British Heart Foundation

CHILDREN AND YOUNG PEOPLE STATISTICS 2013

British Heart Foundation Health Promotion Research Group
Department of Public Health, University of Oxford

1 IN 180
BABIES ARE BORN WITH CONGENITAL HEART DISEASE

AROUND 30%
OF CHILDREN AND YOUNG PEOPLE ARE OVERWEIGHT OR OBESE

LESS THAN ONE IN FIVE
CHILDREN IN THE UK EAT THEIR 5 A DAY

FIGHT FOR EVERY HEARTBEAT

bhf.org.uk

ISBN 978-1-899088-17-1

Published by the British Heart Foundation, Greater London House, 180 Hampstead Road, London NW1 7AW
www.bhf.org.uk

Registered Charity No 225971

Edited by Peter Weissberg, British Heart Foundation

Compiled by Nick Townsend, Prachi Bhatnagar, Kremlin Wickramasinghe, Julianne Williams, Daniel Vujcich and Mike Rayner, British Heart Foundation Health Promotion Research Group, Department of Public Health, University of Oxford, Old Rd Campus, Headington, Oxford OX3 7LF
www.publichealth.ox.ac.uk/bhfhprg

Suggested citation:

Townsend N, Bhatnagar P, Wickramasinghe K, Williams J, Vujcich D, Rayner M (2013). Children and young people statistics 2013. British Heart Foundation: London.

CHILDREN AND YOUNG PEOPLE
STATISTICS 2013

Nick Townsend, Prachi Bhatnagar, Kremlin Wickramasinghe,
Julianne Williams, Daniel Vujcich and Mike Rayner
British Heart Foundation Health Promotion Research Group
Department of Public Health, University of Oxford

CONTENTS

Foreword 10

Introduction 11

Glossary 12

CONGENITAL HEART DISEASE

Summary 13

Chapter one – Congenital heart disease 14

Incidence

Congenital heart anomalies, rates by register, UK 2006 to 2010	Table 1.1	17
Congenital heart anomalies, by register, UK 2006 to 2010	Table 1.2	18
Congenital heart anomalies, Glasgow, Scotland 1980 to 2010	Table 1.3, Figure 1.3	20, 21
Live and stillborn babies with congenital anomalies, by gender and condition, England & Wales 2008	Table 1.4	22
Live and stillborn babies with congenital anomalies, rates by gender and condition, England & Wales 2008	Table 1.5	24
Congenital heart anomalies, by Government region, England & Wales 2008	Table 1.6	25
Live and stillborn babies with congenital anomalies, by condition and single or multiple birth, England & Wales 2008	Table 1.7	26
Live and stillborn babies with congenital anomalies, rates by condition and single or multiple birth, England & Wales 2008	Table 1.8	28
Congenital heart anomalies, by birthweight, England & Wales 2008	Table 1.9	29
Congenital heart anomalies, rates by birthweight, England & Wales 2008	Figure 1.9	29
Congenital heart anomalies, by condition and age of mother, England & Wales 2008	Table 1.10	30
Congenital heart anomalies, by age of mother, registers only, England & Wales 2008	Figure 1.10	32

Mortality

Deaths, by gender, age and cause, UK 2011	Table 1.11	33
Congenital heart disease deaths, by gender, age and country, UK 2011	Table 1.12	34
Congenital heart disease deaths in males, by age, UK 2011	Figure 1.12a	34
Congenital heart disease deaths in females, by age, UK 2011	Figure 1.12b	34
Congenital heart disease deaths, time trends by gender, age and country, UK	Table 1.13	35
Congenital heart disease deaths, time trends by age, UK	Figure 1.13	36

Treatment

Centres and procedures for congenital heart disease, by patient age, procedure type and country, UK 2009/10	Table 1.14	37
Congenital heart disease procedures, by patient age and procedure type, UK 2009/10	Figure 1.14	37
Congenital heart disease procedures, by patient age and procedure type, UK 2010/11	Table 1.15	38
Survival rates for congenital heart disease procedures, UK 2009/10	Table 1.16	38
Congenital heart disease operations and survival rates, time trends, UK	Table 1.17, Figure 1.17	39
Hospital episodes and bed days for congenital heart disease, by patient age and condition, England 2011/12	Table 1.18	40
Hospital episodes and bed days for congenital heart disease, by patient age and condition, Wales 2010/11	Table 1.19	41
Hospital episodes and bed days for congenital heart disease, by patient age and condition, Scotland 2010/11	Table 1.20	42
Hospital episodes and bed days for congenital heart disease, by patient age and condition, Northern Ireland 2010/11	Table 1.21	43
Children's Congenital Cardiac Services in England: Selected Service Standards	Table 1.22	44

Quality of life

Quality of life for adolescents with congenital heart disease, by age and disease severity, England 2006	Table 1.23	46
Quality of life scores for adults with congenital heart disease, by quality measure and treatment category, Birmingham, England 2002	Table 1.24	46

MEDICAL RISK FACTORS

Summary 47

Chapter two – Medical risk factors 48

Blood pressure

High blood pressure, by age, Wales 2011/12	Table 2.1	52

Diabetes

Diabetes in children and young people, by age and type, England 2009	Table 2.2	52
Diabetes in children and young people, by age and type, Scotland 2010	Table 2.3	53
Diabetes in children and young people, by age, Wales 2010/11	Table 2.4	53
Diabetes in children and young people, by age and health authority, England 2009	Table 2.5	54
Types of diabetes in diabetic children, by ethnicity, England & Wales 2010/11	Table 2.6, Figure 2.6	54, 55

CONTENTS (CONTINUED)

Cholesterol

High cholesterol in children, by gender, Scotland 2003/04 & 2010/11	Table 2.7	55

Obesity

Body mass index (BMI) status in children, by gender and age, Scotland 2008-11	Table 2.8	56
Overweight and obese children, by gender and age, Scotland 2008-11	Figure 2.8	56
Body mass index (BMI) status in children, by gender and school year, England 2011/12	Table 2.9	57
Body mass index (BMI) status in Reception children, England 2011/12	Figure 2.9a	57
Body mass index (BMI) status in Year 6 children, England 2011/12	Figure 2.9b	57
Overweight and obesity in children, time trends by gender and country, UK	Table 2.10	58
Overweight and obesity in children aged 2 to 15 years, time trends by gender and country, UK	Figure 2.10	60
Overweight and obesity in children, time trends by gender and school year, England	Table 2.11, Figure 2.11	61, 62
Body mass index (BMI) status in children, by gender and health authority, England 2011	Table 2.12	63
Overweight and obese children aged 2 to 15 years, by gender and health authority, England 2011	Figure 2.12	64
Overweight and obese children, by school year, region and local authority, England 2011/12	Table 2.13	65
Body mass index (BMI) status in children, by gender and household income, England 2011	Table 2.14	74
Overweight and obese children aged 2 to 15 years, by gender and household income, England 2011	Figure 2.14	74
Body mass index (BMI) status in children, by gender and household income, Scotland 2008-11	Table 2.15	75
Overweight and obese children aged 2 to 15 years, by gender and household income, Scotland 2008-11	Figure 2.15	75
Body mass index (BMI) status in children, by gender and deprivation quintile, England 2011	Table 2.16	76
Overweight and obese children aged 2 to 15 years, by gender and deprivation quintile, England 2011	Figure 2.16	76
Body mass index (BMI) status in children, by gender and deprivation quintile, Scotland 2008-11	Table 2.17	77

Overweight and obese children aged 2 to 15 years, by gender and deprivation quintile, Scotland 2008-11	Figure 2.17	78
Body mass index (BMI) status in children, by school year and deprivation decile, England 2011/12	Table 2.18	79
Overweight and obese children, by school year and deprivation decile, England 2011/12	Figure 2.18	80
Body mass index (BMI) status in children, by school year and urban/rural classification, England 2011/12	Table 2.19	81
Overweight and obese children, by school year and urban/rural classification, England 2011/12	Figure 2.19	82
Body mass index (BMI) status in children, by school year and ethnicity, England 2011/12	Table 2.20	83
Overweight and obese children, by school year and ethnicity, England 2011/12	Figure 2.20	84
Overweight and obese children, by gender and European country, latest year	Table 2.21	85
Overweight and obese boys, by European country, latest year	Figure 2.21a	86
Overweight and obese girls, by European country, latest year	Figure 2.21b	86

BEHAVIOURAL RISK FACTORS

Summary 87

Chapter three – Diet 88

Fruit and vegetable consumption

Five or more portions of fruit and vegetables per day, children, by gender and country, England, Scotland and Northern Ireland, latest year	Table 3.1, Figure 3.1	90, 91
Fruit and vegetable consumption in children, by gender, Wales 2011	Table 3.2	92
Fruit and vegetable consumption in children aged 4 to 15 years, by gender, Wales 2011	Figure 3.2	93
Daily fruit consumption in children, by gender, age and country, HBSC 2009/10	Table 3.3, Figure 3.3	94, 95
Five or more portions of fruit and vegetables per day, children, by gender and age, England 2001 to 2011	Table 3.4	96
Five or more portions of fruit and vegetables per day in children aged 5 to 15 years, by gender, England 2001 to 2011	Figure 3.4	97
Fruit and vegetable consumption in children, by gender and age, England 2001 to 2011	Table 3.5	98

CONTENTS (CONTINUED)

Fruit and vegetable consumption in children aged 5 to 15 years, by gender, England 2001 to 2011	Figure 3.5	99
Daily fruit and vegetable consumption in children, Northern Ireland 2007 & 2010	Table 3.6	99
Five or more portions of fruit and vegetables per day, children, by gender and age, Scotland 2003 to 2011	Table 3.7	100
Five or more portions of fruit and vegetables per day in children aged 5 to 15 years, by gender, Scotland 2003 to 2011	Figure 3.7	101
Daily fruit and vegetable consumption in children, by gender, Wales 2007 to 2011	Table 3.8	102
Daily fruit and vegetable consumption in children aged 4 to 15 years, by gender, Wales 2007 to 2011	Figure 3.8	102
Foods high in fat, sugar and salt		
Daily intake of energy and macronutrients in children, by gender and age, UK 2010/11	Table 3.9	103
Eating habits in children, by gender, Scotland 2003 to 2010/11	Table 3.10	104
Eating habits in children, by gender, Wales 2011	Table 3.11	105
Daily soft drink consumption in children, by gender, age and country, HBSC 2009/10	Table 3.12, Figure 3.12	106, 107
Breakfast consumption		
Daily breakfast consumption, by gender, age and country, HBSC 2009/10	Table 3.13, Figure 3.13	108, 109
Chapter four – Physical Inactivity		110
Physical activity levels in children, by gender, age and country, UK latest year	Table 4.1	112
Meeting physical activity recommendations, children, by gender and age, England 2008	Figure 4.1a	114
Meeting physical activity recommendations, children, by gender and age, Scotland 2011	Figure 4.1b	114
Meeting physical activity recommendations, children, by gender and age, Northern Ireland 2010	Figure 4.1c	115
Weekly exercise in children, Northern Ireland 2010	Table 4.2	116
At least one hour of moderate-to-vigorous physical activity (MVPA) daily, children, by gender, age and country, HBSC 2009/10	Table 4.3, Figure 4.3	117, 118
At least one hour of moderate physical activity daily, children, by gender and age, England 2002 to 2007	Table 4.4	119
At least one hour of moderate physical activity daily in children aged 2 to 15 years, by gender, England 2002 to 2007	Figure 4.4	119
Meeting physical activity recommendations, children, time trends by gender and country, UK	Table 4.5	120

