounting for 18 per cent of all trips in this age group. The next highest proportion was for those aged 60+, reflecting the availability of concessionary travel schemes for older passengers. In 2013, 76 per cent of eligible older people in England had a concessionary pass (79 per cent of women and 73 per cent of men).

As well as playing sport, the *Active People Survey (APS)*<sup>9</sup> data shows how people are involved in sport – for instance, through club membership, tuition or coaching, through competitive sport or as volunteers.

- Over 9.5 million people (16 plus) are members of a sports club – 22 per cent of the English population.
- Around 7.2 million people (16 plus) received sports coaching in 2013/14, while 5.8 million took part in competitive sport. Both activities have declined since 2005/6.
- There are also over 5.5 million people (16 plus) who volunteer regularly in sport, according to the latest figures.

## 4.5 Geographical patterns in physical activity

### 4.5.1 Physical activity levels by Region

The *HSE 2012* contains information on self-reported physical activity by regions defined as the former Government Office Regions.

- Among men, the (age-standardised) proportions meeting the current aerobic guidelines were highest in the South West and South East (72 per cent in both), and lowest in the North West (59 per cent). There was a similar pattern among women, with highest levels in the South East, East of England and the South West (61 per

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<sup>d</sup> Counting bicycle stages rather than trips allows us to include journeys that involve a bicycle but where this is not the main form of transport (for example, cycling to a railway station to then catch the train).

cent, 60 per cent and 58 per cent), and lowest levels in the North East and North West (48 per cent in both).

Further information is available in [Chapter 2, Table 2.2](#) of the *HSE 2012*.

The *APS 2013*<sup>9</sup> contains data on regional adult participation in 30 minutes, moderate intensity sport.

#### **4.5.2 Sport and active recreation by Local Authority**

Within the *Active People Survey 2013/14*, information is collected on sport participation by regions, counties and districts.

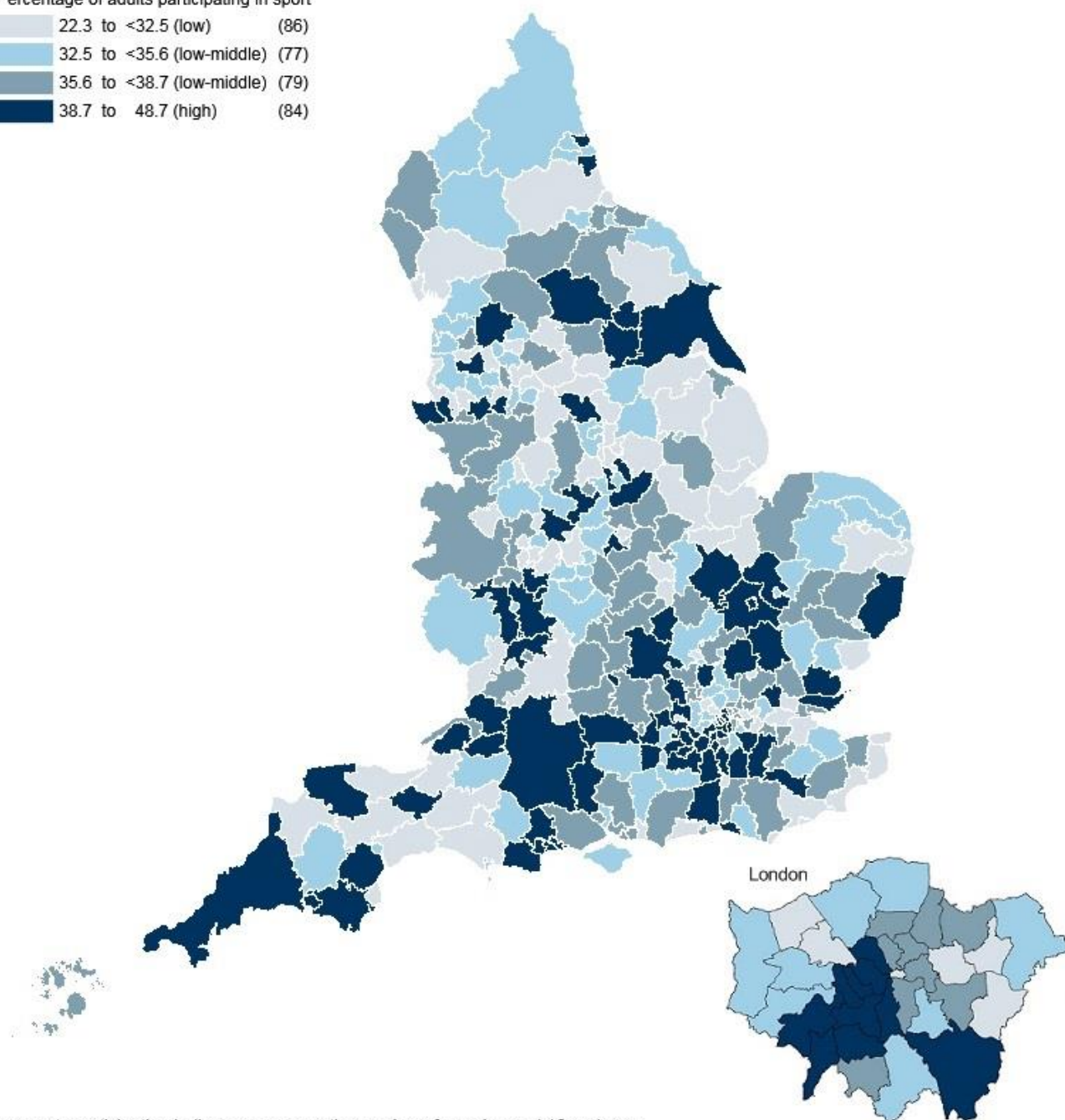
[Figure 4.1](#) shows the proportion of adults who participated in 30 minutes moderate intensity sport at least once a week, in each local authority.

Detailed results of activity levels by regions, counties and districts are available in the *Active People Survey, 2013/14 (APS8)*.

**Figure 4.1- Adult participation in sport in England, 2013/14**

Percentage of adults participating in sport

22.3 to <32.5 (low)	(86)
32.5 to <35.6 (low-middle)	(77)
35.6 to <38.7 (low-middle)	(79)
38.7 to 48.7 (high)	(84)



The sports participation indicator measures the number of people 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 in frequent 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 gprge walking.

Data sources: ONS Boundary Files 2014; Sport England's Active People Survey 8 (October 2013 - October 2014)

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### 4.5.3 Physical activity levels in Scotland and Wales

*The Scottish Health Survey 2013*<sup>13</sup> contains information on the self-reported physical activity levels of adults in Scotland.

Key findings on self-reported physical activity are:

- Men in Scotland remain significantly more likely than women to meet the guideline on aerobic activity (71 per cent, compared with 58 per cent).
- As seen in earlier years, activity levels are significantly associated with age, with older people least likely to meet the aerobic activity guideline. In 2013, 26 per cent of those aged 75 and over were active at the recommended level, compared with 79 per cent of those aged 16-34 and 71 per cent of those aged 35-54.

*The Welsh Health Survey 2013*<sup>14</sup> contains information on the self-reported physical activity levels of adults in Wales.

Key findings on self-reported physical activity are:

- 29 per cent of adults in Wales reported being physically active (doing a minimum 30 minutes of at least moderate intensity physical activity) on 5 or more days in the past week and 34 per cent reported doing less than 30 minutes on any day in the last week.

## 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 levels<sup>15</sup>.

Based upon five of the conditions specifically linked to inactivity (coronary heart disease, stroke, diabetes, colorectal cancer and breast cancer), it was estimated in 2002 that the direct cost of physical inactivity to the NHS across the UK is £1.06 billion<sup>16</sup> 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.

Chapter 2 of the *HSE 2012* 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 are:

- Men were more likely than women to average six or more hours per day of total sedentary time on both weekdays (31 per cent and 29 per cent respectively) and weekend days (40 per cent and 35 per cent respectively).
- Over half of men and women spent four or more hours in sedentary time per weekday and weekend day, regardless of their BMI category. Among women, the proportion averaging more than four hours of sedentary time on both weekdays and weekend days increased as BMI category increased. Among men, sedentary time per weekday was significantly higher in participants who were obese.
- The average sedentary time per weekday decreased from 5.0 hours in 2008 to 4.9 hours in 2012 in men and from 5.0 to 4.7 hours in women. On weekend days, the



average sedentary time decreased from 5.6 hours in 2008 to 5.4 hours in 2012 in men and from 5.3 to 5.1 hours in women.

## 4.7 Knowledge and attitudes towards physical activity

The most up to date source of information on perceptions and attitudes towards physical activity is in [Chapter 4: Adult physical activity: knowledge and attitudes](#), of the *HSE 2007*<sup>6</sup>

Key findings on perceptions and attitudes towards physical activity are:

- About a quarter of adults (27 per cent of men and 29 per cent of women) thought they knew the current recommendations for physical activity, but when asked how much physical activity they thought people their own age should do, fewer than 1 in 10 adults specified a level equivalent to the Chief Medical Officer's (CMO's) minimum recommended target. Thus only 6 per cent of men and 9 per cent of women thought people their age should participate in physical activity for at least 30 minutes on at least 5 days per week. A further 25 per cent of men and 23 per cent of women specified a level of physical activity greater than the CMO's minimum recommendations.
- Attitudes to physical activity were very similar between men and women aged 16-64. 44 per cent of men and 45 per cent of women agreed that they could get enough physical activity in their daily life without specific activities such as jogging or going to the gym. A high proportion of adults agreed that physical activity was good for health even if it was moderate, including activities such as housework and gardening (94 per cent of men and 97 per cent of women). Similarly, 88 per cent of men and 92 per cent of women agreed that physical activity was good even if it was for only 10 minutes at a time.
- A high proportion of men and women aged 16-64 perceived themselves to be either very or fairly physically active compared with other people in their age group (75 per cent of men and 67 per cent of women). The proportion of men who perceived themselves to be very physically active decreased with age from 27 per cent aged 16-24 to 15 per cent aged 55-64. This contrasts with a significant increase in women in the same age groups, from 9 per cent of those aged 16-24 to 16 per cent of those aged 55-64.
- Women were slightly more likely than men to want to do more physical activity than at present (69 per cent and 66 per cent respectively). Both men and women in the lowest equivalised income quintile category were less likely to want to do more physical activity (56 per cent and 59 per cent respectively) than those in the higher income groups.
- About half of adults aged 16-64 expected to do more physical activity in the next year, 49 per cent of men and 54 per cent of women. Expected future participation decreased with age for both sexes. 11 per cent of men and 9 per cent of women said that they were unlikely ever to do more physical activity in the future. 27 per cent of men and 22 per cent of women reported they would not like to do more physical activity than at the moment.
- Differences by sex were found in barriers to doing more physical activity. The two most frequently mentioned barriers were work commitments and not having enough leisure time; work commitments were cited most by men (45 per cent), while lack of leisure time was the barrier most frequently cited by women (37 per cent). Caring for

children or older people was cited by a quarter of women (25 per cent) but only 13 per cent of men.

- Overall 13 per cent of men and 16 per cent of women cited lack of money, and 10 per cent of men and 13 per cent of women cited poor health as barriers to doing more physical activity. There were significant variations by age, with the proportion mentioning poor health increasing with increasing age. In contrast work commitments, lack of leisure time and lack of money became less of a barrier with age.
- Lack of motivation was another important barrier that prevented people from doing more physical activity. 21 per cent of men and 25 per cent of women reported they were not motivated to do more; however, almost no one thought exercise was a waste of time.
- Having more leisure time (42 per cent of both men and women) and self-motivation (32 per cent of men and 38 per cent of women) were the most frequently reported factors that would encourage people to do more physical activity, exercise or sport. Further factors that might encourage more activity included the participant's own ill health or advice from a doctor or nurse.

Further information can be found in [Chapter 4](#) 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

This chapter provides an overview of the published data on physical activity in children. In 2011, guidelines were published for children under five for the first time, including those unable to walk<sup>1</sup>. Those able to walk unaided are recommended to be active for at least 180 minutes (3 hours) per day, spread throughout the day<sup>2</sup>.

The 2011 recommendations for children aged 5 to 18<sup>3</sup> are twofold. As previously, it is recommended that children should:

- be at least moderately active for at least 60 minutes every day, though it is stated specifically that this is a minimum and that children and young people should engage in moderate to vigorous physical activity (MVPA) for up to several hours each day.
- undertake vigorous intensity activity, including muscle- and bone-strengthening activities, at least three days each week (see [Appendix B](#) for further details).

The main source of data used to monitor children's physical activity is *the Health Survey for England (HSE)*, which gathers information on the physical activity levels of children aged 2 to 15. The most recent HSE published is the *Health Survey for England – 2013*<sup>3</sup> but the most recent HSE that included questions about physical activity was *HSE 2012*<sup>5</sup> which gathered information on self-reported participation in physical activities excluding the time spent at school. Data on National and International comparisons are taken from the *Scottish Health Survey*<sup>6</sup> and the *Welsh Health Survey*<sup>0</sup> and *Health at a Glance 2013: OECD Indicators*<sup>0</sup> a report published by the Organisation for Economic Co-operation and Development (OECD) in 2013 which included data on physical activity among children.

*The Taking Part Survey*<sup>9</sup> (TPS) has run since 2005 and is the key evidence source for Department for Culture, Media & Sport (DCMS). It is a continuous face to face household survey of adults aged 16 and over in England and children aged 5 to 15 years old. It collects data about engagement and non-engagement in culture, leisure and sport, showing how people enjoy their leisure time. This latest release presents child data from April 2013 to March 2014.

*The PE and Sport Survey*<sup>0</sup> collects information about levels of school sport in schools taking part in the School Sport Partnership Programme in England. The latest publication relates to the academic year 2009/10.

*The National Travel Survey*<sup>11</sup> provides information on personal travel in Great Britain and is published by the Department for Transport. It reports on the frequency of travel by different modes of transport including walking and cycling.

### 5.2 Meeting physical activity guidelines

In the *HSE 2012* [Tables 3A and 3B](#), the summary activity levels for children and young people are divided into three levels:

- Meets recommendations
- Some activity
- Low activity

[Appendix B](#) contains classifications of these levels.

## 5.2.1 Self-reported physical activity

Self-reported physical activity data in children aged 2 to 15 are given in [Chapter 3](#) of the *HSE 2012*<sup>5</sup>.

Some key findings show:

- A similar proportion of boys and girls aged 2-4 (9 per cent and 10 per cent respectively) were classified as meeting the current guidelines for children under 5 of at least three hours of physical activity per day.
- A higher proportion of boys than girls aged 5-15 (21 per cent and 16 per cent respectively) were classified as meeting current guidelines for children and young people of at least one hour of moderately intensive physical activity per day. Among both sexes, the proportion meeting guidelines was lower in older children. The proportion of boys meeting guidelines decreased from 24 per cent in those aged 5-7 to 14 per cent aged 13-15. Among girls the decrease was from 23 per cent to 8 per cent respectively.
- The proportion of children aged 5-15 meeting guidelines did not vary by equivalised household income quintile. However, the proportion of both boys and girls in the low activity group was greater in lower quintiles than higher quintiles of equivalised household income.
- Among boys, there was a significant decrease over time in the proportion meeting current guidelines, falling from 28 per cent in 2008 to 21 per cent in 2012. The corresponding change among girls was not significant from 19 per cent to 16 per cent. The decrease in the proportion meeting recommendations was more marked in the oldest age group: 28 per cent of boys and 14 per cent of girls aged 13-15 met the guidelines in 2008, compared with 14 per cent and 8 per cent respectively in 2012.
- Patterns of activity varied by age. Younger and older children (aged 2-4 and 11-15) walked on more days in the last week than those in the middle age groups. Participation in informal activities fell steadily with age, while participation in formal sports increased with age in boys up to the age of 10.
- A similar proportion of boys and girls participated in at least seven hours of physical activity in the last week (52 per cent and 46 per cent respectively). Among boys, the proportion that participated in at least seven hours of informal activity in the last week fell from 44 per cent for those aged 2-4 to 27 per cent for those aged 13-15. Among girls, this decrease with age was more marked, falling from 40 per cent to 9 per cent.
- For both boys and girls, there was a gradual increase in the average number of hours spent in formal sports activity in the last week as the equivalised household income quintile increased; this increase was from 1.2 hours for boys and 0.6 hours for girls in the lowest income quintile to 2.1 hours and 1.6 hours respectively in the highest income quintile.