At least one hour of moderate physical activity daily, children, by gender, Wales 2007 to 2011	Table 4.6	121
At least one hour of moderate physical activity daily, children aged 4 to 15 years, by gender, Wales 2007 to 2011	Figure 4.6	121
At least one hour of moderate physical activity daily, children, by gender and age, Scotland 1998 to 2011	Table 4.7	122
At least one hour of moderate physical activity daily, children aged 2 to 15 years, by gender, Scotland 1998 to 2011	Figure 4.7	123
At least two hours of high quality physical education and out of hours school sport per week, time trends by school year, England	Table 4.8	124
At least two hours of high quality physical education and out of hours school sport per week, time trends by school type, England	Table 4.9	124
At least three hours of high quality physical education and out of hours school sport per week, time trends by school year, England	Table 4.10	125
At least three hours of high quality physical education and out of hours school sport per week, by school year, England 2008/09 & 2009/10	Figure 4.10	126
Hours of physical education (PE), by gender and age, Northern Ireland 2010	Table 4.11	127
Number of days walking or cycling to school, by gender and age, England 2008	Table 4.12	128
Travel to school, by mode and school type, England 2011	Table 4.13	129
Physical activity in children, by gender and household income, England 2008	Table 4.14	130
Physical activity in children aged 2 to 15 years, by gender and household income, England 2008	Figure 4.14	130
Physical activity in children, by gender and household income, Scotland 2008-11	Table 4.15	131
Daily sedentary time in children, by gender and age, England 2008	Table 4.16	132
At least six hours of daily sedentary time, children, by gender, age and day, England 2008	Figure 4.16	133
At least two hours of television on weekdays, children, by gender, age and country, HBSC 2009/10	Table 4.17, Figure 4.17	134, 135
Chapter five – Alcohol		136
Age for first alcoholic drink in children, Northern Ireland 2010	Table 5.1, Figure 5.1	138, 139
Tried alcohol, children, by gender and age, England 2011 & Scotland 2010	Table 5.2, Figure 5.2	140, 141
Consumed alcohol in the last week, children, by gender and age, England 1988 to 2011	Table 5.3	142
Consumed alcohol in the last week, children, by age, England 1988 to 2011	Figure 5.3	143
Drinking weekly, children, by gender and age, Wales 1986 to 2009	Table 5.4	144

CONTENTS (CONTINUED)

Drinking weekly, children, by age, Wales 1986 to 2009	Figure 5.4	145
Consumed alcohol in the last week, children, by gender and age, Scotland 1990 to 2010	Table 5.5	146
Consumed alcohol in the last week, children, by age, Scotland 1990 to 2010	Figure 5.5	146
Frequency of alcohol consumption in children, by gender and age, England 2011	Table 5.6	147
Frequency of alcohol consumption in children, by gender and age, Scotland 2010	Table 5.7	148
Frequency of alcohol consumption in children, Northern Ireland 2010	Table 5.8	149
Alcohol consumption in the last week, children, by gender and age, England 2007 to 2011	Table 5.9	150
Alcohol consumption in the last week, children aged 11 to 15 years, by gender, England 2007 to 2011	Figure 5.9	151
Alcohol consumption in the last week, children, by gender and type of drink, England 2008 & 2011	Table 5.10	152
Alcohol consumption in last week, children aged 11 to 15 years, by gender and type of drink, England 2011	Figure 5.10a	153
Alcohol consumption in last week, children aged 11 to 15 years, by type of drink, England 2008 & 2011	Figure 5.10b	153
Alcohol consumption in the last week, children, by gender and age, Scotland 2008 & 2010	Table 5.11	154
Alcohol consumption in last week, children, by age and type of drink, Scotland 2008 & 2010	Figure 5.11	155
Alcohol consumption in the last week , children, by gender and age, Scotland 2008 & 2010	Table 5.12	156
Drunk in the previous month, children, Northern Ireland 2010	Table 5.13	157
Drunk in the previous month, children aged 11 to 16 years, Northern Ireland 2010	Figure 5.13	157
Occasions when drunk in children, Northern Ireland 2010	Table 5.14	158
Occasions when drunk, children aged 11 to 16 years, Northern Ireland 2010	Figure 5.14	158
Drunk in the last week, children, by gender and age, Scotland 2010	Table 5.15	159
Consumed alcohol in the last week, children, by gender, age and school meal status, Scotland 2010	Table 5.16, Figure 5.16	160, 161
Drunk at least once, children, by gender, age and school meal status, Scotland 2010	Table 5.17, Figure 5.17	162, 163
Consumed alcohol in the last week, children, by gender, age and deprivation quintile, Scotland 2010	Table 5.18, Figure 5.18	164, 165
Drunk in the last week, children, by gender, age and deprivation quintile, Scotland 2010	Table 5.19, Figure 5.19	166, 167

Chapter six – Smoking 168

Smoking in children, by gender and age, England 2011	Table 6.1	169
Children who have ever smoked cigarettes, by age, England 2011	Figure 6.1	170
Smoking in children, by gender and age, Scotland 2010	Table 6.2	171
Smoking in children, Northern Ireland 2010	Table 6.3	171
Smoking in children, by gender, England 2001 to 2011	Table 6.4	172
Smoking in children, by gender and age, Scotland 1982 to 2010	Table 6.5	173
Regular smoking in children aged 13 years, by gender, Scotland 1982 to 2010	Figure 6.5a	174
Regular smoking in children aged 15 years, by gender, Scotland 1982 to 2010	Figure 6.5b	174
Smoking in children, by gender and age, Wales 1986 to 2009	Table 6.6	175
Regular smoking in children, by age, Wales 1986 to 2009	Figure 6.6	175
Smoking in children, Northern Ireland 2000 to 2010	Table 6.7	176
Percentage of 11 to 16 year olds who have ever smoked tobacco, Northern Ireland 2000 to 2010	Figure 6.7	176
Tried smoking, children, by gender, age and country, HBSC 2009/10	Table 6.8, Figure 6.8	177, 178

British Heart Foundation Resources 179

FOREWORD

Fortunately, heart disease is rare in young people, but many of the habits that lead to heart disease in later life are acquired in childhood. So, for the first time, the British Heart Foundation (BHF) is publishing this supplement to our biennial compendium of heart statistics that presents data related solely to children and young people.

The supplement begins with a section on congenital heart disease, where defects in the structure of the heart and major blood vessels are present at birth. This is largely a good news story. The incidence of congenital heart disease has decreased over the last thirty years and there have been dramatic improvements in treatment, many made possible by BHF-funded research, with the number of operations increasing and survival rates improving. The BHF continues to support research groups across the UK to gain a better understanding of why congenital defects occur and how best to prevent and treat them, so that even greater improvements can be achieved in the future.

The next section is not such good news and focuses on the dominant childhood risk factors that may affect cardiovascular health in later life. There is good evidence that children with the highest blood pressure and cholesterol levels, though not immediately at risk, carry these traits through to adulthood. The increasing incidence of obesity and diabetes amongst children and young people is a real cause for concern and could have a dramatic impact on cardiovascular disease in years to come. Over the past fifty years there has been a substantial and unprecedented reduction in deaths from cardiovascular disease in the UK. This trend could reverse if we fail to tackle the rising tide of obesity in our young people today.

The last section focuses on the key factors that threaten the future heart health of today's children: drinking alcohol, smoking, lack of exercise and unhealthy eating. Although childhood is an important time for establishing healthy behaviours, adolescence is a time when risky behaviours are often adopted. Preventing this is a constant battle and the BHF publishes a wide range of high quality, evidence-based resources aimed at children, families, adults and professionals to help them influence and support the right behaviours at this crucial stage of life. A list of the most relevant resources can be found at the rear of this publication.

The BHF has always recognised the importance of improving the health of children and young people and has a dedicated team working to support them, their parents and carers, and healthcare professionals to prevent and reduce heart disease and manage their heart health. Our ground-breaking research and our wider prevention and care programmes are all helping to create the right environment to encourage and sustain healthy behaviours into adulthood. The data presented in this and future supplements will help us understand whether we as a nation are succeeding or not.

Professor Peter Weissberg
Medical Director, British Heart Foundation

INTRODUCTION

This is the first time a supplement to *Coronary Heart Disease statistics* has focused solely on children and young people. Although throughout the series of publications, which began over twenty years ago, we have included data concerning children we have never dedicated an entire publication to this age group. By doing so now we are able to present a wider range of statistics concerning the behaviour and health of children in the UK. *Children and young people statistics 2013* is designed for health professionals, medical researchers and anyone with an interest in the health of children or in cardiovascular disease.

Children and young people statistics 2013 is divided into three sections. Section one covers congenital heart disease, presenting statistics on incidence, mortality, treatment and quality of life for individuals with congenital heart disease. Section two includes statistics for the medical risk factors associated with cardiovascular disease, including blood pressure, diabetes, blood cholesterol and obesity. The third and final section covers behavioural risk factors associated with cardiovascular disease through four chapters covering key topics: diet, physical inactivity, alcohol consumption and smoking.

Each chapter contains a set of tables and figures to illustrate key points and a brief review of the data presented. Wherever possible data are presented for all UK countries and statistics are included which describe differences by age, gender, socioeconomic status, geography and ethnicity. Where possible the situation in the UK is also contrasted with international data.

All of the tables and figures in the latest compendium are also available from the British Heart Foundation's website at **bhf.org.uk/statistics**. This aims to be the most comprehensive and up-to-date source of statistics on cardiovascular disease in the UK. The website is updated on a regular basis and contains a wide range of tables and figures. Further copies of this publication can be downloaded from the website, as well as copies of other recent publications, including:

- *Coronary heart disease statistics compendium* (2012)
- *European cardiovascular disease statistics* (2012)
- *Physical activity statistics* (2012)
- *Trends in coronary heart disease, 1961–2011* (2011)
- *Ethnic differences in cardiovascular disease* (2010)

GLOSSARY

Balloon atrial septostomy – this procedure is primarily used to treat transposition of the great arteries, a life-threatening condition in infants. It is a surgical procedure in which a small hole is created in the partition between the upper two chambers of the heart, the atria, using a balloon catheter which is guided through a large vein into the right atrium.

Blood pressure – blood pressure is simply the physical pressure of blood in the blood vessels. It is similar to the concept of air pressure in a car tyre. These values are quoted in units known as millimetres of mercury (mmHg). See systolic pressure and diastolic pressure.

Body Mass Index (BMI) – a formula relating body weight to height to assess whether a person is overweight or obese. BMI is calculated by dividing a person's weight (in kilograms) by their height (in metres) squared.

Cardiac catheterisation – a procedure used to diagnose and treat cardiovascular conditions. A long thin tube called a catheter is inserted in an artery or vein in the groin, neck or arm and threaded through blood vessels to the heart. This catheter can then be used to inject dye into the blood vessels so that they stand out on scans, or to introduce balloons or stents to widen narrowing.

Cardiovascular disease (CVD) – the collective term for all diseases affecting the circulatory system (heart, arteries, blood vessels).

Congenital heart disease – a problem with the heart's structure and function that is present at birth.

Coronary heart disease (CHD) – the collective term for diseases that occur when the walls of the coronary arteries become narrowed by a gradual build-up of fatty material called atheroma. The two main forms of CHD are heart attack (also known as myocardial infarction) and angina.

Diabetes – a disease caused by an absence of insulin (type 1) or an increased resistance of the body to insulin (type 2). Diabetes is characterised by high blood glucose levels. The resulting chronic high blood glucose levels (hyperglycaemia) are associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels.

Diastolic blood pressure – a common blood pressure reading might be 120/80 mmHg. The lower pressure (80) represents the pressure in the arteries when the heart is relaxed between beats. This pressure is called diastolic pressure.

International Classification of Diseases (ICD) – a coding system published by the World Health Organization that provides an internationally recognised method of coding diseases in order to categorise mortality and morbidity statistics. The tenth and most recent system (ICD-10) was introduced in 1994. Change between revisions can result in discontinuities in mortality and morbidity trends, such as the move from ICD-9 to ICD-10 which resulted in an artificial increase in the number of reported stroke incidents and mortalities.

Macronutrients – the classes of chemical compounds humans consume in the largest quantities and provide calories or energy. These are protein, carbohydrate and fat.

Moderate to vigorous physical activity (MVPA) – defined in the Health Survey for England 2008 as all activity occurring at three or more METs.

MET (metabolic equivalent or metabolic equivalent of task) – the ratio of work metabolic rate to a standard resting metabolic rate. Metabolic rate is the rate at which a person uses energy, or burns calories; 1 MET is considered a resting metabolic rate.

Non-Milk Extrinsic Sugars (NMES) – generally added sugars (such as sugar, honey, glucose) that are not integrally present in the cells of food like fruit and vegetables, and that are not naturally present in milk.

Non-Starch Polysaccharides (NSP) – complex carbohydrates that are the major part of dietary fibre and can be measured more precisely than total dietary fibre.

Overweight and Obesity – conditions in which excess body fat has accumulated to the extent that it may impact on health. The most common way to define these is through the use of body mass index (BMI). In adults, uniform cut-offs of 25kg/m^2 for overweight and 30kg/m^2 for obesity are used for all individuals. In children BMI is compared to growth reference curves to take account of age and gender.

Prevalence – a measure of morbidity based on the current level of a disease in the population at any particular time.

Surgical atrial septostomy – a surgical procedure in which a small hole is created in the partition between the upper two chambers of the heart, the atria.

Survival rate – the percentage of people in a study or treatment group who are alive for a given period of time after diagnosis.

Systolic blood pressure – a common blood pressure reading might be 120/80 mmHg. The higher pressure (120) represents the pressure in the arteries when the heart beats, pumping blood into the arteries. This pressure is called systolic pressure

Transposition of the great arteries (TGA) – a congenital heart abnormality that presents in new-borns in which the great arteries are reversed in their origins from the heart. The aorta is connected to the right ventricle, and the pulmonary artery is connected to the left ventricle. This is the opposite of the normal heart's anatomy.

CONGENITAL HEART DISEASE

This section reports on congenital heart disease. We present statistics on numbers and rates of congenital cardiovascular anomalies, deaths from paediatric and congenital heart disease, as well as treatment for these conditions.

Summary

- In the UK around 1 in 180 babies are born with congenital heart disease.
- Regional data show a decrease in the rate of congenital cardiovascular anomalies over a thirty year period.
- A higher rate of congenital heart disease is reported in children born of multiple births than those born of single births.
- A light birthweight is associated with a greater risk of congenital heart disease.
- In children under five years of age 3.5% of all deaths in boys and 4.8 % of all deaths in girls are from congenital heart disease.
- Of those who died from congenital heart disease in 2011, 47% were under the age of one and 40% were over the age of 25.
- Between 1979 and 2008, absolute numbers of deaths from congenital heart disease in children declined by 83% in the UK.
- In the last five decades the greatest decline in deaths from congenital heart disease has occurred in those aged less than 1 year.
- The number of operations performed for congenital heart disease increased by around 60% between 2000 and 2010.
- Adults with congenital heart disease reported a lower quality of life than average for the population, even if they had been surgically cured.

CHAPTER ONE —

CONGENITAL HEART DISEASE

Congenital heart disease refers to defects in the structure of the heart and major blood vessels which are present at birth. There are many forms of congenital heart disease most of which obstruct or disturb the flow of blood through the heart and major blood vessels. Many defects do not require treatment although the more complex conditions can require medication or surgery, whilst some result in death of the foetus. The prenatal diagnosis of some conditions can also result in termination of the pregnancy.

Incidence

There are a number of regional congenital anomaly registers within the UK with the aim of providing surveillance and analysis of congenital defects. These are compiled within the British Isles Network of Congenital Anomaly Registers (BINOCAR) and the European Surveillance of Congenital Anomalies (EUROCAT). However, these registers do not cover all births within the UK. At present BINOCAR estimates that registers which are a part of their network cover 49% of births in England, 24% of births in Scotland and 100% of births within Wales. Within these registers a congenital anomaly is defined as any defect, probably originating before birth, and includes structural, chromosomal, genetic and biochemical defects and malformations. Each anomaly is coded using the World Health Organization's ICD-10 classification scheme. There is no maximum limit of anomalies per child and data are collected concerning all live births, stillbirths, terminations of pregnancy or spontaneous pregnancy losses, to residents of the geographically defined population covered by each register [1]. Some minor anomalies are not notified to registers if they occur in isolation; these include functional or unspecified cardiac murmur [2].

Data from BINOCAR registers suggest that more than 6 in every 1,000 pregnancies in the UK, or 1 in every 155, have some form of congenital heart disease. This includes pregnancies which lead to live or still births, those which die before birth and those which are terminated. The rate of congenital heart disease in live births is 5.6 in every 1,000, meaning that 1 in every 180 babies are born with some form of congenital heart disease. Between 2006 and 2010 a higher rate of babies were born with congenital anomalies (33.0 to 103.4 per every 10,000 live and still births) than those who died in pregnancy (1.2 to 2.5/10,000) or were terminated (6.1 to 9.0/10,000) (Table 1.1). Data from all UK registers in 2010 show that the rate of reported cardiovascular congenital anomalies ranged between local registers from 106 per 10,000 live and still births in Wales to 43/10,000 in Wessex (Table 1.2).

Although data demonstrate no common trend in incidence for all registers between 2006 and 2010 (Table 1.1) data from the Child Health Surveillance Programme in Glasgow show a decrease in the rate of congenital cardiovascular anomalies over a thirty year period, ranging from a high of 79.9 per every 10,000 live and still births in 1982 to a low of 36.5/10,000 in 2007. The rate for the most recent year 2010 was 40.2/10,000 (Table 1.3, Figure 1.3).

Data from the National Congenital Anomaly System (NCAS) in 2008 reported notifications on the occurrence of congenital anomalies in England and Wales for regions with and without registers.

Local registers provided data electronically to the NCAS whilst regions without a local register provided information on paper. Under reporting in congenital anomalies has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies, which may not present at birth but which registers may update later electronically [3]. Because of this all statistics discussed below come from registers only, although data from areas not covered by a register are presented in the tables. NCAS data from 2008 show that anomalies of the cardiovascular system were the most common form of congenital defect with 932 reported cases compared to 563 urinary and 550 limb anomalies (Table 1.4).

The highest rates of congenital anomalies in live born babies of both genders were those of the cardiovascular system (36.6 per every 10,000 live born in males and 35.8/10,000 in females). In stillborn births, chromosomal anomalies were the only condition more common than cardiovascular anomalies. Rates for cardiovascular anomalies were found to be 154.6 per every 10,000 still births in males and 160.1/10,000 still births in females (Table 1.5). Although data from 2008 described a range in rates of congenital heart defects from 82.1 per every 10,000 live and still births in Wales to 14.5/10,000 in the East Midlands, the percentage of births covered by these local registers also varied from 100% in Wales to 25% in Yorkshire and Humber (Table 1.6).

A higher rate of congenital cardiovascular anomalies was reported in children born of multiple births than those born of single births (Table 1.7 and Table 1.8). However, previous research showed that between 1997 and 2004, 14% of birth registrations classified as multiple births were not recorded as such on their congenital anomaly registration, compared to only 2% of single births [4]. It is not clear if this notification bias still exists, but if so rates of notification of multiple births may be underestimated.

In general a light birthweight was associated with a greater risk of congenital cardiovascular anomalies, with the highest rate found amongst those babies with a birthweight of between 1,000 and 1,499 grams and the lowest rate found for those with a birthweight greater than or equal to 3,500 grams (Table 1.9, Figure 1.9). Babies born to older mothers, those 40 years of age and over, showed the greatest rate of cardiovascular anomalies (66.4 per every 10,000 live and still births) whilst those born to mothers aged between 30 and 34 showed the lowest rate (29.6/10,000) (Table 1.10, Figure 1.10).