[Section 3.3](#) of the *HSE 2012* gives more detailed information on children's self-reported activity levels including activity levels by region, household income, body mass index category (BMI) and in relation to parental physical activity.

The *Taking Part Survey* collects data on participation in culture, leisure and sport and covers children aged 5 to 15 years.

Key findings show:

#### **In the four weeks prior to being interviewed**

- 84 per cent of 5-10 year olds took part in sport outside of school and 97 per cent of 11-15 year olds took part in sport in or outside of school. These results have remained stable for 5-10 year olds since 2008/09. For 11-15 year olds, participation is at a similar level to 2008/09 but has increased significantly since 2010/11 (95 per cent).
- Amongst all children (5-15 year olds) 90 per cent had taken part in sport in the 4 weeks. Following a significant decrease from 2008/09 (90 per cent) to 2012/13 (88 per cent), this figure has now returned to a similar proportion to 2008/09.

#### **In the week prior to being interviewed**

- 71 per cent of 5-10 year olds took part in sport outside of school and 90 per cent of 11-15 year olds took part in sport either in or outside of school. This represents no significant change since 2008/09 for either age group, however for 11-15 year olds there has been a significant increase in participation since 2010/11 (86 per cent).

Full details are presented in [Chapter 2](#) of the *Taking Part 2013/14 Annual Child Report*.

### **5.2.2 Objective measures of physical activity**

The *HSE 2008*<sup>12</sup> collected objective measures of physical activity through using accelerometry<sup>e</sup> data for children aged 4 to 15. The *HSE 2008* is the most up to date source of information on 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 *HSE 2008* [Chapter 6](#). 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 periods.

- Based on accelerometry, a higher proportion of boys than girls were classified as meeting the government recommendations for physical activity (33 per cent and 21 per cent respectively). Only around one in five children had achieved the intermediate level of 'some activity' (at least 30 minutes of MVPA on each day), with 47 per cent of boys and 61 per cent of girls in the low activity group.
- There was considerable variation by age. For boys, 51 per cent of those aged 4-10 had met the government recommendations, but only 7 per cent of boys aged 11-15 had met these recommendations. For girls the pattern was similar, although fewer met the recommendations in either age group. Among girls aged 4-10, 34 per cent had met the recommended target, while in this study none of the girls aged 11-15 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](#) 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](#) 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.

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<sup>e</sup> Accelerometers measure the movement in one or more planes and can be used to measure physical activity. The advantage of accelerometry is that it provides objective information on the frequency, intensity, and duration of both physical activity and sedentary behaviour

## 5.3 Types of physical activity

### 5.3.1 Travel to / from school

Travelling to and from school is recognised as an opportunity for children to achieve part of their recommended daily physical activity. The *HSE 2012* included questions on how children travel to and from school, playgroup or nursery. [Chapter 3, Section 3.4.1](#)

- Two thirds of children who had attended school in the last week had walked to or from school on at least one occasion (64 per cent of boys and 67 per cent of girls). 41 per cent of boys and 44 per cent of girls walked to/from school every day. On average, children spent 1.1 hours walking to/from school in the last week. More boys than girls cycled to/from school on at least one occasion in the last week (6 per cent and 1 per cent respectively).
- The proportion of both boys and girls who had walked and/or cycled to or from school on at least one occasion in the last week was similar in 2008 and 2012.

The *National Travel Survey: 2013*<sup>11</sup> presents information on travel to and from school for children aged 5 to 16.

Looking specifically at how children (aged 5-16) travel to/from school:

- The most common mode of transport was walking with 42 per cent of trips and the proportion of trips made by car was 34 per cent.
- Since 1995/97, the proportion of trips where children walked to school has fallen from 47 per cent to 42 per cent, in 2013. Over the same time period the proportion of trips made by car has increased from 30 per cent to 34 per cent - the average distance travelled for education purposes has increased by 31 per cent to 2.7 miles, suggesting that as education trips get longer, more children are travelling to school by car, rather than walking.
- Residents of urban conurbations on average make more trips for educational purposes, but residents of rural areas tend to travel much further.

### 5.3.2 Other types of physical activity

The *HSE 2012* [Chapter 3, Section 3.4.2](#) provides self-reported data on child participation in formal sports (including 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) and informal activities (including cycling (excluding to/from school), dancing, skating, trampolining, hopscotch, active play, skipping rope, and housework and gardening). Walking (excluding walking to or from school) is 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.

- Overall, 93 per cent of boys and 92 per cent of girls had participated in any type of physical activity in the last week.
- Boys were more likely than girls to have participated in formal sports (48 per cent and 38 per cent respectively) on at least one occasion in the last week; however, levels of walking (52 per cent of boys and 54 per cent of girls, excluding walking to/from school) and informal activity (85 per cent among both sexes) were similar.
- Boys averaged more days of participation in informal activities and formal sports (4.0 days and 1.3 days respectively) than girls (3.8 and 0.9 respectively).



The *Taking Part Survey 2013/14* includes information on the sports that children participated in.

#### Sport in the last four weeks

- Amongst 5-10 year olds, using the “sport in the last four weeks” measure there has been a decrease in the rate of those who had participated in football, hockey, rounders and those who did walking or hiking since 2010/11, when the question was first asked.
- For 11-15 year olds, using the “sport in the last four weeks” measure, there has been a significant increase since 2010/11 in the rate of those who had played basketball, rounders, dodge ball, tennis, table tennis, badminton and taken part in swimming, diving or lifesaving, athletics and cycling or riding a bike.

#### Competitive sport in the last 12 months

- 78 per cent of 5-15 year old children reported that they had participated in some form of competitive sport in the last 12 months. Nearly three quarters had taken part in competitive sport in school (74 per cent), whilst a third had taken part outside of school (34 per cent). There have been no significant changes recorded in these figures since 2011/12, which was the first full year this question was asked.

Further details are presented in [Chapter 2](#) of the *Taking Part 2013/14 Annual Child Report*<sup>9</sup>.

The *National Travel Survey: 2013*<sup>11</sup> reports on Primary vs Secondary education trips.

- A higher proportion of children aged 5-10 walk to school, compared with children aged 11-16 – 46 per cent and 37 per cent respectively.

Further details are presented in the *National Travel Survey: 2013*.

## 5.4 Participation in Physical Education and school sport

The *PE and Sport Survey 2009 to 2010* (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 *PE and Sport Survey* show that in 2009/10:

- 55 per cent 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.
- By type of school surveyed, the proportions were 64 per cent of pupils in primary schools, 46 per cent in secondary schools and 64 per cent of pupils in special schools.

### 5.4.2 Time spent on PE and school sport

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

Key findings show participation in PE and school sport:

- The latest survey found that across Years 1-13, 55 per cent of pupils participated in at least three hours of high quality PE and out-of-hours school sport during the 2009/10 academic year. This means that when compared to the previous survey (2008/09) there has been an encouraging increase of five percentage points in terms of the proportion of pupils in Years 1-13 taking part in three hours of PE and out-of-hours school sport.
- Participation levels are highest in Years 4-6, and also reasonably high in Years 1-3 and Years 7-8. They are at their lowest in Years 12 and 13. The greatest *improvements* over the last year have been in Years 1-3, while the smallest improvements have been for Years 12 and 13.
- Participation rates do not vary much between the different regions of the country, but they do vary in terms of urban and rural areas, with those in rural areas being more likely to participate in at least three hours of PE and school sport (60 per cent v. 54 per cent). However, the gap has closed slightly over the last year.
- There is some link between high levels of participation in at least three hours of PE and out of hours school sport, and the proportion of pupils who are eligible for Free School Meals (FSM). Highest performing schools tend to have fewer pupils who are eligible for FSM than do lower performing schools. There is, however, an indication that over the last year performance has increased at a faster rate in schools with a higher proportion of children who are eligible for FSM.
- Data collected for the first time on differences in participation levels between girls and boys shows that overall boys (58 per cent) are more likely than girls (52 per cent) to take part in at least three hours of PE and school sport. There are small differences in participation levels between girls and boys in Years 1-7. However, after Year 7 the gap grows bigger.

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](#), including gender patterns. The types of sports children participate in [Chapter 5](#); participation in intra- and inter-school competitive activities [Chapter 4](#) and links to other clubs and organisations [Chapter 6](#).

## 5.5 Parental participation

The *HSE 2012*<sup>5</sup> collected information on parental activity levels which allow analysis of children's physical activity levels in relation to parental physical activity. Parental physical activity was classified in four categories, as defined in [Chapter 4](#). Due to small numbers, however, the four adult activity levels were combined into two groups for parents; those that met the adult MVPA guidelines (reported 150 minutes per week of moderately intensive physical activity, 75 minutes per week of vigorous intensity activity, or an equivalent combination of the two) and those who were less active than this.

Key findings show:

- The proportion of boys aged 5-15 meeting recommendations varied according to parental activity levels. For instance, this proportion was higher among boys whose father did not achieve the physical activity guidelines for adults. Among girls of the same age, the activity level of parents made relatively little difference to the proportion meeting recommendations.

Further details are provided in [Chapter 3, Section 3.3.6](#) of the *HSE 2012*.

## 5.6 Sedentary behaviour

Sedentary time is at least as important as only undertaking moderate physical activity as a contributory 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 2012* asked children about the amount of time spent in sedentary pursuits including time spent watching television, other screen time, reading and other sedentary pursuits.

Key findings show:

- Average total sedentary time (excluding time at school) was similar for boys and girls on weekdays (3.3 hours and 3.2 hours respectively) and weekend days (4.2 hours and 4.0 hours respectively).
- The average time per day spent watching TV on weekdays increased steadily with age in boys (from 1.5 hours for those aged 2-4 to 1.8 hours for those aged 13-15); however, the increase among the same ages was steeper in girls (1.5 to 2.2 hours). Conversely, on weekend days, the increase with age in other sedentary time was steepest for boys (from 1.4 hours for those aged 2-4 to 2.9 hours for those aged 13-15, compared with 1.4 to 2.4 hours in girls).
- For both boys and girls, the average number of hours spent watching TV on both weekdays and weekend days increased as equivalised household income decreased.
- Among children aged 2-10, the mean number of sedentary hours on a typical weekday decreased from 3.0 hours for both sexes in 2008 to 2.9 hours for boys and 2.8 hours for girls in 2012. Among boys aged 11-15, mean sedentary time on weekend days increased from 4.8 hours in 2008 to 5.0 hours in 2012; for girls of similar age, mean sedentary time decreased from 4.8 to 4.5 hours.

Further details are provided in [Chapter 3, Section 3.5](#) of the *HSE 2012*.

## 5.7 Attitudes and perceptions to physical activity

In the *HSE 2007*<sup>13</sup> (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.

Key findings from *HSE 2007* showed:

- When asked how much physical activity children should do, only one in 10 children aged 11-15 suggested that it should be 60 minutes on all seven days per week, i.e. at the minimum level recommended by the government. A further 8 per cent of boys and 3 per cent of girls overestimated the minimum recommendations.
- There was some association between thinking that children should be active for at least 60 minutes per day and actually achieving the recommended targets. 12 per cent of boys and 13 per cent of girls who thought children should do physical activity at the recommended level also achieved this compared to 9 per cent of boys and 6 per cent of girls who did not think this.

- Most boys and girls perceived themselves to be either very or fairly physically active compared with other people their age (90 per cent and 84 per cent respectively). The proportion of boys who perceived themselves to be very physically active was similar from age 11 to 15 (47 per cent and 42 per cent respectively) compared with a significant decline in girls between ages 11 and 15 (38 per cent and 19 per cent respectively).
- For the most part, children who achieved a high level of activity accurately perceived themselves as being either very or fairly physically active compared with others (94 per cent of boys and 92 per cent of girls). However, 68 per cent of boys and 67 per cent of girls in the lowest activity group thought they were very or fairly physically active compared with others.
- Girls were more likely than boys to want to do more physical activity (74 per cent and 61 per cent respectively), regardless of age. The proportion who wanted to do more physical activity declined with age among boys, but not among girls. The most frequently mentioned sports and activities boys would like to do more were ball sports (39 per cent), riding a bike and swimming (both 35 per cent), whereas among girls the most frequently mentioned was swimming (47 per cent). For both boys and girls, there was a pattern of declining interest in some activities with age.

Full details on the behaviour, knowledge and attitudes towards physical activity are provided in *HSE 2007 Chapter 9*.

## 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 6](#) of the *Scottish Health Survey 2013*<sup>6</sup>.

Child activity levels key findings:

- In 2013, when school-based activities were accounted for, 75 per cent of children in Scotland were active at the recommended level of at least 60 minutes a day every day.
- Boys (78 per cent) remain more likely than girls (72 per cent) to meet the guideline.
- With the exception of 2012, the 2008-2013 period saw a steady increase (from 71 per cent to 75 per cent), in the percentage of children meeting the guideline when school-based activities were included. The longer-term trend excluding school-based activities and dating back to 1998 has seen more fluctuation.
- The decline in activity levels with increased age remains more pronounced for girls than boys. 81 per cent of girls aged 5-7 met the guideline, compared with 51 per cent of those aged 13-15. The equivalent figures for boys were 86 per cent and 68 per cent, respectively.
- In 2013, two-thirds (67 per cent) of children aged 2-15 participated in sport or exercise in the week prior to interview (71 per cent of boys and 63 per cent of girls). For boys, this marked a halt to the recent decline in participation. For girls, the downward trend, evident since 2009 (70 per cent), continued in 2013 (63 per cent).

Child physical activity information for Wales can be found in [Chapter 6](#) of the *Welsh Health Survey 2013*<sup>7</sup>.

Key facts on child physical activity show:

- Around a third (35 per cent) of children in Wales were reported as undertaking physical activity for at least an hour on every day of the previous week, more common amongst boys than girls.

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

In 2013 the Organisation for Economic Co-operation and Development (OECD) published *Health at a Glance 2013: OECD Indicators*<sup>8</sup> which includes data on physical activity among children based on latest available health surveys.

- At age 11, Austria, Ireland, Spain, and Finland stand out as strong performers with over 30 per cent of children reporting exercising for at least 60 minutes per day over the past week. At age 15, children in the United States are the most active, followed by Ireland, Czech Republic, the Slovak Republic and Canada. Children in Denmark, France, Italy, and Switzerland were least likely to report exercising regularly. Italy ranks at the bottom end of the spectrum for both boys and girls, and at both ages. In the United Kingdom exercising for at least 60 minutes per day over the past week falls from age 11 to age 15 for both boys and girls, with girls aged 11 (under 20 per cent) being less physically active than boys (over 30 per cent).
- A consistently higher proportion of boys than girls reported undertaking physical activity, whether moderate or vigorous, across all countries and all age groups (Figure 2.4.1).
- It is of concern that physical activity tends to fall between ages 11 to 15 in almost all OECD countries, with boys in Italy and in the United States the only exceptions.
- In Austria, Finland, Norway and Germany, the rate of boys exercising at recommended levels is reduced by half between age 11 and age 15. This is also the case for girls in many countries. In Austria, Ireland, Spain and Finland, rates of physical activity among girls fall by over 60 per cent.

Further details are provided in [Section 2.4](#) and [Figure 2.4.1](#) and [2.4.2](#) of *Health at a Glance 2013: OECD Indicators*.



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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:

- Living Costs and Food Survey (LCF).
- National Diet and Nutrition Survey (NDNS).
- Health Survey for England (HSE).

The LCF collects information on the type and quantity of food and drink purchased in households. It was previously known as the *Expenditure and Food Survey (EFS)*, which was renamed in 2008, when it became a module within 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 2013*<sup>1</sup> being the most recent edition. The LCF is conducted throughout the year (January to December) across the whole of the UK.

The NDNS<sup>2</sup> published the combined results from the first four years, of a rolling programme (2008/09 - 2011/12) of a continuous cross-sectional survey of food consumption, nutrient intakes and nutritional status of people aged 18 months and older living in private households in the UK.

The survey 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 (see [Appendix C](#)) 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. Details of UK nutrient recommendations can also 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 'five-a-day'<sup>3</sup> target, encouraging people to eat at least five portions of a variety of fruit and vegetables a day. The latest key findings are from *HSE 2013*<sup>4</sup> and some more detailed findings are taken from the *HSE 2007*<sup>5</sup> as this is when such data were last reported. Fruit and vegetable consumption have also been updated for adults and children in the *HSE 2013 Trend tables*.<sup>6</sup>

Data on National and International comparisons are taken from the *Scottish Health Survey*<sup>7</sup> and *Welsh Health Survey*<sup>8</sup> and *Health at a Glance 2014*<sup>9</sup> report published by the Organisation for Economic Co-operation and Development (OECD) in 2014.

### 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 2013*<sup>1</sup> presents trends in UK purchases and expenditure on food and drink, based on the LCF. [Table 1.1](#) of this report shows expenditure on food and drink between 2010 and 2013. [Table 2.1](#) shows quantities of household purchases of food and drink over the same period. [Chapter 3](#) focuses on dietary trends, [Chapter 4](#) presents some comparisons between the four UK countries and regions and [Chapter 5](#) presents some demographic comparisons.

Some key findings on purchases and expenditure on food in 2013 were:

- The amount that an average household spent on all food and drink, including alcoholic drinks and food eaten out was £42.18 per person per week. Taking inflation into account, this was 1.6 per cent less than 2012 and 3.9 per cent less than 2010. Household food and non-alcoholic drink purchases was £26.62 per person per week.
- 11 per cent of all household spend went on food in 2013. For the lowest 20 per cent of households by equivalised income it was 16.5 per cent.
- While overall purchases of fruit and vegetables reduced between 2010 and 2013, consumers spent 6.7 per cent more on fresh and processed vegetables and 9.2 per cent more on fresh and processed fruit.

Family Food provides annual data on fruit and vegetable purchases that show the trend in purchases over time and therefore, the actual figures are higher than consumption data as it records quantities purchased which does not take account of edible waste. However, it is a valuable resource as it shows the long term trend on food purchases.

## 6.2.2 Consumption of food and drink by age and gender

The combined results from the first four years (2008/09 - 2011/12) of the NDNS rolling programme supersedes and replaces previous reports for the NDNS rolling programme as it provides a larger sample size.

[Chapter 5](#) of this publication on food consumption and nutrient intakes shows the key findings for intake based on food diaries (selected individuals were asked to complete a diary of food and drink consumption over four consecutive days).

Some key findings from the report show:

- Mean consumption of oily fish in all age groups was well below the recommended one portion (140g) per week. For example, mean consumption in adults aged 19 to 64 years was 53g per week (52g for men and 54g for women) and for adults aged 65 years and over mean consumption was 90g per week (103g for men and 81g for women)
- Mean intake of saturated fat exceeded the recommended level (no more than 11 per cent food energy) in all age/sex groups. For example, mean saturated fat intake for adults aged 19 to 64 years was 12.6 per cent food energy.
- Mean intakes of trans-fatty acids provided 0.6-0.7 per cent of food energy for all age/sex groups, which was within the recommendation of no more than 2 per cent food energy.
- Mean intakes of non-milk extrinsic sugars (NMES) exceeded the recommendation of no more than 11 per cent of food energy for all age/sex groups, for example 12.1 per cent of food energy for adults aged 19-64 years.
- 58 per cent of adults aged 19 to 64 years and 51 per cent of adults aged 65 years and over, reported consuming alcohol during the four-day recording period. On average,

adults aged 19 to 64 years who consumed alcohol during the four-day recording period obtained 8.4 per cent of energy intake from alcohol and those aged 65 and over obtained 6.4 per cent.

### 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 3.3](#) of *Family Food 2013*<sup>1</sup> 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 nor all households are close to the eatwell plate as a whole.
- For non-dairy sources of protein, both low income and all households are close to the eatwell plate recommendation.
- Both low income households and all households have a relatively similar diet when compared to the eatwell plate.

### 6.2.4 Fruit and vegetable consumption

*HSE 2013*<sup>4</sup> [Chapter 7](#) included an update for fruit and vegetable consumption for adults measured in portions per day, 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 2013 were:

- Fewer men than women consumed the recommended five or more portions of fruit and vegetables on the previous day (25 per cent and 28 per cent respectively).
- For both men and women, the proportion consuming five or more portions per day increased from 2001 (when measurements started) reaching a peak in 2006 at around 28 per cent for men and 32 per cent for women. Levels have dropped since then.
- Consumption varied with age, adults aged 16-24 consumed, on average, the lowest number of portions of fruit and vegetables and were least likely to meet the '5-a-day' recommendation.
- Higher consumption was also associated with higher income, and vice versa: 30 per cent of men and 35 per cent of women in the highest income quintile had consumed five or more portions on the previous day compared with only 19 per cent of men and 23 per cent of women in the lowest quintile.
- Both men and women living in London and other regions in the South consumed, on average, the highest number of portions. Adults living in London were also most likely to meet the 'five-a-day' recommendation.

The NDNS also provides estimates of number of portions of fruit and vegetables consumed according to the five-a-day criteria and unlike HSE, its methodology takes into account the contribution from fruit and vegetables in composite dishes so estimates are higher than HSE. The latest estimates from [Chapter 5](#) of the year 1-4 report show:

- Adults aged 19 to 64 years on average consumed 4.1 portions of fruit and vegetables per day, while adults aged 65 years and over consumed 4.6 portions per day. 30 per cent of adults aged 19 to 64 and 41 per cent of older adults met the 'five-a-day' recommendation

Scotland and Wales carry out their own health surveys. Fruit and vegetable consumption can be found in [Section 5.3](#) of the *Scottish Health Survey 2013*<sup>7</sup>. Similarly, fruit and vegetable consumption can be found in [Section 4.6](#) of the *Welsh Health Survey 2013*<sup>8</sup> for adults (and in [Section 6.5](#) for children).

In 2013, the percentage of adults consuming the recommended five or more portions of fruit and vegetables daily was 22 per cent in Scotland and 33 per cent in Wales. This compares with 26 per cent for England<sup>6</sup>.

The Organisation for Economic Co-operation and Development (OECD) published *Health at a Glance 2014, OECD Indicators*<sup>9</sup> which includes data on fruit and vegetable consumption among adults by various countries. [Section 2.4](#), [Figures 2.4.1](#) and [2.4.2](#) show 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.

Some key findings in 2012:

- The percentage of adults reporting to consume fruit daily varied from about 50 per cent in Finland, Bulgaria and Romania, to more than 70 per cent in Italy, Malta, Ireland and the United Kingdom.
- On average across EU member states, 61 per cent of adults reported to eat fruit daily.
- Women are eating fruit more often than men in all countries (except in Switzerland), with the largest gender gap in Iceland, Slovenia, Germany and the Slovak Republic (a difference of at least 20 percentage points).
- In many Mediterranean countries and countries with high level of consumption (Turkey, Greece, Cyprus, the United Kingdom, Italy, Romania, Spain, Ireland and Malta), the gender gap is much smaller (under 10 percentage points).

### 6.2.5 Knowledge and attitudes

*HSE 2007*<sup>5</sup> [Chapter 5](#) report asked respondents about their knowledge of and attitudes towards diet and healthy eating. This is the most up-to-date source for this information. [Tables 5.7](#) and [5.8](#) present data on knowledge of fruit and vegetable guidelines, [Tables 5.10](#) and [5.11](#) show data on perceptions of diet, [Tables 5.12](#) to [5.16](#) on attitudes to healthy eating and [Table 5.17](#) on barriers to improving diet.

Some key findings were:

- A higher proportion of women (78 per cent) than men (62 per cent) 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 per cent for men and 72 per cent for women). Women were more likely to consider that they had a 'very' healthy diet compared with men (19 per cent and 16 per cent

respectively) and less likely to report their diet as being 'not very healthy/very unhealthy' (8 per cent of women and 12 per cent of men).

The majority of men and women agreed with the statements 'Healthy foods are enjoyable' (66 per cent of men and 80 per cent of women) and 'I really care about what I eat' (64 per cent of men and 74 per cent women). Few agreed, and most disagreed, that 'Healthy eating is just another fad' (68 per cent of men and 73 per cent of women disagreed).

## 6.2.6 Energy and nutrients from food and drink

Trends in energy and nutrient intake are available from *Family Food 2013*<sup>1</sup> [Chapter 3](#).

Key findings are:

- Based on food and drink purchases, total energy intake per person was 4.4 per cent lower in 2013 than in 2010. This is a statistically significant downward trend over this four year period that confirms the longer term downward trend already apparent since the mid-1960s. Total energy intake was an average of 2,192 kcal per person per day in 2013.
- Mean intakes of all vitamin and mineral intakes were close to or exceeded the population-weighted Reference Nutrient Intake, where one is set.
- Between 2012 and 2013, the lowest income households (bottom 10 per cent) decreased energy intake from household food, as did those in the second decile.
- Intakes of NMES measured as a percentage of food and drink energy (excluding alcohol), were lower in 2013 than in 2010. Intake continues to exceed recommended maximum levels.

The NDNS also collects information on energy and nutrients from food and drink. The Family Food nutrient intake estimates are based on household food purchases so it is measuring the nutrient content of the food that is bought by the household, whereas NDNS measures the nutrients from the food individuals eat. Therefore, Family Food gives higher estimates generally as it's based on purchases rather than consumption so includes waste. On this basis, the latest findings from [Chapter 5](#) of the NDNS year 1- 4 report, show:

- Mean daily intakes for total energy were 2,111 kcal for men aged 19 to 64 years, 1,613 kcal for women aged 19 to 64 years, 1,935 kcal for men aged 65 years and over and 1,510 kcal for women aged 65 years and over.
- Mean intakes of vitamins (except vitamin D) from food sources were close to or above the Recommended Nutrient Intake (RNI) for all age/sex groups.
- Mean intakes of minerals from food sources were below the RNI for some age/sex groups. For example, mean iron intakes were below the RNI for women aged 19 to 64 years and 23 per cent of women had iron intake below the Lower Recommended Nutrient Intake (LRNI). Mean intakes of calcium, zinc (and iodine for girls only) were also below the RNI in the 11 to 18 years age group and about a fifth of girls aged 11 to 18 years fell below the LRNI.
- Mean intake of NMES exceeded the Dietary Reference Value (DRV) in all age sub-groups, except females aged 50 to 64 years.

[Chapter 9](#) of the NDNS report also presents information on intakes by income quintiles.



*Family Food 2013* also presents some country and regional analysis of energy intake, using 3 year averages between 2010 and 2013. [Table 4.3](#) on pages 43-44 shows energy and nutrient intakes by UK country and [Table 4.7](#) shows the same information by region.

Some key findings are:

- Average daily energy intake was highest in Northern Ireland, at 2,416 kcal per person per day, and lowest in Wales at 2,205 kcal person per day. Households in Northern Ireland had the highest intake of total fat but when taken as a percentage of total energy intake, there was little variation across all four countries.
- Average energy intake per person per week was highest in the East Midlands, the South West and the East, and lowest in Yorkshire and the Humber and the North East. Alcohol and non-milk extrinsic sugars (NMES) varied the most, with London the lowest and the North East and South West highest, respectively.

## 6.3 Children's diet

### 6.3.1 Consumption of food and drink

The *NDNS*<sup>2</sup> rolling programme covers children as well as adults. The report published the combined results from the first four years (2008/09 - 2011/12) and 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 key findings include:

- Mean reported total energy intake was 1,126 kcal/day for children aged 1.5 to 3 years and 1,532 kcal/day for children aged 4 to 10 years. For children aged 11 to 18 years, mean total energy intake was 1,972 kcal/day for boys and 1,569 kcal/day for girls.
- Mean NMES intake exceeded recommendations (no more than 11 per cent food energy) most notably for children aged 4 to 10 years and 11 to 18 years where mean intake provided 14.7 per cent and 15.6 per cent of food energy respectively. For children, the main source of NMES was 'non-alcoholic beverages' (soft drinks and 'fruit juice' – soft drinks alone provided 30 per cent of NMES intake in the 11 to 18 years age group). 'Cereals and cereal products' was the other major contributor in children mainly from cakes, biscuits and breakfast cereals.

### 6.3.2 Fruit and vegetable consumption

*HSE 2013*<sup>4</sup> [Chapter 7 Section 7.4](#) includes information on the fruit and vegetable consumption of children.

Some key findings from the latest report show:

- Mean daily fruit and vegetable consumption was higher in girls than in boys. Girls consumed, on average, 3.1 portions compared with 2.8 portions for boys. A similar proportion of boys and girls consumed five or more portions per day (16 per cent of boys, 17 per cent of girls).
- Mean daily fruit and vegetable consumption varied with age, with intake lowest among those aged 11-12 for both boys and girls. Children in the 11-12 age group were also least likely to eat the recommended five or more portions.



- The mean number of portions of fruit and vegetables consumed was highest among those in the highest income quintile (3.5 portions for boys and 3.9 portions for girls).
- Fruit, primarily fresh fruit, vegetables (fresh, raw, tinned and frozen) and fruit juice were the most commonly consumed types of fruit and vegetables in children, followed by pulses and salad. Girls were more likely than boys to consume salad and fresh fruit.

The NDNS findings from [Chapter 5](#) of the latest year 1- 4 report show:

- Mean consumption of fruit and vegetables for children aged 11 to 18 years was 3.0 portions per day for boys and 2.7 portions per day for girls. 10 per cent of boys and 7 per cent of girls in this age group met the ‘five-a-day’ recommendation.

*Health at a Glance 2013*<sup>10</sup> was the last report that included 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 interpreting comparisons.

[Section 2.3](#), [Figures 2.3.1](#) and [2.3.2](#) show the percentage of 15 year olds who eat fruit or vegetables on a daily basis.

- Overall, boys in Canada, Denmark and Portugal, and girls in Denmark, Norway and Canada had the highest rates of daily fruit consumption, while consumption was relatively low in Poland, Sweden, Estonia, and Finland, with rates of around one in four for girls and one in five, or even less, for boys.
- Girls in Belgium most commonly ate vegetables daily (60 per cent), followed by Denmark, France, Canada and Switzerland (45-50 per cent). Belgium also led the way for boys (46 per cent), with close to 40 per cent in France, Canada and Ireland. Vegetable consumption in the UK was 40 per cent for girls and 34 per cent for boys.

### 6.3.3 Knowledge and attitudes

*HSE 2007 Chapter 10* (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](#) show data on knowledge of fruit and vegetable consumption, [Table 10.8](#) on perception of diet, [Tables 10.9](#) to [10.13](#) on attitudes to healthy eating and [Tables 10.14](#) and [10.15](#) 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 per cent of boys and 21 per cent 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 per cent of boys and 72 per cent of girls) rather than ‘very healthy’ (13 per cent of both boys and girls). Only 1 per cent thought that their diet was ‘very unhealthy’.
- The majority of children aged 11-15 agreed that ‘healthy foods are enjoyable’, with more girls than boys agreeing with the statement (72 per cent and 64 per cent respectively). Thirty-eight per cent of boys and 34 per cent of girls agreed that ‘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<sup>1</sup>. This chapter focuses on the health outcomes related to being overweight and obese.

Information from the National Audit Office<sup>2</sup> (NAO) and a House of Commons Select Committee report,<sup>3</sup> is used to establish the broad risk of death and disease associated with obesity. The Health Survey for England 2013 (HSE 2013)<sup>4</sup> 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*<sup>5</sup> 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 team at the HSCIC<sup>7</sup>, including data on the number of items dispensed 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 dispensed obesity drug Rimonabant in 2009 for similar reasons.

From April 2013, responsibility for public health services moved from the Department of Health to Public Health England and responsibility for commissioning these services moved from Primary Care Trusts (PCTs) to Local Authorities (LAs). Therefore, from April 2013, local level data will be collected and reported at LA or Clinical Commissioning Group (CCG) level rather than by PCT and Strategic Health Authorities (SHAs) which have also been abolished. As PCT and LA boundaries are not coterminous in all cases (as well as SHA and Regions), it is not possible to compare regional and local level data between this year and last year's report (unless the areas are coterminous). Aggregate figures by Commissioning Region are also presented in some of the data tables this year and this will continue for future reporting to aid comparability.