Mortality

Mortality data are routinely collected in the UK, providing numbers of deaths by age and gender. In 2011, 3.5% of all deaths in boys under five and 4.8% of all deaths in girls under five were from congenital heart disease (Table 1.11). Of all people who died from congenital heart disease in 2011, around half died under the age of one (49% in males and 45% in females), and two fifths died over the age of 25 (39% in males and 40% in females) (Table 1.12, Figures 1.12a and 1.12b).

Mortality from congenital heart disease has decreased over the past 30 years; between 1979-1983 and 2004-2008, absolute numbers of deaths from congenital heart disease in children under 15 years declined by 83% in the UK. As the birth prevalence of congenital heart disease is thought to have remained more stable over this time period [5], it can be inferred that a large part of this decline in mortality is due to improved survival. This prolonged survival is demonstrated by the ages at which people have been dying from congenital heart disease over the past 50 years. The greatest decline in deaths from congenital heart disease has occurred in those aged less than 1 year (Table 1.13, Figure 1.13).

Treatment

Not everyone with congenital heart disease requires treatment. Some individuals with mild congenital heart defects may only need to be regularly monitored by a cardiologist. An example of this is the hole in the heart (small ventricular septal defect) which often becomes smaller and can eventually close by itself as the child grows. Many congenital heart conditions do require treatment, however, often through open surgery or catheter based intervention, with treatment options varying due to the type and complexity of the congenital defect. For many defects treated in childhood, further problems can develop later in life which then require medical care or further surgery [6].

Treatment of adults with congenital heart disease is relatively new as more children with congenital heart defects receive treatment and reach adulthood. As a result of the success of paediatric cardiology and cardiac surgery over the last four decades, it is thought that more adults with congenital heart disease will require medical care than children [7]. This important transition of the patients from childhood through adolescence to adulthood requires, amongst other things, adequate facilities. Programmes aimed at grown-ups with congenital heart disease (GUCH) are intended to facilitate this process by collaborating between various professional groups and institutions [8].

This rapid evolution in the treatment of congenital heart disease, together with a variety of surgical treatments and existence of a large number of individual defects means the availability of simple nationally representative comparable data on the treatment of congenital heart disease is limited. Some hospitals treat severe patients with complex interventions and their survival rates may be lower than other centres.

Procedures for congenital heart disease

Data published by the National Institute for Cardiovascular Outcomes Research (NICOR) show that in 2009/10 just over 9,200 operations were performed in the UK's 32 specialist congenital heart disease units. The majority of those procedures (around 5,300) were surgical compared to 3,977 catheter interventions (Table 1.14). In 2010/11 around 1,900 surgical procedures were performed on infants (31 days to 1 year) and around 1,800 on children aged 1 to 16 years. Around 80% of those were bypass procedures. Around a fifth of surgical procedures for congenital heart disease were carried out on adults (Table 1.15).

Survival rates of the procedures for congenital heart disease have improved significantly over the last few decades. In 2009/10 the one year survival rate for catheter procedures was 98.6% compared to a 93.7% survival rate for surgical procedures (Table 1.16). Trend data suggest that the number of operations performed for congenital heart disease increased by around 60% between 2000 and 2010. Over the same period both 30 day survival rates and one year survival rates improved (Table 1.17).

Hospital admissions

Hospital episode statistics show that in 2011/12 there were 26,246 hospital consultations in the National Health Service in England in which congenital heart disease was the primary diagnosis. Overall there were over 91,000 days of inpatient care due to congenital heart disease. These represented around 1.5% of both inpatients cases and inpatients days in England (Table 1.18). In 2010/11 there were 436 congenital heart disease related hospital consultations in Wales, 1,221 in Scotland and 1,801 in Northern Ireland (Tables 1.19 to 1.21).

Review of paediatric and congenital cardiac services

In response to public concerns and inquiries into the quality of care at a number of specialist centres in the UK, the Department of Health initiated a review of NHS paediatric and congenital cardiac services. The initial report of this review was published in November 2002 [9]. There were several consultations to further improve children's congenital cardiac services with a focus on quality and sustainability. In 2011 there was a public consultation to the proposals put forward by the Safe and Sustainable Review of Children's Congenital Heart Services. Based on that consultation agreed service standards were published in July 2012, ranging from mandatory to desirable or value added services. There was a strong public support for the standards under each of the seven themes identified in this review (Table 1.22). They were:

- Congenital Heart Networks
- Prenatal Diagnosis
- Specialist Surgical Centres
- Age Appropriate Care
- Information and Making Choices
- The Family Experience
- Excellent Care

Quality of life

The mortality statistics in this chapter show that increasing numbers of people with congenital heart disease are now surviving their condition and living on to become adults. Despite this, there is no routine dataset collecting information on the quality of life for people with congenital heart disease; therefore the data presented here come from peer-reviewed publications. Health-related quality of life can be measured in various ways, including looking at physical health, mental health and social function. Two quality of life measures are used here: the SF-36 and the ConQol. The SF-36 is a generic measure assessing eight health concepts (physical functioning, physical role limitations, emotional role limitations, social functioning, mental health, energy/vitality, pain, general health perception), where a higher score indicates a higher quality of life. The ConQol is a measure specifically developed by the authors of the paper to measure health-related quality of life in children and adolescents with congenital heart disease, where a higher score indicates a higher quality of life.

Children

A study using ConQol assessed the health-related quality of life in children and adolescents with congenital heart disease. This study presents the results from their newly developed measure which was piloted on adolescents from the Yorkshire Heart Centre. In 8 to 11 year olds, children with more complex conditions had a lower mean quality of life than those with simple conditions. In 12 to 16 year olds there was little difference between children with conditions of different complexity (Table 1.23).

Adults

A study using SF-36 assessed adult congenital heart disease patients registered at a hospital in Birmingham. Compared to the general population of the same age, congenital heart disease patients had lower physical functioning and general health perception; those in the surgically cured group had a lower mean score on all of the dimensions of quality of life assessed, although pain had only a slightly lower score. In comparison to the population norm, patients in the surgically corrected group (i.e. may need further surgery) had a lower quality of life for physical functioning, role limitations caused by physical functioning, social functioning and overall general health perception (Table 1.24).

Mean quality of life scores for those who had been surgically corrected or cured were much lower than the general population for all the dimensions of quality of life, with the exception of pain which was only a little lower. Overall, there was little difference in the eight health related concepts of quality of life between the three groups which had undergone surgery. Patients with inoperable conditions had a poorer quality of life in all areas than patients who had undergone surgery or did not need surgery, and reported more pain than patients in the surgically palliated or surgically corrected groups (Table 1.24).

1. British Isles Network of Congenital Anomaly Registers (BINOCAR) About Us Webpage http://www.binocar.org/aboutus (accessed April 2013).
2. European Surveillance of Congenital Anomalies (EUROCAT) Guide 1.3 and reference documents http://www.eurocat-network.eu/content/EUROCAT-Guide-1.3.pdf (accessed April 2013).
3. Boyd P A, Armstrong B, Dolk H, Botting B, Pattenden S, Abramsky L, Rankin J, Vrijheid M, Wellesley D. (2005). 'Congenital anomaly surveillance in England – ascertainment deficiencies in the national system', British Medical Journal; 330:27.
4. Botting B J (2003). Evaluation of strategies to improve case ascertainment and data quality in the National Congenital Anomaly System, PhD thesis, University of London.
5. Wren C, Richmond S, Donaldson L (2000). Temporal variability in birth prevalence of cardiovascular malformations. Heart; 83: 414-9.
6. Care and treatment for congenital heart defects (2011). American Heart Association. http://www.heart.org/HEARTORG/Conditions/CongenitalHeartDefects (accessed April 2013).
7. Task force on the management of grown up congenital heart disease of the European Society of Cardiology (2003). European Heart Journal;24:1035-1084.
8. British Cardiac Society Working Party (2002). Grown-up congenital heart (GUCH) disease: current needs and provision of service for adolescents and adults with congenital heart disease in the UK. Heart; 88(Suppl I):i1–i14.
9. Department of Health (2002). Report of the Paediatric and Congenital Cardiac Services Review Group: London.

Table 1.1
Congenital heart anomalies, rates by register, UK 2006-10

	Rate per 10,000 births				Rate excluding chromosomal
	Live Birth Rate	Foetal Death Rate	Termination Rate	Total Rate	
East Midlands and South Yorkshire	38.07	1.53	6.08	45.67	40.03
Northern England	85.57	1.61	9.02	96.20	82.58
South West England	54.33	1.34	7.30	62.96	53.64
Thames Valley	39.24	1.19	6.89	47.33	40.90
Wessex	32.99	2.30	8.47	43.77	36.52
Wales	103.39	2.28	8.55	114.21	100.48
Glasgow	39.37	2.47	9.00	50.85	39.02
All Registers	**55.55**	**1.69**	**7.50**	**64.74**	**55.77**

Notes:
Denominator for incidence is all live and still births. Slight discrepancies are present between numerator and denominator. ¶ The two measures are equal if there are no terminations of pregnancy after prenatal diagnosis in the population. ¶ Foetal deaths include still births and spontaneous abortions from 20 weeks gestation. Terminations are following prenatal diagnosis. ¶ Differences in rates over time or between regions may reflect one or more of the following factors: genetic differences, environmental differences, differences in diagnostic services, differences in the methods of collecting epidemiological data, differences in prenatal screening policies and chance differences. ¶ Glasgow 2006-2009 data are for Greater Glasgow area only; 2010 data are for Greater Glasgow and Clyde area.

Source:
EUROCAT Website Database: http://www.eurocat-network.eu/ACCESSPREVALENCEDATA/PrevalenceTables (accessed December 2012), © University of Ulster, 2010. ¶ NHS Greater Glasgow and Clyde health board (personal communication 2012). Source denominators live and still births: 2006–2009 Standard Immunisation Recall System (SIRS) Extracts, 2010: Child Health Surveillance Programme (CHSP) (Atos Origin) 29/08/2012.