### 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	
	Male	Female
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 obesity<sup>2</sup>, approximately 6 per cent 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 obesity<sup>3</sup>. This equates to 6.8 per cent 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 2013. 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

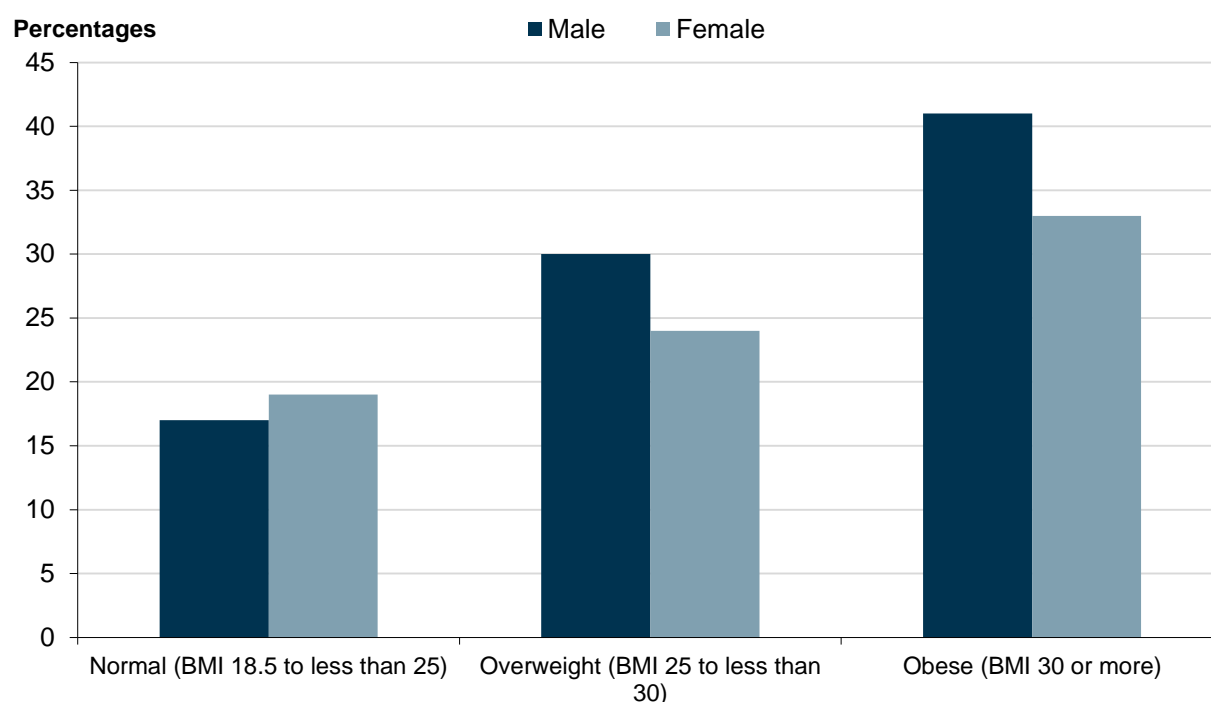
[Table 1](#) from the HSE 2013 Adult Trend Tables<sup>7</sup> shows the latest trend information on blood pressure levels by age and gender for 2003-2013. Within this section, the latest information on blood pressure by BMI and waist circumference has been updated using HSE 2013.

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 10.13](#) of the HSE 2013 shows that:

- Overweight men and women are more likely to have high blood pressure than those in the normal weight group (this is sometimes referred to as the healthy weight group) (30 per cent compared to 17 per cent for men and 24 per cent compared to 19 per cent for women).
- However, obese men and women were the most likely to have high blood pressure (41 per cent and 33 per cent respectively). This is also shown in [Figure 7.2](#).

**Figure 7.2 - High blood pressure by Body Mass Index (BMI) and gender, England, 2013**



**Source:** Health Survey for England 2013. Health and Social Care Information Centre

[Table 10.14](#) of the HSE 2013 shows that:

- Men with a very high or high waist circumference were more likely to have high blood pressure than those with a desirable waist circumference (48 per cent and 34 per cent compared with 16 per cent).
- The pattern was similar for women; 38 per cent of those with a very high waist circumference and 23 per cent of those with a high waist circumference had high blood pressure, compared with 10 per cent of those with a desirable waist circumference.

### 7.3.2 Longstanding illness

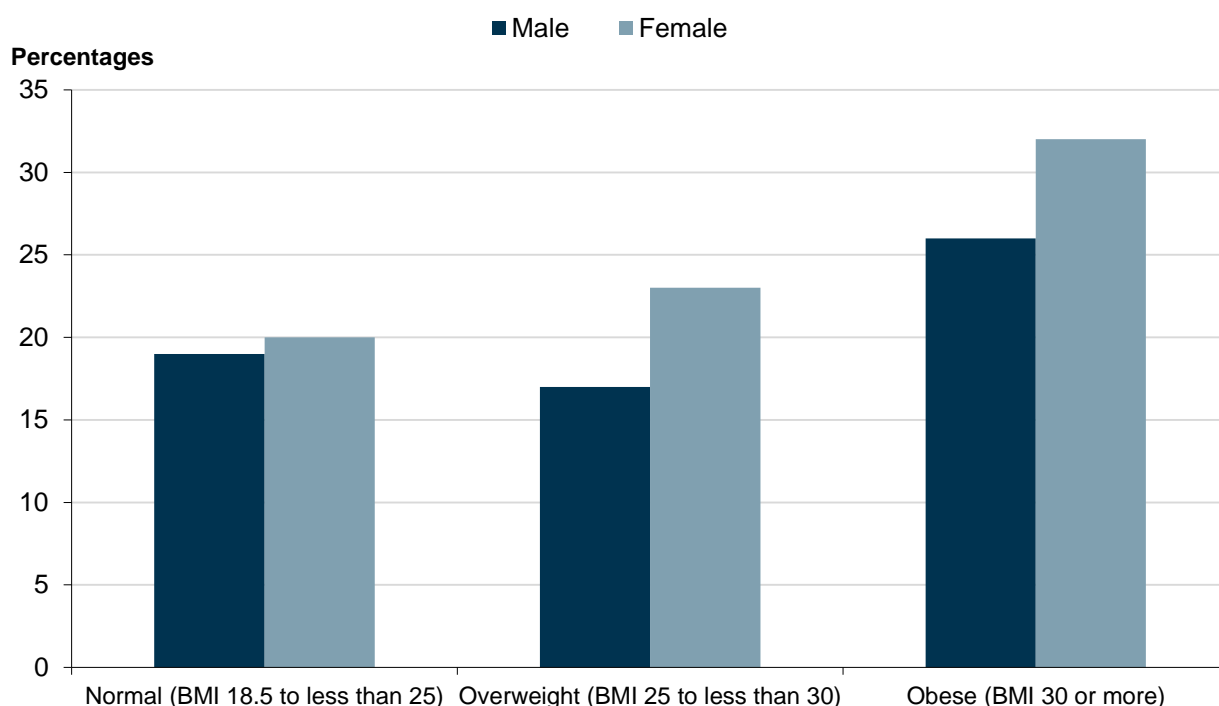
[Table 12](#) from the HSE 2013 Adult Trend Tables shows the latest trend information on general health, longstanding illness and acute sickness by gender for 1993-2013.

[Table 10.17](#) of the HSE 2013 shows that in 2013:

- The prevalence of limiting longstanding illness (whereby a longstanding illness limits the respondents' activity in some way) was higher among obese men and women (26 per cent and 32 per cent respectively) than those in the normal weight group (19 per cent and 20 per cent respectively). This is also shown in [Figure 7.3](#).

- 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.

**Figure 7.3 - Limiting longstanding illness by Body Mass Index (BMI) and gender, England, 2013**



**Source:** Health Survey for England 2013. Health and Social Care Information Centre

**Table 10.18** of the HSE 2013 shows that:

- Both men and women with a very high waist circumference were more likely to report having a limiting longstanding illness than those with a desirable waist circumference (29 per cent compared with 15 per cent for men and 34 per cent compared with 16 per cent for women).

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 2006<sup>8</sup> can be found in [Chapter 7](#) of *Statistics on obesity, physical activity and diet: England, 2009*<sup>9</sup>.

## 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). The FCE data for bariatric surgery are based on the Office for Population, Censuses and Surveys: Classification of Intervention and Procedures, 4<sup>th</sup> Revision (OPCS-4) codes<sup>10</sup>. The most recent data available are for the financial year 2013/14.

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. The data presented in this report are for inpatients only and therefore does not reflect all hospital activity. This should be considered when interpreting the data as recording and clinical practice may vary over time and between regions. The Hospital Episodes Statistics (HES) data presented in this section are for inpatients only, and so does not reflect all hospital activity. This should be considered when interpreting the data as practice may vary over time and between regions. In particular, practices vary between hospitals as to whether some episodes are carried out or recorded in outpatient or inpatient settings and any changes in recording and clinical practice can affect the trends presented in this report. Outpatient episodes are not included in these figures due to the primary diagnosis code being poorly populated, and there being no certainty that episodes are for obesity diagnoses.

One provider in particular, Derby Hospitals NHS Foundation Trust recorded 183 inpatient admissions in 2013/14 with a primary diagnosis of obesity compared to 920 inpatient admissions in 2012/13 which is a large part of the decrease seen on the national figures (down 1,632). See section 7.4.1 for further detail. They have also recorded a decrease of 739 inpatient bariatric surgical procedures in 2013/14 mainly due to gastric band maintenance procedures which is a large part of the decrease seen on the national figures (down 1,640). This Trust has also recorded 594 procedures in outpatient settings in 2013/14 with a primary procedure code of gastric band maintenance compared to none in 2012/13. See section 7.4.2 for further detail.

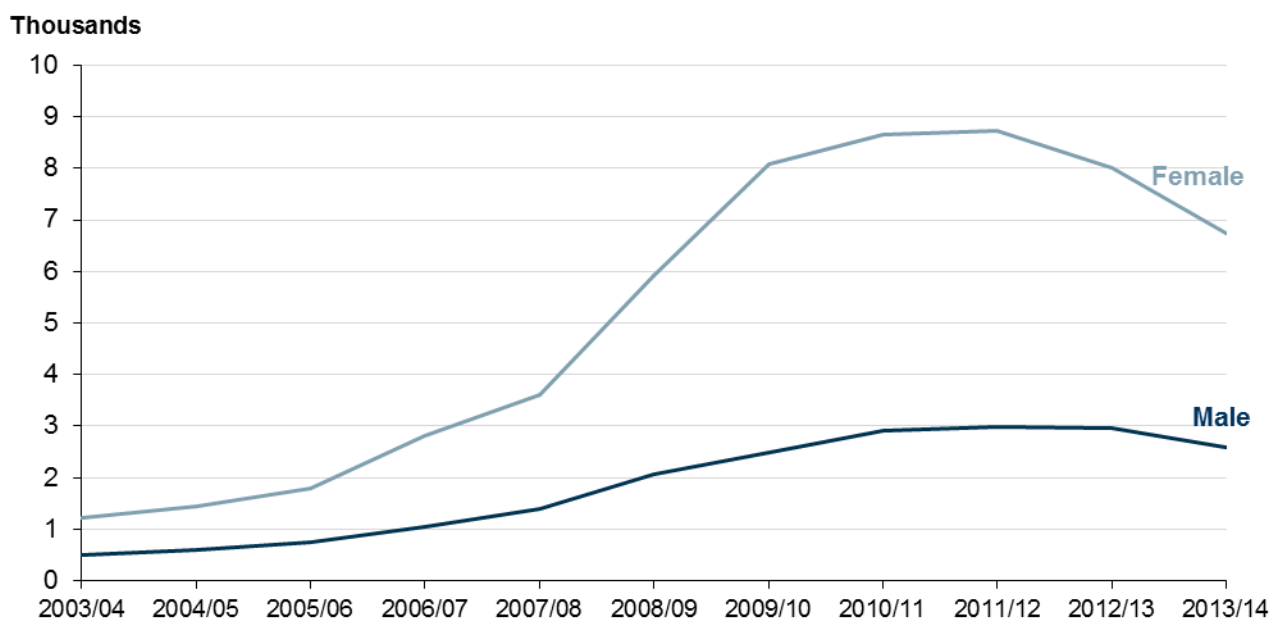
### 7.4.1 Finished admission episodes with a diagnosis of obesity

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 2013/14:

- There were 9,325 hospital admissions with a primary diagnosis of obesity among people of all ages. This is 15 per cent less admissions than in 2012/13 (10,957), although this is over five times as high as ten years ago in 2003/04 (1,711).
- The largest drops in the last two years were at the Derby Hospitals NHS Foundation Trust which had 1,521 hospital admissions in 2011/12, 920 in 2012/13 and only 183 in 2013/14. This contributes to over half of the overall drop seen in the last two years.
- There were 6,746 female admissions and 2,578 male admissions.
- Over the ten year period 2003/04 to 2013/14, in every year, more than twice as many females were admitted to hospital than males, with a primary diagnosis of obesity. This is shown in [Figure 7.4](#).

**Figure 7.4 - Finished Admission Episodes with a primary diagnosis of obesity, by gender, England, 2003/04 to 2013/14**

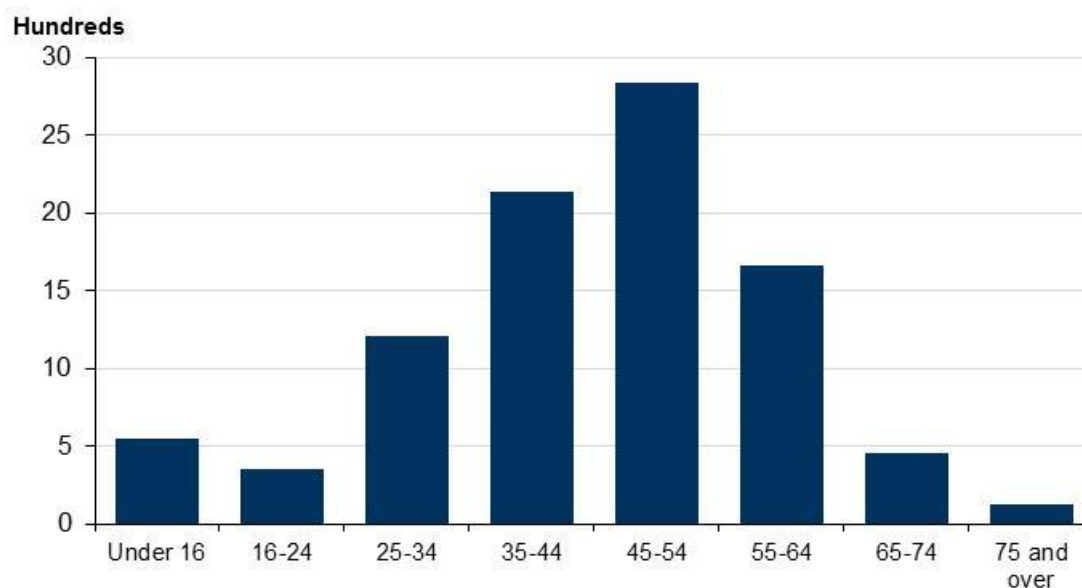


Source: Hospital Episode Statistics, (HES) Health and Social Care Information Centre

Table 7.2 shows:

- Admissions with a primary diagnosis of obesity fell in each age group except for those aged 75 and over (123 in 2013-14 from 99 in 2012-13, a rise of 24 per cent). It is also worth noting that the decreases for those aged under 16 and 16 to 24 were very small at only 1 per cent for each age group.
- The highest number of admissions with a primary diagnosis of obesity occurred in those aged 45 to 54. This is shown in Figure 7.5.