Table 1.2
Congenital heart anomalies, by register, UK 2006 to 2010

	2006	2007	2008	2009	2010	**Total**
East Midlands and South Yorkshire						
Total Cases	381	359	324	288	324	**1,676**
Live Births	305	311	285	227	269	**1,397**
Foetal Deaths	19	10	5	12	10	**56**
Terminations	57	38	34	49	45	**223**
Total Births	70,153	72,549	74,469	74,101	75,698	**366,970**
Rate per 10,000 births	54.31	49.48	43.51	38.87	42.80	**45.67**
Total Cases exc. Chromosomal	335	323	283	250	278	**1,469**
Rate exc. Chromosomal	47.75	44.52	38.00	33.74	36.72	**40.03**
Northern England						
Total Cases	343	321	352	321	273	**1,610**
Live Births	303	282	318	289	240	**1,432**
Foetal Deaths	6	6	6	4	5	**27**
Terminations	34	33	28	28	28	**151**
Total Births	32,660	33,047	33,818	33,365	34,461	**167,351**
Rate per 10,000 births	105.02	97.13	104.09	96.21	79.22	**96.20**
Total Cases exc. Chromosomal	289	277	306	277	233	**1,382**
Rate exc. Chromosomal	88.49	83.82	90.48	83.02	67.61	**82.58**
South West England						
Total Cases	269	325	296	322	341	**1,553**
Live Births	231	285	258	272	294	**1,340**
Foetal Deaths	4	6	4	10	9	**33**
Terminations	34	34	34	40	38	**180**
Total Births	46,838	48,638	50,139	49,714	51,328	**246,657**
Rate per 10,000 births	57.43	66.82	59.04	64.77	66.44	**62.96**
Total Cases exc. Chromosomal	229	279	262	270	283	**1,323**
Rate exc. Chromosomal	48.89	57.36	52.25	54.31	55.14	**53.64**
Thames Valley						
Total Cases	95	112	110	193	204	**714**
Live Births	74	87	86	165	180	**592**
Foetal Deaths	3	1	7	5	2	**18**
Terminations	18	24	17	23	22	**104**
Total Births	28,695	29,716	30,730	30,392	31,321	**150,854**
Rate per 10,000 births	33.11	37.69	35.80	63.50	65.13	**47.33**
Total Cases exc. Chromosomal	79	93	92	166	187	**617**
Rate exc. Chromosomal	27.53	31.30	29.94	54.62	59.70	**40.90**
Wessex						
Total Cases	117	150	126	118	135	**646**
Live Births	89	111	98	91	98	**487**
Foetal Deaths	10	7	6	6	5	**34**

	2006	2007	2008	2009	2010	**Total**
Terminations	18	32	22	21	32	**125**
Total Births	27,717	29,003	29,460	30,289	31,135	**147,604**
Rate per 10,000 births	42.21	51.72	42.77	38.96	43.36	**43.77**
Total Cases exc. Chromosomal	102	125	100	95	117	**539**
Rate exc. Chromosomal	36.80	43.10	33.94	31.36	37.58	**36.52**
Wales						
Total Cases	439	385	396	400	384	**2,004**
Live Births	401	340	355	367	351	**1,814**
Foetal Deaths	5	12	6	8	9	**40**
Terminations	33	33	35	25	24	**150**
Total Births	33,800	34,585	35,815	35,117	36,142	**175,459**
Rate per 10,000 births	129.88	111.32	110.57	113.90	106.25	**114.21**
Total Cases exc. Chromosomal	393	328	345	354	343	**1,763**
Rate exc. Chromosomal	116.27	94.84	96.33	100.81	94.90	**100.48**
Glasgow						
Total Cases	51	45	57	53	82	**288**
Live Births	40	37	46	45	55	**223**
Foetal Deaths	1	2	2	1	8	**14**
Terminations	10	6	9	7	19	**51**
Total Births	9,904	10,402	10,626	10,776	14,934	**56,642**
Rate per 10,000 births	51.49	43.26	53.64	49.18	54.91	**50.85**
Total Cases exc. Chromosomal	41	33	43	42	62	**221**
Rate exc. Chromosomal	41.40	31.72	40.47	38.98	41.52	**39.02**
All registers						
Total Cases	1,695	1,697	1,661	1,695	1,743	**8,491**
Live Births	1,443	1,453	1,446	1,456	1,487	**7,285**
Foetal Deaths	48	44	36	46	48	**222**
Terminations	204	200	179	193	208	**984**
Total Births	249,767	257,940	265,057	263,754	275,019	**1,311,537**
Rate per 10,000 births	67.86	65.79	62.67	64.26	63.38	**64.74**
Total Cases exc. Chromosomal	1,468	1,458	1,431	1,454	1,503	**7,314**
Rate exc. Chromosomal	58.77	56.52	53.99	55.13	54.65	**55.77**

Notes:

Denominator for incidence is all live and still births. Slight discrepancies are present between numerator and denominator. ¶ The two measures are equal if there are no terminations of pregnancy after prenatal diagnosis in the population. ¶ Foetal Deaths include still births and spontaneous abortions from 20 weeks gestation. Terminations are following prenatal diagnosis. ¶ Differences in rates over time or between regions may reflect one or more of the following factors: genetic differences, environmental differences, differences in diagnostic services, differences in the methods of collecting epidemiological data, differences in prenatal screening policies and chance differences. ¶ Glasgow 2006-2009 data are for Greater Glasgow area only; 2010 data are for Greater Glasgow and Clyde area.

Source:

EUROCAT Website Database: http://www.eurocat-network.eu/ACCESSPREVALENCEDATA/PrevalenceTables (data uploaded 04/12/2012),© University of Ulster, 2010. ¶ NHS Greater Glasgow and Clyde health board (personal communication 2012). Source denominators live and still births: 2006 - 2009 Standard Immunisation Recall System (SIRS) Extracts, 2010: Child Health Surveillance Programme (CHSP) (Atos Origin) 29/08/2012.

Table 1.3
Congenital heart anomalies, Glasgow, Scotland 1980 to 2010

Year of birth	Number of live and still births with anomalies	Rate/10,000 live and still births
1980	83	61.8
1981	89	66.0
1982	103	79.9
1983	71	56.1
1984	89	69.6
1985	92	70.3
1986	68	52.3
1987	74	56.9
1988	78	60.4
1989	71	57.1
1990	69	55.2
1991	80	62.1
1992	64	52.0
1993	68	56.9
1994	73	64.0
1995	70	62.3
1996	73	66.5
1997	69	62.7
1998	50	48.8
1999	41	42.2
2000	47	48.5
2001	51	52.2
2002	45	48.0
2003	42	43.6
2004	49	49.6
2005	53	53.9
2006	41	41.4
2007	38	36.5
2008	48	45.2
2009	46	42.7
2010	60	40.2
Total	**1,995**	**55.6**

Notes:
Denominator for incidence is all live and still births. ¶ 2006-2009 data are for Greater Glasgow area only; 2010 data are for Greater Glasgow and Clyde area.

Source:
NHS Greater Glasgow and Clyde Health Board (personal communication 2012). Source denominators live and still births: 2006–2009 Standard Immunisation Recall System (SIRS) Extracts, 2010: Child Health Surveillance Programme (CHSP) (Atos Origin) 29/08/2012.

Figure 1.3
Congenital heart anomalies, Glasgow, Scotland 1980 to 2010

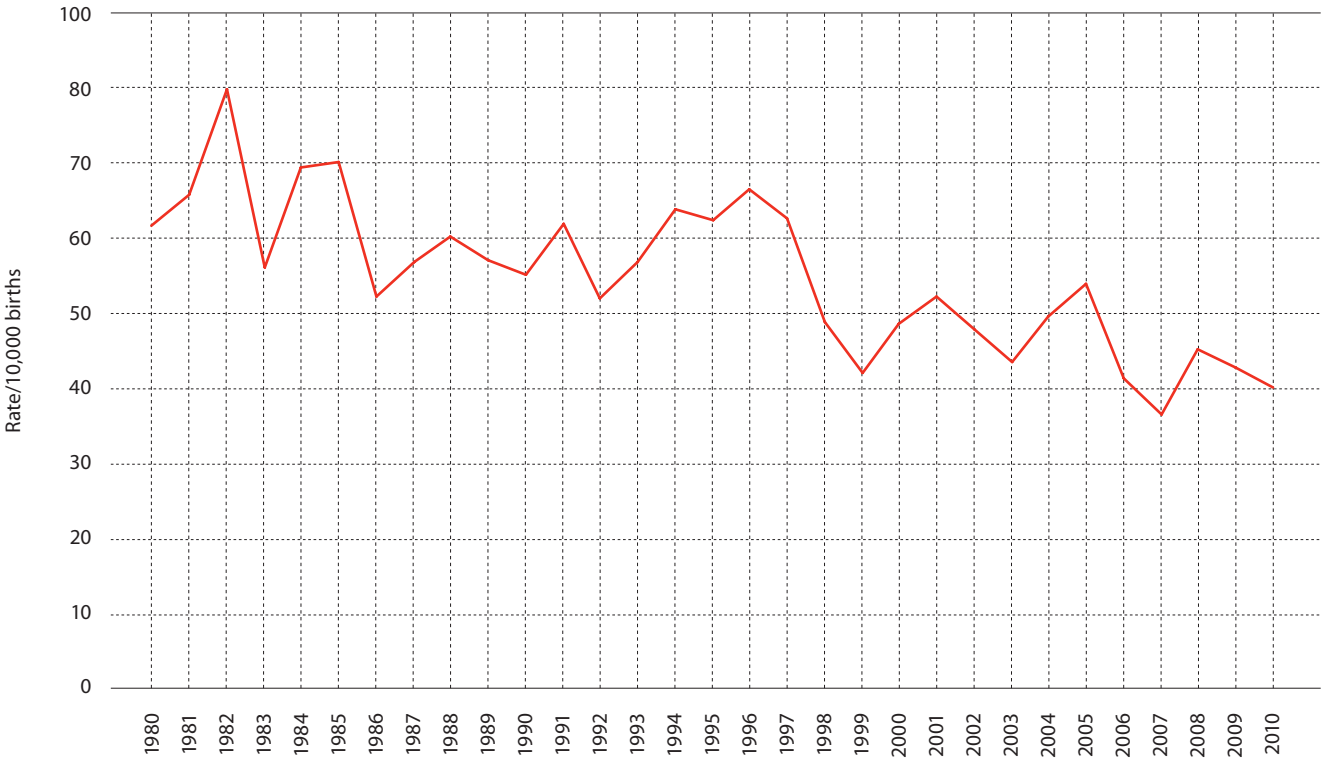


Table 1.4
Live and stillborn babies with congenital anomalies, by gender and condition, England & Wales 2008

	Areas covered by a local register in England and Wales								
	All cases [1]			Live born			Stillborn		
	Total [2]	Male	Female	Total [2]	Male	Female	Total [2]	Male	Female
All babies notified	**3,377**	**1,975**	**1,382**	**3,270**	**1,926**	**1,337**	**101**	**48**	**44**
Cardiovascular System	**932**	**483**	**448**	**913**	**473**	**439**	**19**	**10**	**9**
Common arterial truncus	10	5	5	10	5	5	0	0	0
Transposition of great vessels	49	33	16	49	33	16	0	0	0
Ventricular septal defect	423	211	212	420	210	210	3	1	2
Tetralogy of Fallot	64			62	36	26	2		
Pulmonary valve atresia	14	8	6	14	8	6	0	0	0
Hypoplastic left heart	31			30	17	13	1		
Central nervous system	175	81	89	153	73	80	21	8	9
Eye	52	19	33	52	19	33	0	0	0
Ear, face and neck	43	30	13	36	24	12	7	6	1
Respiratory	87	55	31	80	54	26	7	1	5
Orofacial clefts	282	159	123	278	157	121	4	2	2
Digestive system	210	124	86	200	120	80	10	4	6
Abdominal wall defects	137	60	76	129	59	70	6	0	5
Urinary	563	369	190	551	364	185	12	5	5
Genital	324			323	292	28	1		
Limbs	550	291	254	532	283	247	16	8	7
Musculoskeletal	90	50	39	83	48	35	7	2	4
Other malformations	43			42	20	22	1		
Teratogenic syndromes with malformations	12			10	8	2	2		
Genetics and microdeletions	76			75	37	38	1		
Chromosomal	322	170	149	285	148	136	35	22	12
Total live and stillbirths	252,952	129,817	123,135	251,743	129,170	122,573	1,209	647	562

	Areas not covered by a local register in England and Wales								
	All cases[1]			Live born			Stillborn		
	Total[2]	Male	Female	Total[2]	Male	Female	Total[2]	Male	Female
All babies notified	**877**	**513**	**354**	**854**	**501**	**345**	**22**	**11**	**9**
Cardiovascular System	**106**	**62**	**44**	**99**	**58**	**41**	**6**	**3**	**3**
Common arterial truncus	0	0	0	0	0	0	0	0	0
Transposition of great vessels	10	8	2	10	8	2	0	0	0
Ventricular septal defect	27			26	12	14	1		
Tetralogy of Fallot	4	2	2	4	2	2	0	0	0
Pulmonary valve atresia	2			2			0	0	0
Hypoplastic left heart	5	4	1	4	3	1	0	0	0
Central nervous system	48	24	22	33	18	15	15	6	7
Eye	7	2	5	7	2	5	0	0	0
Ear, face and neck	16			15	5	10	1		
Respiratory	8			7	3	4	1		
Orofacial clefts	127			125	79	46	2		
Digestive system	30			28	15	13	2		
Abdominal wall defects	28	17	11	28	17	11	0	0	0
Urinary	97			95	60	34	2		
Genital	97			95	84	4	2		
Limbs	285	146	137	282	145	135	3	1	2
Musculoskeletal	26	13	13	26	13	13	0	0	0
Other malformations	16	8	8	16	8	8	0	0	0
Teratogenic syndromes with malformations	2			2			0	0	0
Genetics and microdeletions	10	7	3	10	7	3	0	0	0
Chromosomal	83	36	46	79	34	44	4	2	2
Total live and stillbirths	429,261	219,728	209,533	427,007	218,559	208,448	2,254	1,169	1,085

Notes:

[1] Total includes unknown whether live or stillborn. ¶ [2] Includes indeterminate sex and not known/not stated. ¶ Local registers provide data electronically; regions without a local register provide information on paper. Under reporting has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies, which may not present at birth and registers may update later. ¶ Blank cells are presented where due to low numbers data are not available in order to protect confidentiality.

Source:

Office for National Statistics (2010). Congenital anomaly statistics 2008. http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-39653 (accessed December 2012).

Table 1.5
Live and stillborn babies with congenital anomalies, rates by gender and condition, England & Wales 2008

Condition	Areas covered by a local register in England and Wales				Areas not covered by a local register in England and Wales	
	Live born		Stillborn		Live born	
	Male	Female	Male	Female	Male	Female
All babies notified	**149.1**	**109.1**	**741.9**	**782.9**	**22.9**	**16.6**
Cardiovascular System	**36.6**	**35.8**	**154.6**	**160.1**	**2.7**	**2.0**
Common arterial truncus	0.4	0.4	0.0	0.0	0	0
Transposition of great vessels	2.6	1.3	0.0	0.0	0.4	0.1
Ventricular septal defect	16.3	17.1	15.5	35.6	0.5	0.7
Tetralogy of Fallot	2.8	2.1			0.1	0.1
Pulmonary valve atresia	0.6	0.5	0	0		
Hypoplastic left heart	1.3	1.1			0.1	0.0
Central nervous system	5.7	6.5	123.6	160.1	0.8	0.7
Eye	1.5	2.7	0	0	0.1	0.2
Ear, face and neck	1.9	1.0	92.7	17.8	0.2	0.5
Respiratory	4.2	2.1	15.5	89.0	0.1	0.2
Oro-facial clefts	12.2	9.9	30.9	35.6	3.6	2.2
Digestive system	9.3	6.5	61.8	106.8	0.7	0.6
Abdominal wall defects	4.6	5.7	0.0	89.0	0.8	0.5
Urinary	28.2	15.1	77.3	89.0	2.7	1.6
Genital	22.6	2.3			3.8	0.2
Limbs	21.9	20.2	123.6	124.6	6.6	6.5
Musculo-skeletal	3.7	2.9	30.9	71.2	0.6	0.6
Other malformations	1.5	1.8			0.4	0.4
Teratogenic syndromes with malformations	0.6	0.2				
Genetics and microdeletions	2.9	3.1			0.3	0.1
Chromosomal	11.5	11.1	340.0	213.5	1.6	2.1

Notes:
Rates per 10,000 births. Rates calculated as a the proportion of live borns with congenital anomalies and proportion of still borns with anomalies. ¶ Local registers provide data electronically; regions without a local register provide information on paper. Under reporting has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies, which may not present at birth and registers may update later. ¶ Blank cells are presented where due to low numbers data are not available in order to protect confidentiality.

Source:
Office for National Statistics (2010). Congenital anomaly statistics 2008. http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-39653 (accessed December 2012).

Table 1.6
Congenital heart anomalies, by Government region, England & Wales 2008

	Number from registers	Rates from registers	Number from non registers	Rates from non registers	Total births		Percentage of births covered by a register
					Covered by a register	Not covered by a register	
England and Wales	**932**	**36.8**	**106**	**2.5**	**252,952**	**429,261**	**36**
England	**638**	**29.4**	**106**	**2.5**	**217,137**	**429,261**	**32**
Government Office Region							
North East	231	76.0	0	0.0	30,396	0	100
North West	47	14.8	23	4.0	31,696	56,921	36
Yorkshire and The Humber	88	53.1	11	2.4	16,584	46,275	25
East Midlands	40	14.5	0	0	27,561	913	51
West Midlands	0	0	23	3.2	0	72,129	0
East of England	0	0	10	1.4	0	72,042	0
London	0	0	21	1.6	0	128,381	0
South East	102	19.7	18	3.4	51,894	52,600	50
South West	130	22.0	0	0	59,006	0	100
Wales	**294**	**82.1**	**0**	**0.0**	**35,815**	**0**	**100**

Notes:
Rates per 10,000 live and still births. ¶ Area corresponds to usual residence of mother. ¶ Local registers provide data electronically; regions without a local register provide information on paper. Under reporting has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies, which may not present at birth and registers may update later.

Source:
Office for National Statistics (2010). Congenital anomaly statistics 2008. http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-39653 (accessed December 2012).

Table 1.7
Live and stillborn babies with congenital anomalies, by condition and single or multiple birth, England & Wales 2008

Condition	Areas covered by a local register in England and Wales								
	Total			Live born			Stillborn		
	Total	Singleton	Multiple	Total	Singleton	Multiple	Total	Singleton	Multiple
All babies notified	**3,377**	**3,133**	**151**	**3,270**	**3,037**	**140**	**101**	**90**	**11**
Cardiovascular System	932	862	54	913	844	53	19	18	1
Central nervous system	175	161	12	153	142	9	21	18	3
Eye	52	48	2	52	48	2	0	0	0
Ear, face and neck	43	40	2	36	33	2	7	7	0
Respiratory	87	78	8	80	71	8	7	7	0
Oro-facial clefts	282	252	8	278	248	8	4	4	0
Digestive system	210	198	11	200	188	11	10	10	0
Abdominal wall defects	137	130	7	129	125	4	6	3	3
Urinary	563	539	16	551	528	15	12	11	1
Genital	324			323	295	15	1		
Limbs	550	505	27	532	490	24	16	13	3
Musculoskeletal	90	85	4	83	79	3	7	6	1
Other malformations	43			42	36	5	1		
Teratogenic syndromes with malformations	12			10	10	0	2		
Genetics and microdeletions	76			75	70	4	1		
Chromosomal	322	306	8	285	270	7	35	34	1
Total live and stillbirths	**252,952**	**245,142**	**7,810**	**251,743**	**244,028**	**7,715**	**1,209**	**1,114**	**95**

Condition	Areas not covered by a local register in England and Wales								
	Total			Live born			Stillborn		
	Total	Singleton	Multiple	Total	Singleton	Multiple	Total	Singleton	Multiple
All babies notified	**877**	**853**	**24**	**854**	**833**	**21**	**22**	**19**	**3**
Cardiovascular System	106	99	7	99	94	5	6	4	2
Central nervous system	48	48	0	33	33	0	15	15	0
Eye	7	6	1	7	6	1	0	0	0
Ear, face and neck	16			15	14	1	1		
Respiratory	8			7	7	0	1		
Oro-facial clefts	127			125	122	3	2		
Digestive system	30			28	27	1	2		
Abdominal wall defects	28	27	1	28	27	1	0	0	0
Urinary	97			95	94	1	2		
Genital	97			95	93	2	2		
Limbs	285	277	8	282	274	8	3	3	0
Musculoskeletal	26	25	1	26	25	1	0	0	0
Other malformations	16	16	0	16	16	0	0	0	0
Teratogenic syndromes with malformations	2			2			0	0	0
Genetics and microdeletions	10	10	0	10	10	0	0	0	0
Chromosomal	83	81	2	79	79	0	4	2	2
Total live and stillbirths	**429,261**	**416,066**	**13,195**	**427,007**	**413,967**	**13,040**	**2,254**	**2,099**	**155**

Notes:
Local registers provide data electronically; regions without a local register provide information on paper. Under reporting has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies, which may not present at birth and registers may update later. ¶ Blank cells are presented where due to low numbers data are not available in order to protect confidentiality.

Source:
Office for National Statistics (2010). Congenital anomaly statistics 2008. http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-39653 (accessed December 2012).