**Figure 7.5 - Finished Admission Episodes with a primary diagnosis of obesity, by age, England, 2013/14**



Source: Hospital Episode Statistics, HES. Health and Social Care Information Centre

Table 7.3 shows that among Regions, in 2013/14:

- London had the highest number of admissions with a primary diagnosis of obesity (2,117), with the next highest number in the North East (2,018). East Midlands had the lowest number (420).
- The North East had the highest rate of admissions per 100,000 of the population (77) and East Midlands and East of England both had the lowest (9).

Table 7.4 shows that among Commissioning Regions in 2013/14:

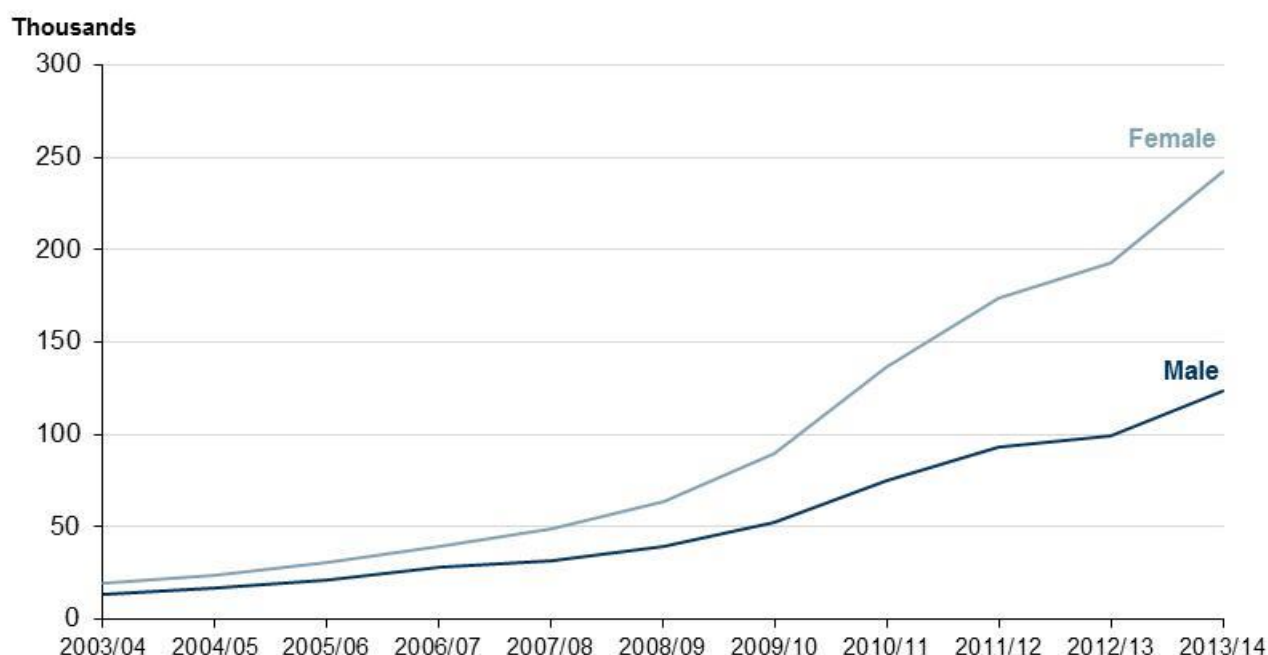
- The North of England had the highest number of admissions with a primary diagnosis of obesity (3,651), with the next highest number in London (2,117).
- The Midlands and East of England had the lowest number of admissions (1,688). London had the highest rate of admissions per 100,000 of the population (25) and the Midlands and East of England had the lowest (10).
- As with the national data, more females were admitted to hospital with a primary diagnosis of obesity than males in all regions.

When looking at sub-national admission figures, comparisons of the prevalence of obesity between areas can be affected by people who may travel for treatment as it may be concentrated in some areas. Also different regions may adopt different clinical practices.

Table 7.5 shows that in 2013/14:

- There were 365,577 admissions with a mention of obesity (i.e. a primary or a secondary diagnosis). This is much higher than the 9,325 admissions which had a primary diagnosis of obesity only which shows 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 242,118 female admissions with a mention of obesity compared to 123,423 male admissions (but this gap between genders is smaller than the gap for primary diagnoses only). This is shown in Figure 7.6.

**Figure 7.6 - Finished Admission Episodes with a primary or secondary diagnosis of obesity, by gender, in England, 2003/04 to 2013/14**



Source: Hospital Episode Statistics, HES. Health and Social Care Information Centre

Table 7.6 shows that in 2013/14:

- Adults aged 55 to 64 had the highest number of recorded hospital admissions with either a primary or secondary diagnosis of obesity (68,175), followed by those aged 65 to 74 years (63,735). 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.

Table 7.7 shows that among Regions in 2013/14:

- The North West had the highest number of admissions with a primary or secondary diagnosis of obesity (55,848) and the North East had the lowest number (18,824).
- The South West had the highest rate of admissions per 100,000 of the population (894) and London had the lowest (505).

Table 7.8 among Commissioning Regions in 2013/14:

- The Midlands and East of England had the highest number of admissions with a primary or secondary diagnosis of obesity (113,699) and London had the lowest number of admissions (42,511).
- The North of England had the highest rate of admissions per 100,000 of the population (735) and London had the lowest (505).

As stated previously, when looking at sub-national admission figures, comparisons of the prevalence of obesity between areas can be affected by people who travel for treatment as it may be concentrated in some areas. Also different regions may adopt different clinical practices.

## 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, sleeve gastrectomy and gastric band maintenance, 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 7.9](#) 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 the 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 as primary diagnosis is generally quite poorly recorded in the outpatient data so it can not be certain the procedure was carried out on a person diagnosed as being obese. A consequence of this is that a switch by a hospital to provide some of the more minor procedures in outpatient settings may cause the figures to drop for inpatient FCEs.

Surgical procedures are recorded using the Office of Population, Censuses and Surveys: Classification of Interventions and Procedures, 4<sup>th</sup> Revision (OPCS-4) codes. Operative procedure codes were revised from 2006/07. 2012/13, 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.

Last year, changes were made to the standard definition of "bariatric surgery" using the same methodology as [Healthcare Resource Groups \(HRGs\)](#)<sup>11</sup>. The new HRGs were created in 2011/12 Reference Costs collection as a result of work between the National Casemix Office at the Health and Social Care Information Centre, the British Obesity and Metabolic Surgery Society (BOMSS) and the Chapter F Digestive System Expert Working Group (EWG).

When investigated, this definitional change had a minimal effect on the previous years' data; between 20 and 30 cases a year from 2009/10 onwards when OPCS 4.5 and 4.6 codes were used following on from the introduction of a specific code for maintenance of gastric band in OPCS-4.5 in 2009/10.

Data prior to 2006/07 based on the old coding system and the old definition cannot be compared with results based on the revised systems from 2006/07 onwards. See [Appendix B](#) for further details.

The main findings in [Table 7.9](#) show:

- In 2013/14, there were 6,384 recorded FCEs with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery. This is 20 per cent less episodes than in 2012/13 (8,024).
- The largest drops in the last two years were at the Derby Hospitals NHS Foundation Trust which had 1,484 episodes in 2011/12, 905 in 2012/13 and only 166 in 2013/14. This contributes to over half of the overall drop seen in the last two years.
- Females continue to account for the majority of these; in 2013/14 there were 4,823 such recorded FCEs for females and 1,560 for males. This is a similar ratio to

2012/13 (6,080 for females and 1,944 for males) and 2003/04 (378 for females and 96 for males).

The main findings in [Table 7.10](#) which present this data by age breakdown show in 2013/14:

- Adults aged 45 to 54 had the highest number of recorded FCEs with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery (2,218).
- Grouping the recorded FCEs with a primary diagnosis of obesity and a main or secondary procedure of bariatric surgery for adults aged 45 to 54 and adults aged 55 to 64 together (3,391) accounts for 53 per cent of all bariatric surgery procedures.

The main findings when comparing Regions from [Table 7.11](#) include:

- London had the highest number of recorded FCEs for bariatric surgery in 2013/14 (1,559), while East of England had the lowest (294).
- The North East had the highest number of FCEs per 100,000 of the population (46). The Region with the lowest rate was East of England with 5 FCEs per 100,000 of the population.

When comparing Commissioning Regions [Table 7.12](#) shows that:

- The North of England had the highest number of recorded FCEs for bariatric surgery in 2013/14 (2,259), while the Midlands and East of England had the lowest (1,157).
- London had the highest number of FCEs per 100,000 of the population (19). The Region with the lowest rate was the Midlands and East of England with 7 FCEs per 100,000 of the population.

## 7.5 Prescribing

The most commonly prescribed drug for the treatment of obesity by GP practices, in England, was Orlistat (Xenical®). Orlistat is a capsule that prevents the absorption of some fat in the intestine.

NHS Prescription services have coded Mazindol within *BNF section 4.5 Drugs used in the treatment of obesity*, but as prescription data has no information as to why it was prescribed it cannot be stated it was definitely used for the treatment of obesity in this instance. Consequently Mazindol has been excluded, from prescribing data since 2012. The number of data items affected is very small and does not have a major effect on the totals overall.

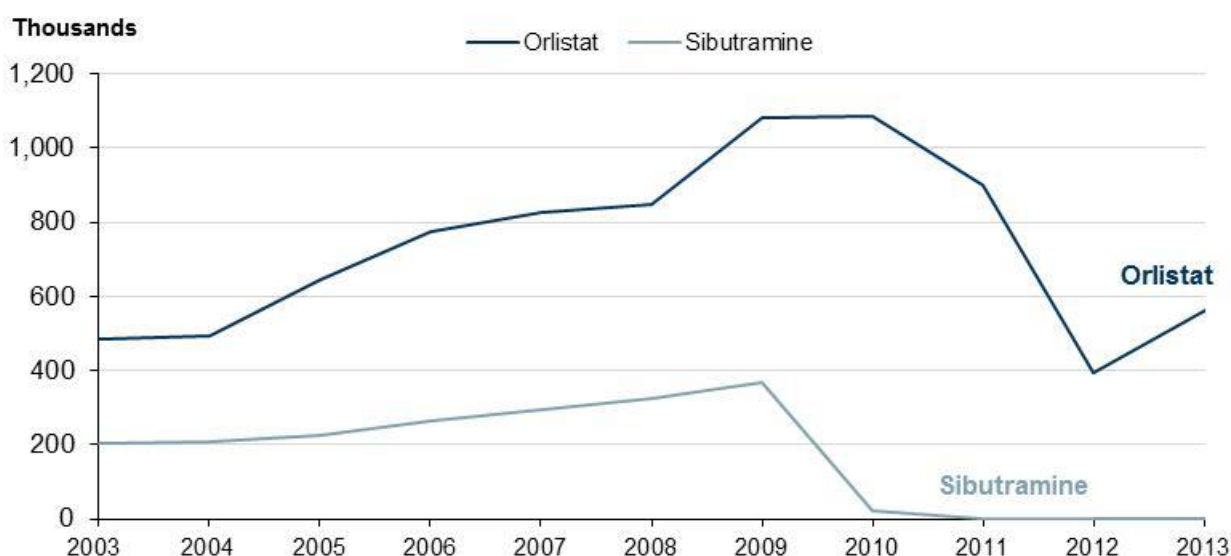
In January 2012, the manufacturer of Orlistat (Xenical®) advised that there would be a stock shortage of this product due to manufacturing issues and exhausted supplies in distribution centres. The pharmaceutical company that manufactures Xenical, Roche, reported that the supply of Xenical would be disrupted because the production facility that produced the active ingredient Orlistat had been found to not be in compliance with what is known as Good Manufacturing Practice (GMP). This does not mean there was any reason to be concerned about the medication, as the health authorities did not make any requests to withdraw or recall any existing medications that were produced in the facility. This issue seems to have been resolved by 2013. More information is available at [http://archive.psnc.org.uk/news.php/1222/xenical\\_120mg\\_caps\\_mircera\\_stock\\_shortages\\_roche\\_updated\\_210312.html](http://archive.psnc.org.uk/news.php/1222/xenical_120mg_caps_mircera_stock_shortages_roche_updated_210312.html)



Table 7.13 shows:

- Drug items dispensed for treating obesity in 2013 (563,000) rose by 44 per cent from 2012 (392,000) but this may be due to the stock shortage of Orlistat in 2012 (see paragraph above). The figure for 2013 is a decrease of 61 per cent on 2009 (1,450,000) when the number of drug items dispensed for treating obesity reached a peak.
- 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 decreased from £29.5 million in 2003 to £19.7 million in 2013, after reaching its peak in 2007 at £51.6 million.
- The NIC per item decreased from £43 in 2003 to £35 in 2013 (after showing a slight increase until 2006 where it peaked at £45).
- In 2013, almost all of the total number of prescription items dispensed for obesity was for Orlistat. This is shown in Figure 7.7.

**Figure 7.7 - Number of prescription items for the main drugs used for the treatment of obesity dispensed in primary care, England, 2003 to 2013**



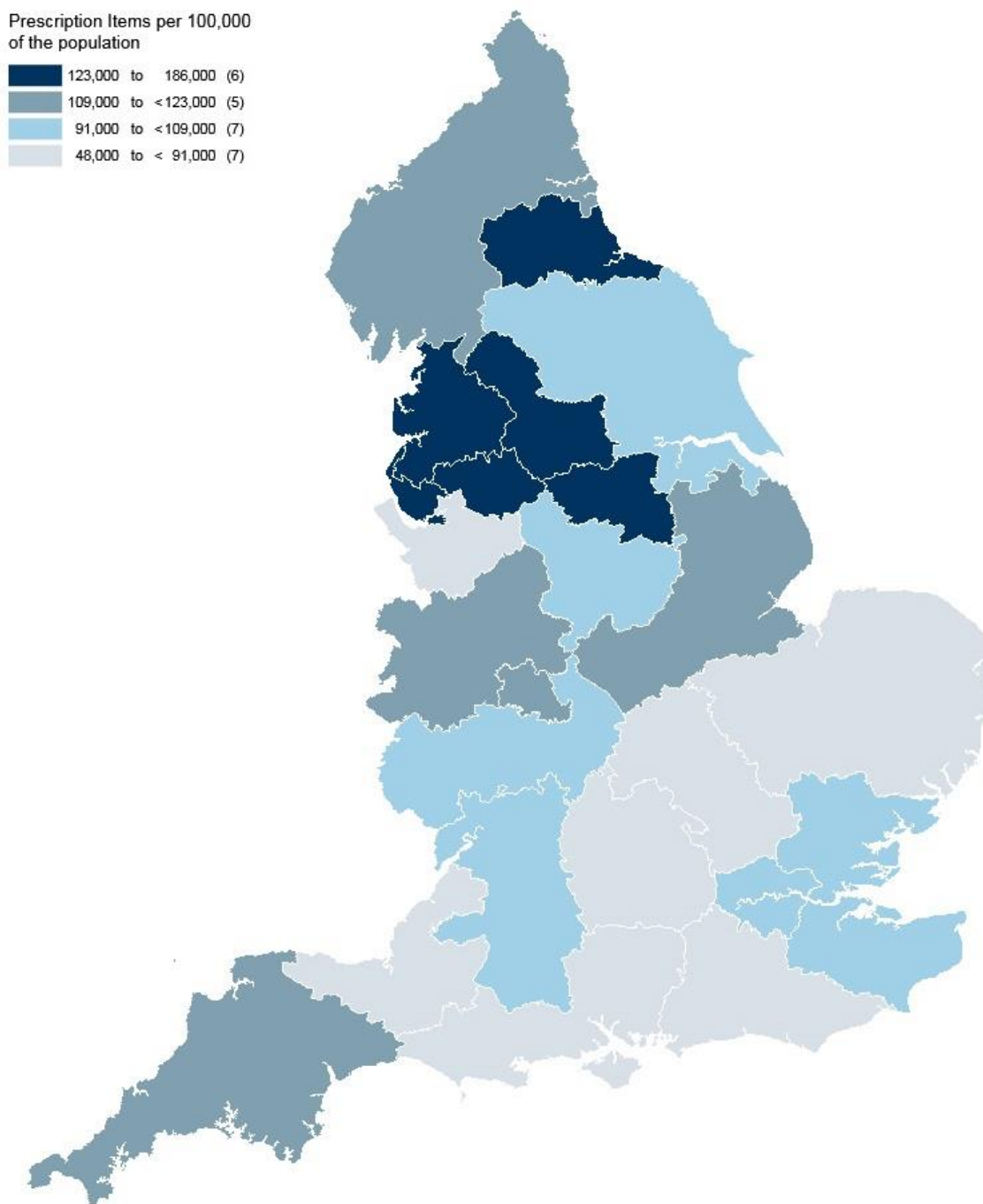
Source: Prescribing Analyses and Cost Tool (PACT) from the Prescription Pricing Division of the Business Services Authority (PPD of the BSA).  
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Table 7.14 shows prescription data for treatment of obesity by Commissioning Region and Area Team. The key points are:

- The North of England had the greatest number of prescription items in total (205 thousand) and also had the greatest number of prescription items dispensed per head of population (1,350 items per 100,000).
- London had the lowest figures with 91 thousand prescription items but the South of England had the lowest per head of population at 780 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 Commissioning Region varies with the lowest number of items dispensed being predominantly in the south.