Table 1.8
Live and stillborn babies with congenital anomalies, rates by condition and single or multiple birth, England & Wales 2008

Condition	Areas covered by a local register in England and Wales									Areas not covered by a local register in England and Wales		
	Total			Live born			Stillborn			Live born		
	Total	Singleton	Multiple	**Total**	Singleton	Multiple	**Total**	Singleton	Multiple	**Total**	Singleton	Multiple
All babies notified	**133.5**	**127.8**	**193.3**	**129.9**	**124.5**	**181.5**	**835.4**	**807.9**	**1,157.9**	**20.0**	**20.1**	**16.1**
Cardiovascular System	**36.8**	35.2	69.1	**36.3**	34.6	68.7	**157.2**	161.6	105.3	**2.3**	2.3	3.8
Central nervous system	**6.9**	6.6	15.4	**6.1**	5.8	11.7	**173.7**	161.6	315.8	**0.8**	0.8	0
Eye	**2.1**	2.0	2.6	**2.1**	2.0	2.6	**0.0**	0.0	0.0	**0.2**	0.1	0.8
Ear, face and neck	**1.7**	1.6	2.6	**1.4**	1.4	2.6	**57.9**	62.8	0.0	**0.4**	0.3	0.8
Respiratory	**3.4**	3.2	10.2	**3.2**	2.9	10.4	**57.9**	62.8	0.0	**0.2**	0.2	0
Oro-facial clefts	**11.1**	10.3	10.2	**11.0**	10.2	10.4	**33.1**	35.9	0.0	**2.9**	2.9	2.3
Digestive system	**8.3**	8.1	14.1	**7.9**	7.7	14.3	**82.7**	89.8	0.0	**0.7**	0.7	0.8
Abdominal wall defects	**5.4**	5.3	9.0	**5.1**	5.1	5.2	**49.6**	26.9	315.8	**0.7**	0.7	0.8
Urinary	**22.3**	22.0	20.5	**21.9**	21.6	19.4	**99.3**	98.7	105.3	**2.2**	2.3	0.8
Genital	**12.8**			**12.8**	12.1	19.4	**8.3**			**2.2**	2.2	1.5
Limbs	**21.7**	20.6	34.6	**21.1**	20.1	31.1	**132.3**	116.7	315.8	**6.6**	6.6	6.1
Musculoskeletal	**3.6**	3.5	5.1	**3.3**	3.2	3.9	**57.9**	53.9	105.3	**0.6**	0.6	0.8
Other malformations	**1.7**			**1.7**	1.5	6.5	**8.3**			**0.4**	0.4	0
Teratogenic syndromes with malformations	**0.5**			**0.4**	0.4	0.0	**16.5**			**0.0**		
Genetics and microdeletions	**3.0**			**3.0**	2.9	5.2	**8.3**			**0.2**	0.2	0
Chromosomal	**12.7**	12.5	10.2	**11.3**	11.1	9.1	**289.5**	305.2	105.3	**1.9**	1.9	0

Notes:
Rates per 10,000 births. Rates calculated as the proportion of live borns with congenital anomalies and proportion of still borns with anomalies. ¶ Local registers provide data electronically; regions without a local register provide information on paper. Under reporting has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies, which may not present at birth and registers may update later. ¶ Blank cells are presented where due to low numbers data are not available in order to protect confidentiality.

Source:
Office for National Statistics (2010). Congenital anomaly statistics 2008. http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-39653 (accessed December 2012).

Table 1.9
Congenital heart anomalies, by birthweight, England & Wales 2008

		Total	Birthweight (grams)							*Not stated*
			< 1,000	1,000-1,499	1,500-1,999	2,000-2,499	2,500-2,999	3,000-3,499	≥ 3,500	
Numbers										
All babies notified	Live born	**3,270**	25	70	125	248	512	755	792	*743*
	Stillborn	**101**	29	12	17	8	9	3	3	*20*
Cardiovascular System	Live born	**913**	7	23	44	69	139	194	159	*278*
	Stillborn	**19**	8	2	4	2	1	0	0	*1*
Total live and stillbirths	Live born	**251,743**	1,230	1,570	3,526	10,738	38,667	87,542	106,214	*2,256*
	Stillborn	**1,209**	348	153	143	152	143	150	110	*10*
Rates										
All babies notified	Live born	**129.9**	203.3	445.9	354.5	231.0	132.4	86.2	74.6	
	Stillborn	**835.4**	833.3	784.3	1,188.8	526.3	629.4	200.0	272.7	
Cardiovascular System	Live born	**36.3**	56.9	146.5	124.8	64.3	35.9	22.2	15.0	
	Stillborn	**157.2**	229.9	130.7	279.7	131.6	69.9	0.0	90.9	
	All live and stillborn	**36.8**	95.1	145.1	130.8	65.2	36.1	22.1	15.0	

Notes:
Rates per 10,000 births. Rates calculated as the proportion of live borns with congenital anomalies and proportion of stillborns with anomalies.
¶ Local registers provide data electronically; regions without a local register provide information on paper. Under reporting has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies which may not present at birth and registers may update later.

Source:
Office for National Statistics (2010). Congenital anomaly statistics 2008. http://www.ons.gov.uk/ons/publications/re-reference-tables html?edition=tcm%3A77-39653 (accessed December 2012).

Figure 1.9
Congenital heart anomalies, rates by birthweight, England & Wales 2008

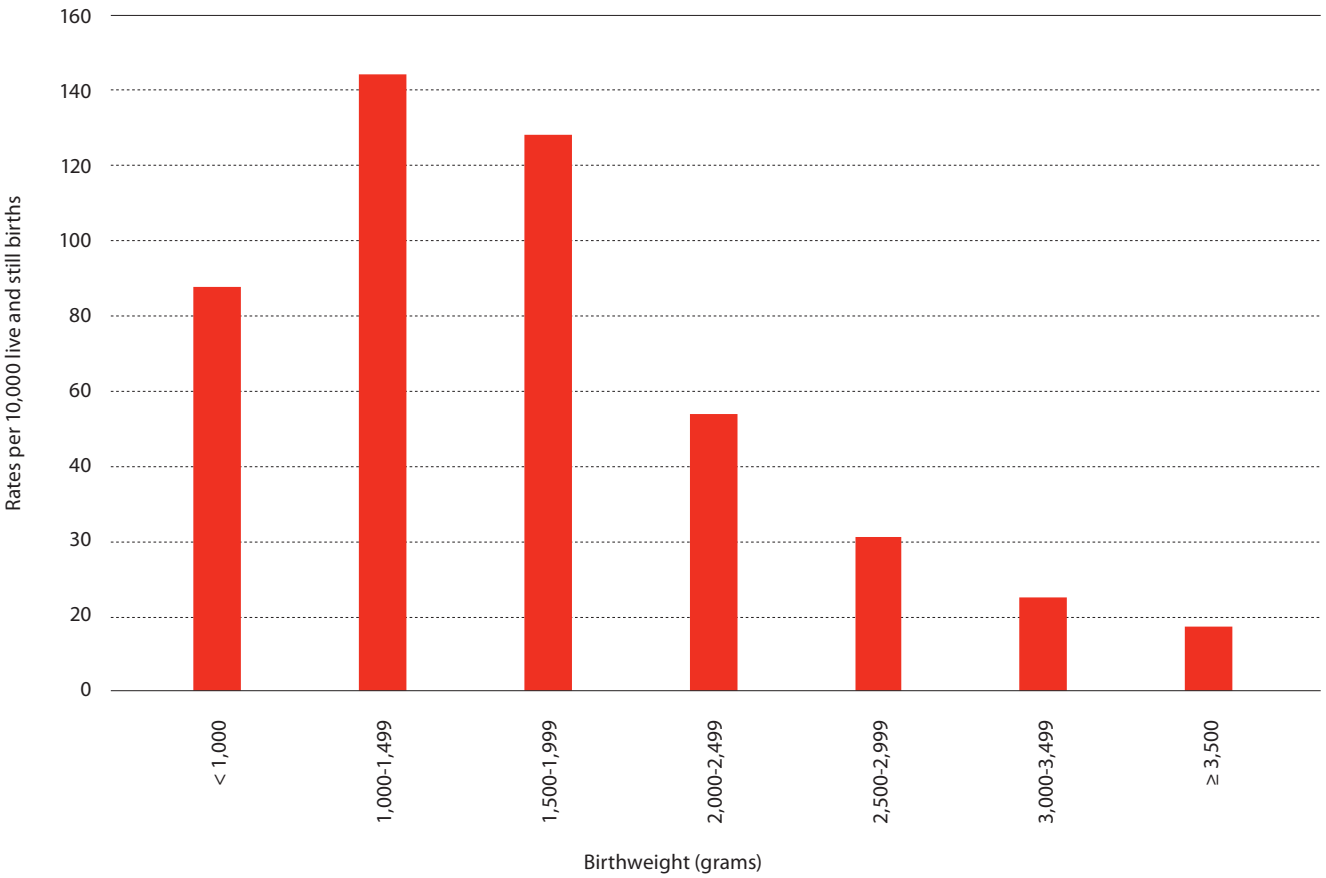


Table 1.10
Congenital heart anomalies, by condition and age of mother, England & Wales 2008

Areas covered by a local register	Total[1]	Age of mother (years)					
		<20	20-24	25-29	30-34	35-39	≥ 40
Numbers							
Cardiovascular System	**932**	67	186	238	198	141	59
Common arterial truncus	**10**	0	0	5	3	1	0
Transposition of great vessels	**49**	6	7	9	12	9	2
Ventricular septal defect	**423**	27	86	105	105	59	19
Tetralogy of Fallot	**64**	6	11	5	15	14	5
Pulmonary valve atresia	**14**	1	2	4	5	1	1
Hypoplastic left heart	**31**	2	9	15	1	3	0
Rates							
Cardiovascular System	**36.8**	37.9	37.0	34.5	29.6	35.0	66.4
Common arterial truncus	**0.4**	0.0	0.0	0.7	0.4	0.2	0.0
Transposition of great vessels	**1.9**	3.4	1.4	1.3	1.8	2.2	2.2
Ventricular septal defect	**16.7**	15.3	17.1	15.2	15.7	14.6	21.4
Tetralogy of Fallot	**2.5**	3.4	2.2	0.7	2.2	3.5	5.6
Pulmonary valve atresia	**0.6**	0.6	0.4	0.6	0.7	0.2	1.1
Hypoplastic left heart	**1.2**	1.1	1.8	2.2	0.1	0.7	0.0
All babies notified	**3,377**	**247**	**705**	**862**	**778**	**525**	**175**
Total live and stillbirths	**252,952**	**17,668**	**50,314**	**68,980**	**66,780**	**40,320**	**8,890**