**Figure 7.8 - Number of prescription items for Orlistat prescribed in Primary Care in England and dispensed in the community per 100,000 population, by Area Team, 2013.**



Data sources: ONS Boundary Files 2014,  
Prescription Analyses and Cost (PACT) from the Prescription Pricing Division

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11. Healthcare Resource Groups: Health and Social Care Information Centre.  
<http://www.hscic.gov.uk/hrg>

## **Appendix A: Key sources**

**Active People Survey**

**Allied Dunbar National Fitness Survey**

**Child Measurement Programme Wales**

**Family Food**

**Health at a Glance**

**Health Survey for England**

**Healthcare Resource Groups**

**Hospital Episode Statistics**

**National Child Measurement Programme**

**National Diet Nutrition Survey**

**National Travel Survey**

**PE and Sport Survey**

**Physical activity guidelines for adults**

**Physical activity guidelines for early years (under 5s)**

**Prescription Pricing Division**

**Quality and Outcomes Framework**

**Scottish Health Survey**

**Tackling Obesities: Future Choices**

**Tackling Obesity in England**

**Taking Part Survey**

**Welsh Health Survey**

Some 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 not National Statistics or 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 not National Statistics or 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 or referred to in this publication are provided below.

## The Active People Survey

### Sport England

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 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 was not only concerned with the type of activity, but also the frequency, intensity and duration.

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

<https://www.sportengland.org/research/who-plays-sport/>

## Allied Dunbar National Fitness Survey

### Sports Council and Health Education Authority

The ADNFS 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 per cent. Seventy per cent of those interviewed took part in a physical appraisal with 62 per cent attending for tests at a specially equipped mobile laboratory and 8 per cent, 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.

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

## Child Measurement Programme Report (Wales)

### Public Health Wales

The establishment of the Wales Child Measurement Programme follows the successful feasibility study carried out in 2008/2009 by the Public Health Wales Observatory with support from other Welsh organisations.

A team led by the Consultant in Public Health Intelligence ran the study in 457 Welsh schools to test the feasibility of measuring all children in reception year and year four to identify trends in childhood heights and weights.

The report recommended that a national childhood heights and weights programme be established to help inform strategy and service development and provide the basis for further research in the area.

At present reception year (aged 4/5 years) will be offered weighing and height measurement. Part of the Programme's remit is to consider what would be needed to measure year four (age 8/9 years) also.

Measurements taken in reception year will be comparable with measurements taken in other parts of the UK and in particular the National Child Measurement Programme in England.

Proposed measurement for year four would allow comparisons of growth patterns in Wales with other parts of Europe who participate in the World Health Organisation Childhood Obesity Surveillance Initiative (COSI). It would also allow analysis of how children's weight changes in the early school years.

<http://www.wales.nhs.uk/sitesplus/888/page/67795>

## Family Food

### Department for Environment, Food and Rural Affairs (DEFRA)

Family Food is an annual publication which provides detailed statistical information on purchased quantities, expenditure and nutrient intakes derived from both household and eating out food and drink. Data is collected for a sample of households in the United Kingdom using self-reported diaries of all purchases, including food eaten out, over a two week period. Where possible, quantities are recorded in the diaries but otherwise estimated. Energy and nutrient intakes are calculated using standard nutrient composition data for each of some 500 types of food. Current estimates are based on data collected in the 'Family Food Module of the Living Costs and Food Survey'.

<https://www.gov.uk/government/statistics/family-food-2013>

## Health at a Glance

### Organisation for Economic Co-operation and Development (OECD)

The Health at a Glance Europe edition is biennial publication that presents a set of key indicators of health status, determinants of health, health care resources and activities, quality of care, health expenditure and financing in 35 European countries, including the 27 European Union member states, 5 candidate countries and 3 EFTA countries. The selection of indicators is based largely on the European Community Health Indicators (ECHI) shortlist, a set of indicators that has been developed to guide the reporting of health statistics in the European Union. It is complemented by additional indicators on health expenditure and quality of care, building on the OECD expertise in these areas.



Every other year, Health at a Glance provides the latest comparable data on different aspects of the performance of health systems in all other OECD countries as well as Europe. It looks at variations across countries in the costs, activities and results of health systems. Key indicators provide information on health status, the determinants of health, health care activities and health expenditure and financing in OECD countries.

Each indicator in these publications is presented in a user-friendly format, consisting of charts illustrating variations across countries and over time, brief descriptive analyses highlighting the major findings conveyed by the data, and a methodological box on the definition of the indicator and any limitations in data comparability.

[http://ec.europa.eu/health/reports/european/health\\_glance\\_2014\\_en.htm](http://ec.europa.eu/health/reports/european/health_glance_2014_en.htm)

<http://www.oecd.org/health/health-systems/health-at-a-glance.htm>

## Health Survey for England



### Health and Social Care Information Centre

The Health Survey for England series was designed to monitor trends in the nation's health, to estimate the proportion of people in England who have specified health conditions, and to estimate the prevalence of certain risk factors and combinations of risk factors associated with these conditions. The surveys provide regular information that cannot be obtained from other sources on a range of aspects concerning the public's health and many of the factors that affect health.

Each survey in the series includes core questions and measurements (such as blood pressure, height and weight, and analysis of blood and saliva samples), as well as modules of questions on topics that vary from year to year. Four topics are reported for the first time in the 2013 report: medicines, eye care, end of life care and a comparison of the health of shift workers and non-shift workers.

The Health Survey for England has been carried out since 1994 by the Joint Health Surveys Unit of NatCen Social Research and the Research Department of Epidemiology and Public Health at UCL (University College London).

The Health Survey for England is a National Statistic.

<http://www.hscic.gov.uk/article/1165/Search-catalogue?q=title:%22Health+Survey+for+England%22&area=&size=10&sort=RelevanceDESC>

## Healthcare Resource Groups

### Health and Social Care Information Centre

Healthcare Resource Groups (HRGs) are standard groupings of clinically similar treatments which use common levels of healthcare resource.

HRGs help organisations to understand their activity in terms of the types of patients they care for and the treatments they undertake. They enable the comparison of activity within and between different organisations and provide an opportunity to benchmark treatments and services to support trend analysis over time.

HRGs are currently used as a means of determining fair and equitable reimbursement for care services delivered by providers. Their use as consistent 'units of currency' supports standardised healthcare commissioning across the service.

They improve the flow of finances within and sometimes beyond the NHS. HRG version 4 has been in use for reference costs since April 2007 (for financial year 2006/07 onwards) and for Payment by Results (PbR) since April 2009 (for financial year 2009/10 onwards).

HRG4 was a major revision that introduced HRGs to new clinical areas, to support the Department of Health's policy of Payment by Results (PbR). It includes a portfolio of new and updated HRG groupings that accurately record patient treatment to reflect current practice and anticipated trends in healthcare.

<http://www.hscic.gov.uk/hrq>

## Hospital Episode Statistics (HES)



### Health and Social Care Information Centre

The HES data included in this bulletin are not routinely published, but are available on request.

Hospital Episode Statistics (HES) processes over 125 million admitted patient, outpatient and accident and emergency records each year.

HES is a data warehouse containing details of all admissions, outpatient appointments and A&E attendances at NHS hospitals in England. This data is collected during a patient's time at hospital and is submitted to allow hospitals to be paid for the care they deliver. HES data is designed to enable secondary use, that is use for non-clinical purposes, of this administrative data.

It is a records-based system that covers all NHS trusts in England, including acute hospitals, primary care trusts and mental health trusts. HES information is stored as a large collection of separate records (one for each period of care) in a secure data warehouse.

Strict statistical disclosure controls are applied in accordance with the HES protocol, to all published HES data. This suppresses small numbers to reduce the risk of an individual being identified to ensure that patient confidentiality is maintained.

HES provides data for a wide range of healthcare analysis for the NHS, government and others including:

- national bodies and regulators
- local commissioning organisations
- provider organisations
- researchers and commercial healthcare bodies
- patients, service users and carers.

HES was originally conceived in 1987 following a report on collection and use of hospital activity information published by a steering group chaired by Dame Edith Körner (1921-2000).

Before 1987, only a 10 per cent sample of admitted patient records were collected nationally. By comparison HES aims to collect a detailed record for each 'episode' of admitted patient care delivered in England, either by NHS hospitals or delivered in the independent sector but commissioned by the NHS.

Admitted patient care data is available for every financial year from 1989-90 onwards. During this period, the mechanisms for collecting the data have changed considerably, often in response to changes in the organisation of the NHS. For example, HES was once initially

collated sub-nationally by regional health authorities. In 1996 these bodies were abolished and the NHS-Wide Clearing Service (NWCS) was set up to provide a means of transmitting the records. In 2006 this work was taken over by the Secondary Uses Service, which is run by the Health and Social Care Information Centre and the National Programme for IT.

Initially, data for HES publications was collected annually from provider submissions. After a number of years the frequency of collections increased to quarterly to allow analysis and investigation (these were not published) and a final annual publication was released at the end of the year. HES data is now collected monthly.

Hospital Episode Statistics, Admitted Patient Care publications are national statistics

<http://www.hscic.gov.uk/hes>

## National Child Measurement Programme



### Health and Social Care Information Centre

Established in 2005/06, the National Child Measurement Programme (NCMP) for England records height and weight measurements of children in state-maintained schools in reception (aged 4–5 years) and year 6 (aged 10–11 years). The programme now holds eight years of reliable data (2006/07 is the first year that the data were considered an acceptable quality as the prevalence rate was only 48 per cent in 2005/06), and the national report holds UK National Statistics status. The programme provides robust data for the child excess weight indicators in the Public Health Outcomes Framework, and is a key element of the Government's approach to tackling child obesity. The data are regarded as a valuable tool for driving action to tackle child obesity both locally and nationally. Through provision of a child's result to their parents, the NCMP also provides local areas with an opportunity to raise parents' awareness of child obesity as an issue, raise parents' awareness of their own child's weight status and potential health impacts, and provide an opportunity to provide further support to families to make healthy lifestyle changes.

Public Health England (PHE) has responsibility for national oversight of the programme, and on its behalf, the central collation and analysis of the NCMP data is coordinated by the Health and Social Care Information Centre (HSCIC). Local Authorities have a statutory responsibility to deliver the National Child Measurement Programme.

The National Child Measurement Programme is a National Statistic.

<http://www.hscic.gov.uk/ncmp>

## National Diet Nutrition Survey

### Public Health England

The National Diet and Nutrition Survey (NDNS) is designed to assess the diet, nutrient intake and nutritional status of the general population aged 1½ years and over living in private households in the UK. The NDNS is jointly funded by Public Health England (PHE), an executive agency of the Department of Health, and the UK Food Standards Agency (FSA) and carried out by a consortium of three organisations: NatCen Social Research (NatCen), MRC Human Nutrition Research (HNR) and the University College London Medical School (UCL).

The NDNS provides the only source of high quality nationally representative data on the types and quantities of foods consumed by individuals, from which estimates of nutrient intake for the population are derived. Results are used by Government to develop policy and monitor progress on diet and nutrition objectives of UK health departments, for example those set out in the Healthy Lives, Healthy People white paper in England.

The food consumption data are also used by FSA to assess exposure to chemicals in food, as part of the risk assessment and communication process in response to a food emergency or to inform negotiations on setting regulatory limits for contaminants.

The National Diet and Nutrition Survey is an official statistic.

<https://www.gov.uk/government/statistics/national-diet-and-nutrition-survey-results-from-years-1-to-4-combined-of-the-rolling-programme-for-2008-and-2009-to-2011-and-2012>

## National Travel Survey



### Department for Transport

The National Travel Survey (NTS) is a survey on personal travel. It provides the Department for Transport with data to answer a variety of policy and transport research questions. The 2012 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 is a National Statistic.

<https://www.gov.uk/government/statistics/national-travel-survey-2013>

## PE and Sport Survey

### Department for Education

The survey covers research into the proportion of pupils doing 2 hours of curriculum PE in partnership schools, and those exercising for at least 3 hours a week.

The PE and Sport Survey is an official statistic.

<https://www.gov.uk/government/publications/pe-and-sport-survey-2009-to-2010>

## Prescription Pricing Division

### Health and Social Care Information Centre

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 as 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.

<http://www.hscic.gov.uk/primary-care>

## Quality and Outcomes Framework

### Health and Social Care Information Centre

Quality and Outcomes Framework (QOF) record prevalence, achievement and exceptions data.

This publication provides data across General Practices in England which participated in the Quality and Outcomes Framework (QOF) in the last year. Participation by practices in the QOF is voluntary, though participation rates are very high, with most Personal Medical Services (PMS) practices also taking part.

Previously, the Quality Management and Analysis System (QMAS) was used for the extraction of QOF data. In July 2013, QMAS was replaced by the Calculating Quality Reporting Service (CQRS), together with the General Practice Extraction Service (GPES).

Data are provided at indicator level as set out in the general medical services (GMS) contract quality and outcomes framework.

The Quality and Outcomes Framework is an Official Statistic

<http://www.hscic.gov.uk/qof>

## The Scottish Health Survey

### Scottish Government

The Scottish Health Survey (SHeS) provides a detailed picture of the health of the Scottish population in private households and is designed to make a major contribution to the monitoring of health in Scotland. It is essential for the Scottish Government's forward planning, for identifying gaps in health services provision and for identifying which groups are at particular risk of future ill-health.

Prior to the introduction of the Scottish Health Survey in 1995 there was no comprehensive picture of the health of the population, its biological characteristics or health-related behaviour available at national level, nor on how these characteristics may be changing over time. The Scottish Health Survey was therefore designed to overcome this lack of knowledge with a number of specific aims.

- to estimate the prevalence of particular health conditions in Scotland
- to estimate the prevalence of certain risk factors associated with these health conditions and to document the pattern of related health behaviours
- to look at differences between regions and between subgroups of the population in the extent of their having these particular health conditions or risk factors, and to make comparisons with other national statistics for Scotland and England
- to monitor trends in the population's health over time
- to make a major contribution to monitoring progress towards health targets

<http://www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey>



## **Tackling Obesities: Future Choices 2nd Edition – Modelling Future Trends in Obesity and Their Impact on Health**

### **Foresight, Government Office for Science**

This project looked at how we can implement a sustainable response to obesity in the UK over the next 40 years. It gathered scientific evidence from across a wide range of disciplines to inform a strategic view of this issue.

The project's objectives were to:

- use the scientific evidence base from across a wide range of disciplines to identify the broad range of factors that influence obesity
- create a shared understanding of the relationships between the main factors influencing levels of obesity and their relative importance
- build on this evidence to identify effective interventions
- analyse how future levels of obesity might change and the most effective future responses

The project involved over 300 experts from a wide range of disciplines and was overseen by a high level stakeholder group.

The project was sponsored by the Department of Health.

<https://www.gov.uk/government/collections/tackling-obesities-future-choices>

## **Tackling Obesity in England**

### **National Audit Office (NAO)**

NAO research identified wide variation in the way general practices manage overweight and obese patients, and uncertainty about which treatment and referral options were the most effective.

Key recommendations were that:

- a high priority must be given to implementing the nutrition initiatives included in the NHS Plan to improve the balance of the diet.
- the Department of Health should lead the development of a cross-government strategy, including the Department for Culture, Media and Sport, to promote the health benefits of physical activity (in particular sport and active forms of travel, such as walking and cycling).
- the Department for Education and Employment should continue to reinforce the importance of physical activity and encourage more physical activity in schools.
- there should be strengthened guidance to schools to help them weigh up the advantages and disadvantages of participating in commercial sponsorship schemes that might promote behaviours contrary to key messages on healthy eating.

[www.nao.org.uk/publications/0001/tackling\\_obesity\\_in\\_england.aspx](http://www.nao.org.uk/publications/0001/tackling_obesity_in_england.aspx)



## The Taking Part Survey

Department for Culture, Media and Sport



The Taking Part survey provides reliable national estimates of adult and child engagement with sport, libraries, the arts, heritage and museums and galleries.

The report also looks at some of the other measures in the survey that provide estimates of volunteering, charitable giving and civic engagement.

The Taking Part survey is a continuous annual survey of adults and children living in private households in England, and carries the National Statistics badge, meaning that it meets the highest standards of statistical quality.

The Taking Part Survey is a National Statistic.

<http://www.culture.gov.uk/publications/9547.aspx>

## The Welsh Health Survey

Welsh Government



The Welsh Health Survey (WHS) provides unique information about the health and health-related lifestyles of people living in Wales. It presents a picture of the health of the Welsh population, variations between sub-groups and areas, and changes over time, and makes an important contribution to informing and monitoring public health strategy in Wales.

The WHS covers a range of health-related issues, including health status, lifestyle and health behaviours, and health service use. The survey was established in 2003 and runs all year round. Results are published annually.

An achieved sample of around 15,000 adults and 3,000 children is aimed for each year, to include a minimum of 600 adults from each local authority area.

The survey is based on a representative sample of people living in private households in Wales which are selected using a random sample from the Post Office's Postcode Address File (an up to date list of all addresses maintained by the UK Post Office). The sample is stratified by local authority. The smaller authorities are oversampled to allow the production of survey estimates at this level following the collection of two years of data. The survey collects information on households (through a short interview) and on individuals (through a self-completion questionnaire). At each household, all adults and a maximum of two children are eligible for inclusion in the survey.

The Welsh Health Survey is a National Statistic

<http://wales.gov.uk/statistics-and-research/welsh-health-survey/?lang=en>

## Appendix B: Technical notes

These notes help to explain some of the measurements used and presented in this report.

### Overweight and obesity

#### Adults Body Mass Index (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/m<sup>2</sup>).

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

Adults are classified into the following BMI groups:

BMI range (kg/m <sup>2</sup> )	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 - UK National BMI percentile classification

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 are 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 85<sup>th</sup> percentile are classified as overweight and those children whose BMI is above the 95<sup>th</sup> percentile are classified as obese. The percentiles are given for each sex and age. According to this method, 15 per cent and 5 per cent of children in 1990 had a BMI above this level and were thus classified as overweight/obese. Increases over 15 per cent and 5 per cent 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.

#### 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/m<sup>2</sup> to assess health risks (as shown in the table below). For adults with a BMI of 35kg/m<sup>2</sup> 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 (18.5 to less than 25kg/m <sup>2</sup> )	No increased risk	No increased risk	Increased risk
Overweight (25 to less than 30kg/m <sup>2</sup> )	No increased risk	Increased risk	High risk
Obesity I (30 to less than 35kg/m <sup>2</sup> )	Increased risk	High risk	Very high risk
Obesity II (35 to less than 40kg/m <sup>2</sup> )	Very high risk	Very high risk	Very high risk
Obesity III (40kg/m <sup>2</sup> or more)	Very high risk	Very high risk	Very high risk

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

Further information on the NICE guidelines.

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

## Physical activity among adults in HSE

The physical activity module was first used in the Health Survey for England (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. The Health Survey for England (HSE) 2012 is the most recent to include questions about physical activity and fitness, where physical activity and fitness was the main focus of the report.

### Objective measures of physical activity - Summary activity levels

In 2011, the Chief Medical Officers of the four UK countries introduced revised guidelines for physical activity. The most recent 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 four categories:

- **Meets recommendations:** a minimum of 150 minutes of moderate intensity physical activity (MPA) per week in bouts of 10 minutes or more or 75 minutes of vigorous intensity physical activity (VPA) per week or an equivalent combination of the two.
- **Some activity:** 60-149 minutes/week of MPA, 30-74 minutes/week of VPA, or an equivalent combination of these.
- **Low activity:** 30-59 minutes/week of MPA, 15-29 minutes/week of VPA, or an equivalent combination of these.
- **Inactive:** less than 30 minutes/week of MPA, less than 15 minutes/week of VPA, or an equivalent combination of these.

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.

## **Objective measures of physical activity - 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 ( $\text{VO}_2\text{max}$ ). 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  $\text{VO}_2$ ) 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.  $\text{VO}_2\text{max}$  is typically achieved by exercise that involves only about half the total body musculature.

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 ( $\text{VO}_2\text{max}$ ), the overall level of fitness.

## **English, Scottish and Welsh comparisons among adults**

The Scottish Health Survey (SHS) physical activity module is based on the Allied Dunbar National Fitness Survey (ADNFS).

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.

For the first three categories, participants were asked to report any activities that lasted at least 10 minutes and the number of days in the past four weeks in which they had taken part in such activities. For walking, participants were also asked on how many days they had taken more than one walk of at least 10 minutes. Where a participant had taken more than one walk, the total time spent walking for that day was calculated as twice the average reported walk time.

In addition, those in full or part-time employment were asked about activity while at work. These participants were asked to rate how physically active they were in their job (options were: very physically active, fairly physically active, not very physically active and not at all physically active). This question on intensity was used in combination with a new question on sedentary activity at work to produce estimates of the duration of moderate activity at work per week.

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. Blocks of activity lasting more than 10 minutes, which were done on the same day, count towards the full 30 minutes. (Prior to 2011 the Department of Health recommended that adults do at least 30 minutes of moderate intensity physical activity on at least 5 days a week, however guidelines were revised during 2011 to allow more flexibility in how target activity levels are met). The new guidelines recommend that adults should aim to do at least 150 minutes of moderate activity during the week – alternatively, comparable benefits can be achieved by 75 minutes of vigorous activity.

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

In 2011 new guidelines on the amount of activity recommended for health were published by the Chief Medical Officers of the four UK countries. For the first time, guidelines were published for children under five. Even for those unable to walk, physical activity should be encouraged from birth onwards. Those able to walk unaided are recommended to be active for at least 180 minutes (3 hours) per day, spread throughout the day. Examples of suitable activities include: walking or skipping to local destinations (school, a friend's home, park, or shops); energetic play, such as using a climbing frame or riding a bicycle; bouts of more energetic activity, such as running and chasing games; and activities that involve all the major muscle groups.

The 2011 recommendations for children aged 5 to 18 are twofold. As previously, it is recommended that children should

- be at least moderately active for at least 60 minutes every day, though it is stated specifically that this is a minimum and that children and young people should engage in MVPA for up to several hours each day.



- undertake vigorous intensity activity, including muscle- and bone-strengthening activities, at least three days each week.

In the HSE 2012, the summary activity levels for children and young people are divided into three levels.

### Classification of summary activity in children

	Aged under 5	Aged 5 to 15
Meets recommendations	At least 180 minutes (3 hours) of physical activity on all seven days in the last week	At least 60 minutes (1 hour) of moderate to vigorous intensity physical activity (MVPA) on all seven days in the last week
Some activity	60-179 minutes of physical activity on all seven days in the last week	30-59 minutes of moderate to vigorous intensity physical activity on all seven days in the last week
Low activity	Fewer than 60 minutes of activity on each day, or activity of 60 minutes or more on fewer than seven days in the last week	Fewer than 30 minutes of moderate to vigorous intensity activity on each day, or moderate to vigorous intensity activity of 60 minutes or more on fewer than seven days in the last week

Due to the revisions to the 2012 children's physical activity questionnaire care should be taken when comparing the results reported with previous HSE reports that present findings on child physical activity.

### Objective measures of physical activity

The *HSE 2008* is the most up to date source of information on 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 the then government's 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.



## 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 grams to millilitres) to determine the number of portions.

According to 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.

Also in 1991, the Department of Health published Dietary Reference Values (DRVs) which cover a range of intakes for most nutrients. The Scientific Advisory Committee on Nutrition (SACN) published revised DRVs for energy in 2011 representing the estimated average requirement for the population. 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 per cent 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 per cent 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 adults<sup>f</sup>**

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

<sup>f</sup> 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

<sup>2</sup> Salt and Health, Scientific Advisory Committee on Nutrition 2003. The Stationery Office, London.

**Table 2 - Recommended maximum daily salt intakes for infants, children & adults<sup>g</sup>**

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

Public Health England (PHE) guidance on healthier and more sustainable catering and a range of supporting tools were published in August 2014. The guidance directly supports those who must, or have chosen to, meet GBSF. It includes guidance on the scientific principles for developing nutrient based standards to use for planning nutritionally balanced menus, and guidance on serving food to adults including older people to provide healthier and more sustainable catering. Target recommendations for nutrient intake and nutrient based standards for adults aged 19-74 years set out in this guidance are provided in Tables 3 and 4.

PHE's catering guidance and support tools are available at:

<https://www.gov.uk/government/publications/healthier-and-more-sustainable-catering-a-toolkit-for-serving-food-to-adults>

**Table 3 - Target recommendations**

	Energy Protein Fibre	Percentage of daily intake			
		Total fat, saturated fat, sugar, salt		Vitamins and minerals (where insufficiencies are apparent)	
		Average population requirement	Target <sup>*</sup>	Average population requirement	Target <sup>*</sup>
Breakfast	20	20	No target	20	No target
Lunch	30	30	29	30	35-40
Evening meal	30	30	29	30	35-40
Snacks	20	20	No target	**	No target
Total	100	100	98 or less	100	100 or more

\* Target for nutrients where excess or insufficiencies are apparent.

\*\* Snacks will provide additional micronutrients to contribute to the micronutrient target of 100 per cent or more over the day. You should take care not to encroach upon maximum safe levels of intake.

**Table 4 - Nutrient-based standards for adults aged 19-74yrs**

Nutrient	Average population requirement (provided as daily averages over 7 days)	Recommended target for areas of excess or insufficiency (provided as daily averages over 7 days)
Energy* (MJ/kcal)	9.4/2250	
Total fat (g)	87.5	Less than 85.8
Saturated fat (g)	Max 27.5	Less than 27.0
Carbohydrate (g)	Min 300	
NMES (g)	Max 66.0	Less than 64.7
Fibre (as NSP) (g)	18	
Protein (g)	Min 50	
Sodium (mg)	Max 2400	Less than 2352
Salt (equivalent g)	Max 6.0	Less than 5.9
Calcium (mg)	700	More than 700
Iodine (µg**)	140	More than 140
Iron (mg)	14.8	More than 14.8
Magnesium (mg)	300	More than 300
Potassium (mg)	3500	More than 3500
Selenium (µg**)	75	More than 75
Zinc (mg)	9.5	More than 9.5
Riboflavin (mg)	1.3	More than 1.3
Folate (µg**)	Min 200	More than 200
Vitamin A*** (µg**)	700	More than 700
Vitamin D (µg**)	Min 10****	

\* If only considering adults aged 60-74 years average energy requirement is lower\*\*  
1000 micrograms = 1 milligram (mg)

µg = micrograms.

\*\*\* Retinol equivalents = Retinol + (beta-carotene divided by 6)

\*\*\*\* Some population groups will need supplementary vitamin D

## Health Survey for England (HSE)

### 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.

## Hospital Episode Statistics - 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, 2011/12 and 2012/13. There was a slight change to the OPCS-4.6 codes used in 2012/13 details of which can be found in the Methodological Change Note. The same codes applied in 2013/14.

[http://www.hscic.gov.uk/media/13556/Statistics-on-Obesity-Physical-Activity-and-Diet-England-2014/pdf/MethChange201402\\_SOPAD.pdf](http://www.hscic.gov.uk/media/13556/Statistics-on-Obesity-Physical-Activity-and-Diet-England-2014/pdf/MethChange201402_SOPAD.pdf)

Latest data are based on the tenth revision of the International Classification of Diseases (ICD-10). 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) codes<sup>10</sup>.

The table on the next page shows how the coding has changed over time.

A \* indicates that this code was included for that year.

# Statistics on Obesity, Physical Activity and Diet: England 2015

OPCS Code	Description	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
G01.1	Oesophagogastrectomy and anastomosis of oesophagus to stomach											*	*
G01.2	Oesophagogastrectomy and anastomosis of oesophagus to transposed jejunum											*	*
G01.3	Oesophagogastrectomy and anastomosis of oesophagus to jejunum NEC											*	*
G01.8	Other specified excision of oesophagus and stomach											*	*
G01.9	Unspecified excision of oesophagus and stomach											*	*
G02.1	Total oesophagectomy and anastomosis of pharynx to stomach											*	*
G02.2	Total oesophagectomy and interposition of microvascularily attached jejunum											*	*
G02.3	Total oesophagectomy and interposition of jejunum NEC											*	*
G02.4	Total oesophagectomy and interposition of microvascularily attached colon											*	*
G02.5	Total oesophagectomy and interposition of colon NEC											*	*
G02.8	Other specified total excision of oesophagus											*	*
G02.9	Unspecified total excision of oesophagus											*	*
G03.1	Partial oesophagectomy and end to end anastomosis of oesophagus											*	*
G03.2	Partial oesophagectomy and interposition of microvascularily attached jejunum											*	*
G03.3	Partial oesophagectomy and anastomosis of oesophagus to transposed jejunum											*	*
G03.4	Partial oesophagectomy and anastomosis of oesophagus to jejunum NEC											*	*
G03.5	Partial oesophagectomy and interposition of microvascularily attached colon											*	*
G03.6	Partial oesophagectomy and interposition of colon NEC											*	*
G03.8	Other specified partial excision of oesophagus											*	*
G03.9	Unspecified partial excision of oesophagus											*	*
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 jejunum NEC	*	*	*	*	*	*	*	*	*	*	*	*
G28.4	Sleeve gastrectomy and duodenal switch					*	*	*	*	*	*	*	*
G28.5	Sleeve gastrectomy 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	*	*	*	*	*	*	*	*	*	*	*	*
G30.3	Partitioning of stomach using band					*	*	*	*	*	*	*	*
G30.4	Partitioning of stomach using staples					*	*	*	*	*	*	*	*
G30.5	Maintenance of gastric band								*	*	*	*	*
G30.8	Other specified plastic operations on stomach	*	*	*	*	*	*	*	*	*	*	*	*



# Statistics on Obesity, Physical Activity and Diet: England 2015

OPCS Code	Description	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
G30.9	Unspecified plastic operations on stomach										*	*	*
G31.0	Conversion from previous anastomosis of stomach to duodenum	*	*	*	*	*	*	*	*	*	*	*	
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	*	*	*	*	*	*	*	*	*	*		
G31.5	Closure of connection of stomach and duodenum					*	*	*	*	*	*	*	*
G31.6	Attention of connection of stomach and duodenum					*	*	*	*	*	*	*	*
G31.8	Other specified connection of stomach to duodenum	*	*	*	*	*	*	*	*	*	*		
G31.9	Unspecified connection 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	*	*	*	*	*	*	*	*	*	*	*	*
G32.4	Closure of connection of stomach to transposed jejunum					*	*	*	*	*	*	*	*
G32.5	Attention to connection of stomach to transposed jejunum					*	*	*	*	*	*	*	*
G32.8	Other specified connection of stomach to transposed jejunum	*	*	*	*	*	*	*	*	*	*	*	*
G32.9	Unspecified connection of stomach to transposed jejunum	*	*	*	*	*	*	*	*	*	*	*	*
G33.0	Conversion from previous anastomosis of stomach to jejunum NEC	*	*	*	*	*	*	*	*	*	*		
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	*	*	*	*	*	*	*	*	*	*		
G33.4	Open reduction of intussusception of gastroenterostomy										*		
G33.5	Closure of connection of stomach to jejunum NEC					*	*	*	*	*	*		
G33.6	Attention to connection of stomach to jejunum					*	*	*	*	*	*		
G33.8	Other specified other connection of stomach to jejunum	*	*	*	*	*	*	*	*	*	*	*	*
G33.9	Unspecified other connection of stomach to jejunum	*	*	*	*	*	*	*	*	*	*	*	*
G38.7	Removal of gastric band					*	*	*	*	*	*	*	*
G38.8	Other specified other open operations on stomach	*	*	*	*	*	*	*	*	*	*		
G48.1	Insertion of gastric bubble	*	*	*	*	*	*	*	*	*	*		
G48.2	Attention of gastric bubble	*	*	*	*	*	*	*	*	*	*		
G48.5	Insertion of gastric balloon									*	*	*	*
G48.6	Attention to gastric balloon									*	*		
G49.1	Gastroduodenectomy											*	*
G49.2	Total excision of duodenum											*	*
G49.3	Partial excision of duodenum											*	*
G49.8	Other specified excision of duodenum											*	*
G49.9	Unspecified excision of duodenum											*	*
G51.1	Bypass of duodenum by anastomosis of stomach to jejunum											*	*
G51.3	Bypass of duodenum by anastomosis of duodenum to jejunum											*	*
G71.6	Duodenal switch					*	*	*	*	*	*	*	*
G71.7	Reversal of duodenal switch									*	*	*	*

## Appendix C: Government policy, targets and outcome indicators

This appendix covers government policy, targets and outcome indicators related to obesity, physical activity or diet. These are particularly relevant when looking at time series data elsewhere in the report.

### Everybody Active, Every Day

In October 2014, Public Health England published, *Everybody active, every day* with full ministerial involvement. Building on *Moving More, Living More*, this framework aims to increase the levels of physical activity in local communities by identifying key areas where more action is needed. PHE is writing to the Committee about *Everybody active, every day* with further detail.

For further information:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/374914/Framework\\_13.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/374914/Framework_13.pdf)

### Moving More, Living More

In February 2014, the Government, the Mayor of London and Lord Coe as the Prime Minister's Olympic and Paralympic Ambassador published *Moving More, Living More* as a cross-Government commitment to promote physical activity across the country's population as part of the legacy from the London 2012 Olympic and Paralympic Games. The aim of the physical activity strand of the legacy is to have a much more physically active nation.

For further information:

[www.gov.uk/government/publications/moving-more-living-more-olympic-and-paralympic-games-legacy](http://www.gov.uk/government/publications/moving-more-living-more-olympic-and-paralympic-games-legacy)

### Walking cities

In November 2013, five English cities – Birmingham, Cambridge, Leeds, Manchester and Norwich were collectively awarded £1.2m by the Department of Health to deliver walking projects alongside the £77m funding from the Department for Transport for their Cycle City Ambition Grant.

### Public Health Outcomes Framework

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.

The Public Health Outcomes Framework Indicators help to provide robust data on excess weight in children aged 4-5 years and 10-11 years, and excess weight in adults. This enables local authorities to make decisions about where to target population level interventions to tackle obesity.

For further information:

[www.gov.uk/government/publications/healthy-lives-healthy-people-improving-outcomes-and-supporting-transparency](http://www.gov.uk/government/publications/healthy-lives-healthy-people-improving-outcomes-and-supporting-transparency)

## **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.

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

This document published in October 2011 sets out national ambitions for a downward trend in excess weight in adults and children by 2020.

For a full copy of the report:

[www.gov.uk/government/publications/healthy-lives-healthy-people-a-call-to-action-on-obesity-in-england](http://www.gov.uk/government/publications/healthy-lives-healthy-people-a-call-to-action-on-obesity-in-england)

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

In 2011, the UK Chief Medical Officers published consensus 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:

[www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers](http://www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers)

## **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 healthier choices.

Launched on 15 March 2011, the Public Health Responsibility Deal aims to tap into the potential for businesses and other organisations to improve public health and influence people's choices towards food, alcohol, physical activity and health in the workplace. It will help deliver voluntary agreements or 'pledges' to improve public health and encourage people to maintain healthier lifestyles through activities such as further reformulation of food; better information for consumers about food; and promotion of socially responsible retailing and consumption of alcohol.

For further information:

<https://responsibilitydeal.dh.gov.uk/>

## Dissemination of CMO Guidelines

The Department of Health led the development of revised Chief Medical Officers' physical activity guidelines. They are set out in the report *Start Active, Stay Active* published in July 2011. The guidelines are UK-wide and include specific recommendations for Early Years (under 5s), Older Adults (65+) and Sedentary Behaviour, alongside recommendations for all children and adults.

For further information:

[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/216370/dh\\_128210.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216370/dh_128210.pdf)

## Physical activity guidelines for adults (19-64)

These new physical activity guidelines for all four UK home countries cover:

- early years
- children and young people
- adults
- older adults.

These scientifically informed guidelines will help policy makers and health professionals, as well as individuals themselves to understand how to reduce the risk of ill health associated with inactivity and sedentary behaviours.

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_127931](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_127931)

## Physical activity guidelines for early years (under 5s)

These physical activity guidelines for all four UK home countries cover:

- early years
- children and young people
- adults
- older adults.

These scientifically informed guidelines will help policy makers and health professionals, as well as individuals themselves to understand how to reduce the risk of ill health associated with inactivity and sedentary behaviours.

<https://www.gov.uk/government/publications/uk-physical-activity-guidelines>

## Children & Young People

As part of the legacy from the 2012 Olympic and Paralympic Games, DH is investing £180m over 3 years (until March 2016) into School Sports Premium, over £30m in the School Games programme, and £11.4m in the Change4Life Sports Club programme, overall total of almost £222m.

## Healthy Schools Programme

Schools play an important role in supporting the health and wellbeing of children and young people.

The Healthy Schools toolkit is designed to help schools to 'plan, do and review' health and wellbeing improvements for their children and young people and to identify and select activities and interventions effectively. This approach will ensure schools put in place the most appropriate services and meet the needs of children and young people.

The toolkit is based on a health behaviour change approach for schools and contains:

- an overview of the Healthy Schools approach
- examples of schools making health and wellbeing improvements
- a planning template, a whole school review template and a school story template, which can be adapted for your school
- information and frameworks to help you identify needs, define health and wellbeing outcomes, select activities/interventions and review achievements

<http://webarchive.nationalarchives.gov.uk/20130123124929/http://education.gov.uk/schools/pupilsupport/pastoralcare/a0075278/healthy-schools>

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

In November 2010, the 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*. 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 Change4Life programme.
- working with business and other partners through the Public Health Responsibility Deal (see section on Diet).

This White paper is available at:

[www.gov.uk/government/publications/healthy-lives-healthy-people-our-strategy-for-public-health-in-england](http://www.gov.uk/government/publications/healthy-lives-healthy-people-our-strategy-for-public-health-in-england)

## **Change4Life**

Change4Life is the Government's main social marketing programme aimed at obesity prevention. The society wide movement aims to prevent people from becoming overweight by encouraging them to eat well and move more. The current Government set 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.

The marketing strategy is included within the PHE marketing strategy:

<https://www.gov.uk/government/publications/public-health-england-marketing-strategy-2014-to-2017>

## NICE guidance

The National Institute for Health and Care Excellence (NICE) has updated its 2006 guidelines. *Obesity: identification, assessment and management of overweight and obesity in children, young people and adults* was published in November 2014 and includes new recommendations on low-calorie and very-low-calorie diets, bariatric surgery and follow-up care.

For further information:

[www.nice.org.uk/guidance/cg189/resources/guidance-obesity-identification-assessment-and-management-of-overweight-and-obesity-in-children-young-people-and-adults-pdf](http://www.nice.org.uk/guidance/cg189/resources/guidance-obesity-identification-assessment-and-management-of-overweight-and-obesity-in-children-young-people-and-adults-pdf)

The various pieces of NICE guidance relating to physical activity are referenced in the Physical Activity Pathway published by NICE in May 2011.

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

## 5-a-day programme

Current recommendations are that everyone should eat at least 5 portions of a variety of fruit and vegetables each day, to reduce the risks of cancer and coronary heart disease and many other chronic diseases.

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.
- improving access to fruit and vegetables.
- working with national, regional and local organisations.

For further information:

<http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.nhs.uk/livewell/5aday/pages/5adayhome.aspx>

## The eatwell plate

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:

<http://www.nhs.uk/livewell/goodfood/pages/eatwell-plate.aspx>

## Current Government nutrient based recommendations

Current Government food based recommendations are that everyone should eat plenty of fruit and vegetables (at least 5 of a variety each day), 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, 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) and its successor the Scientific Advisory Committee on Nutrition (SACN). For more technical details, see [Appendix B](#).



## School Food

The School Food Plan, published by the Department for Education in 2013, is designed to increase the quality and take up of school meals, and inspire a love of good food in children to help boost academic performance and allow them to lead healthy lives. The Plan outlines actions to improve food and food awareness in schools. These include revising the existing school food standards, setting up breakfast clubs in schools with a high proportion of pupils entitled to free school meals, and including a separate strand for cookery in the new Design and Technology curriculum. Alongside this, every pupil in reception, year 1 and year 2 attending a state-funded school is now entitled to a nutritious, healthy free school lunch.

## Government Buying Standards for Food and Catering Services (GBSF)

*A Plan for Public Procurement* was published by the Department for Environment, Food and Rural Affairs in July 2014. This Plan sets out what standards the public sector and suppliers are encouraged to follow when buying food and catering services. Revised Government buying standards for food and catering services (GBSF) were also published in July 2014 within an associated toolkit to support implementation of the Plan. GBSF provide mandatory standards and best practice criteria including aspects of diet/nutrition, sustainability and animal welfare.

A Plan for Public Procurement and the supporting toolkit are available at:

<https://www.gov.uk/government/publications/a-plan-for-public-procurement-food-and-catering>

Public Health England (PHE) guidance on healthier and more sustainable catering and a range of supporting tools were published in August 2014. The guidance directly supports those who must, or have chosen to, meet GBSF. It includes guidance on the scientific principles for developing nutrient based standards to use for planning nutritionally balanced menus, and guidance on serving food to adults including older people to provide healthier and more sustainable catering. Target recommendations for nutrient intake and nutrient based standards for adults aged 19-74 years set out in this guidance are provided in the technical notes of [Appendix B](#).

PHE's catering guidance and support tools are available at:

<https://www.gov.uk/government/publications/healthier-and-more-sustainable-catering-a-toolkit-for-serving-food-to-adults>

## Appendix D: Further information

This report draws together statistics on obesity, physical activity and diet and 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:

The Contact Centre

Health and Social Care Information Centre

1 Trevelyan Square

Boar Lane

Leeds

West Yorkshire

LS1 6AE

Telephone: 0300 303 5678

Email: [enquiries@hscic.gov.uk](mailto:enquiries@hscic.gov.uk)

Press enquiries should be made to:

Media Relations Manager:

Telephone: 0300 303 5678

Email: [enquiries@hscic.gov.uk](mailto:enquiries@hscic.gov.uk)

This report is available at:

<http://www.hscic.gov.uk/pubs/sopad15>

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.hscic.gov.uk>

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

## **Annual Reports of the Chief Medical Officer**

These reports provide an important record of the nation's health and the major challenges faced by government in tackling the main health problems. The latest reports are available in the links below:

Chief Medical Officer annual report 2012: Surveillance Volume:

<https://www.gov.uk/government/publications/chief-medical-officer-annual-report-surveillance-volume-2012>

Chief Medical Officer's annual report 2012: Our Children Deserve Better: Prevention Pays.

<https://www.gov.uk/government/publications/chief-medical-officers-annual-report-2012-our-children-deserve-better-prevention-pays>

## **Association for the Study of Obesity**

The Association for the Study of Obesity (ASO) was founded in 1967 and is the UK's foremost charitable organisation dedicated to the understanding and treatment of obesity. The ASO aims to develop an understanding of obesity through the pursuit of excellence in research and education, the facilitation of contact between individuals and organisations, and the promotion of action to prevent and treat obesity.

Further information is available at: <http://www.aso.org.uk>

## **Food Standards Agency**

The Food Standards Agency is an independent government department responsible for food safety and hygiene across the UK. They work with businesses to help them produce safe food, and with local authorities to enforce food safety regulations.

Further information is available at: <http://www.food.gov.uk/>

## **World Obesity Federation**

World Obesity Federation represents professional members of the scientific, medical and research communities from over 50 regional and national obesity associations. Through their membership they create a global community of organisations dedicated to solving the problems of obesity.

They aim to lead and drive global efforts to reduce, prevent and treat obesity.

Further information is available at: <http://www.worldobesity.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.

Further information is available at: <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.

Further information is available at: <http://www.nationalobesityforum.org.uk/>

## **Public Health England**

The Public Health England Obesity website (formerly the National Obesity Observatory) provides a single point of contact for wide-ranging authoritative information on data, evaluation, evidence and research related to weight status and its determinants. They work closely with a wide range of organisations and provide support to policy makers and practitioners involved in obesity and related issues.

Further information is available at: <http://www.noo.org.uk/>

## **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.

Further information is available at: [www.sacn.gov.uk/](http://www.sacn.gov.uk/)

## **World Health Organisation**

The WHO BMI 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.

Further information is available at: <http://apps.who.int/bmi/>

## Appendix E: How are the statistics used?

### Users and uses of the report

From our engagement with customers, we know that there are many users of the Statistics on Obesity, Physical Activity and Diet report. There are also many users of these statistics who we do not know about. We are continually aiming to improve our understanding of who our users are in order to enhance our knowledge on what the uses of these data are via recent consultations and feedback forms available online. Below is listed our current understanding of the known users and uses of these statistics. Also included are the methods we use to attempt to engage with the current unknown users.

#### Known Users and Uses

**Department of Health (DH)** - frequently use these statistics to inform policy and planning. The Public Health Outcomes Framework was published in January 2012. The document sets out the desired outcomes for public health and how these will be measured. The framework includes specific indicators for the proportion of physically active and inactive adults, excess weight in children (aged 4-5 years and 10-11 years old) and excess weight in adults. The data signposted to in this report will be used to monitor these indicators.

**Public Health Observatories** - frequently use these data for secondary analysis.

**Media** - these data are used to underpin articles in newspapers, journals, etc.

**Public** - all information is accessible for general public use for any particular purpose.

**Academia and Researchers** - the data in this report are freely available for academics and researchers to use in any papers they may write.

**NHS** - A wide range of organisations use the information to monitor and target services to tackle obesity, physical activity and diet recommendations. The aim is to provide a key source of obesity, physical activity and diet information for public health, commissioning and performance management colleagues at a national level.

**Public Health Campaign Groups** - data are used to inform policy and decision making and to examine trends and behaviours.

**Ad-hoc requests** – the statistics are used by the Health and Social care Information Centre (HSCIC) to answer Parliamentary Questions (PQs), Freedom of Information (FOI) request and ad-hoc queries. Ad-hoc requests are received from health professionals; research companies; public sector organisations, and members of the public, showing the statistics are widely used and not solely within the profession.

#### Unknown Users

This publication is free to access via the HSCIC website <http://www.hscic.gov.uk/lifestyles> and consequently the majority of users will access the report without being known to the HSCIC. Therefore, it is important to put mechanisms in place to try to understand how these additional users are using the statistics and also to gain feedback on how we can make these data more useful to them. On the webpage where the publication appears there is a link on the right-hand side to a feedback form which the HSCIC uses to capture feedback for all its reports.

The specific questions asked on the form are:

How useful did you find the content in this publication?

How did you find out about this publication?

What type of organisation do you work for?

What did you use the report for?

What information was the most useful?

Were you happy with the data quality?

To help us improve our publications, what changes would you like to see (for instance content or timing)?

Would you like to take part in future consultations on our publications?

Any responses via this form are passed to the team responsible for the report to consider. We also capture information on the number of web hits the reports receive, although we are unable to capture who the users are from this. Statistics on Obesity, Physical Activity and Diet 2014 has generated 53,111 unique web hits (as at 24 February 2015) since it was published in February 2014.



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