Areas not covered by a local register	Total[1]	Age of mother (years)					
		<20	20-24	25-29	30-34	35-39	≥ 40
Numbers							
Cardiovascular System	**106**	9	15	24	26	23	6
Transposition of great vessels	**10**	1	2	1	2	3	0
Ventricular septal defect	**27**	4	6	4	7	3	3
Tetralogy of Fallot	**4**	0	1	2	0	1	0
Pulmonary valve atresia	**2**						
Hypoplastic left heart	**5**	2	1	1	1	0	0
Rates							
Cardiovascular System	**2.5**	3.6	1.9	2.1	2.2	3.2	3.6
Transposition of great vessels	**0.2**	0.4	0.3	0.1	0.2	0.4	0.0
Ventricular septal defect	**0.6**	1.6	0.8	0.3	0.6	0.4	1.8
Tetralogy of Fallot	**0.1**	0.0	0.1	0.2	0.0	0.1	0.0
Pulmonary valve atresia	**0.0**						
Hypoplastic left heart	**0.1**	0.8	0.1	0.1	0.1	0.0	0.0
All babies notified	**877**	**68**	**155**	**212**	**235**	**141**	**47**
Total live and stillbirths	**429,261**	**24,798**	**79,508**	**116,326**	**119,438**	**72,407**	**16,784**

Notes:
[1] Total includes those where the age of the mother was not stated. ¶ Rates per 10,000 births. Rates calculated as the proportion of all live and still births. ¶ Local registers provide data electronically; regions without a local register provide information on paper. ¶ Under reporting has been described in areas not covered by local registers, this is especially the case for cardiovascular anomalies, which may not present at birth and registers may update later. ¶ Blank cells are presented where due to low numbers data are not available in order to protect confidentiality.

Source:
Office for National Statistics (2010). Congenital anomaly statistics 2008. http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-39653 (accessed December 2012).

Figure 1.10
Congenital heart anomalies, by age of mother, registers only, England & Wales 2008

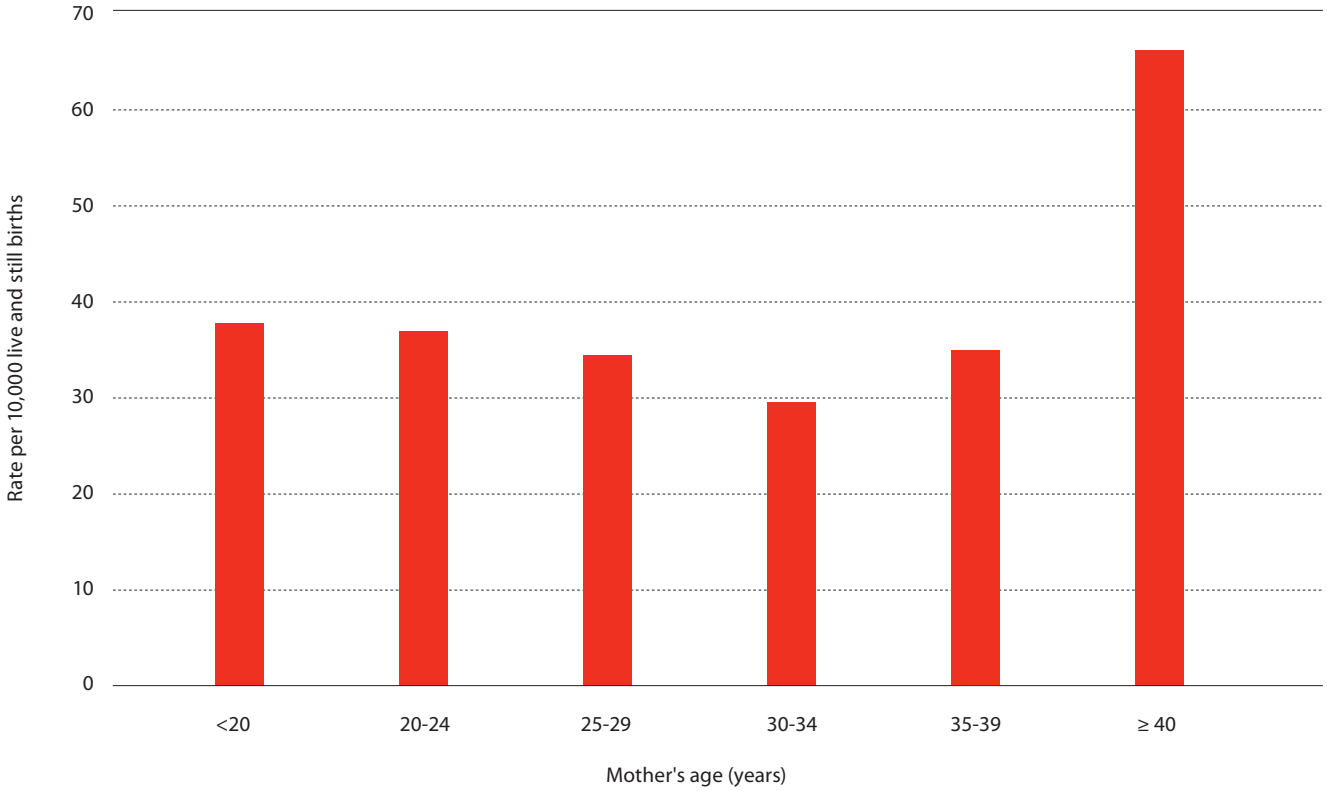


Table 1.11
Deaths, by gender, age and cause, UK 2011

	Male					Female				
	<1 year	1–4	5–14	15–24	25+	<1 year	1–4	5–14	15–24	25+
All causes	**2,049**	**310**	**365**	**1,845**	**262,927**	**1,453**	**257**	**252**	**807**	**281,967**
Diseases of the circulatory system (I00-I99)	29	15	22	105	79,075	13	12	12	57	80,218
Congenital malformations (Q00-Q99)	146	44	24	37	415	143	46	24	26	410
Congenital malformations of the circulatory system (Q20-28)	64	19	11	15	137	55	27	5	15	118
All other congenital malformations	82	25	13	22	278	88	19	19	11	292
Cancers (C00-D48)	6	39	111	178	85,302	13	40	57	139	77,163
Endocrine, nutritional and metabolic diseases (E00-E90)	11	18	13	42	3,486	18	24	19	51	4,012
Respiratory conditions (J00-J99)	54	33	25	34	35,850	26	26	29	37	40,250
External causes (U509, V01-Y89)	19	47	85	1,193	11,805	19	32	44	331	7,290
All other causes	1,784	114	85	256	46,994	1,221	77	67	166	72,624

Notes:
ICD-10 codes are in brackets. Ages are in years.

Source:
Office for National Statistics, http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-277727 (accessed January 2013). ¶ General Register Office for Scotland, http://www.gro-scotland.gov.uk/statistics/theme/vital-events/general/ref-tables/2011/section-6-deaths-causes.html (accessed January 2013). ¶ Northern Ireland Statistics Research Agency, http://www.nisra.gov.uk/demography/default.asp14.htm (accessed January 2013).

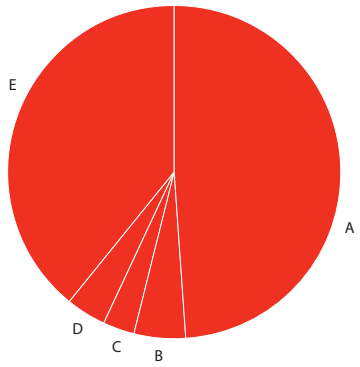
Table 1.12
Congenital heart disease deaths, by gender, age and country, UK 2011

	UK			England			Wales			Scotland			Northern Ireland		
	Male	Female	**Total**	Male	Female	**Total**	Male	Female	**Total**	Male	Female	**Total**	Male	Female	**Total**
Under 1 year	171	134	**305**	151	115	**266**	9	6	**15**	8	10	**18**	3	3	**6**
< 4 weeks				102	80	**182**	7	2	**9**	7	6	**13**			
4 weeks - 1 year				49	35	**84**	2	4	**6**	1	4	**5**			
1-4 years	16	27	**43**	13	21	**34**	2	3	**5**	1	3	**4**	0	0	**0**
5-14	10	4	**14**	7	3	**10**	1	0	**1**	2	1	**3**	0	0	**0**
15-24	14	14	**28**	12	13	**25**	0	1	**1**	2	0	**2**	0	0	**0**
25+	137	117	**254**	115	97	**212**	4	8	**12**	9	7	**16**	9	5	**14**
All ages	348	296	**644**	298	249	**547**	16	18	**34**	22	21	**43**	12	8	**20**

Notes:
ICD-10 codes Q20-28 used to define deaths from congenital heart disease.

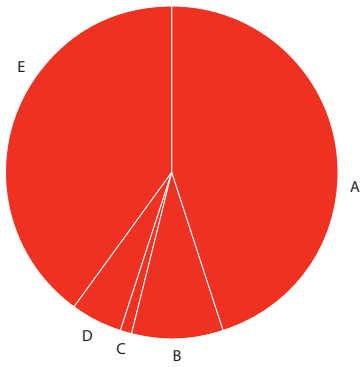
Source:
Office for National Statistics, (personal communication April 2013). General Register Office for Scotland, http://www.gro-scotland.gov.uk/statistics/theme/vital-events/general/ref-tables/2011/section-6-deaths-causes.html (accessed January 2013). ¶ Northern Ireland Statistics Research Agency, http://www.nisra.gov.uk/demography/default.asp14.htm (accessed January 2013).

Figure 1.12a
Congenital heart disease deaths in males, by age, UK 2011



A. Under 1 year (49%)
B. 1-4 years (5%)
C. 5-14 years (3%)
D. 15-24 years (4%)
E. 25+ years (39%)

Figure 1.12b
Congenital heart disease deaths in females, by age, UK 2011



A. Under 1 year (45%)
B. 1-4 years (9%)
C. 5-14 years (1%)
D. 15-24 years (5%)
E. 25+ years (40%)

Table 1.13
Congenital heart disease deaths, time trends by gender, age and country, UK

	Males				Females				Total			
	< 1 year	1-14	15+	All ages	< 1 year	1-14	15+	All ages	< 1 year	1-14	15+	All ages
1959-1963												
England & Wales	3,616	844	1,192	5,652	2,880	699	1,102	4,681	6,496	1,543	2,294	10,333
1964-1968												
England & Wales	3,727	761	1,168	5,656	2,758	708	1,011	4,477	6,485	1,469	2,179	10,133
1969-1973												
England & Wales	3,220	943	1,113	5,276	2,522	794	1,004	4,320	5,742	1,737	2,117	9,596
1974-1978												
England & Wales	2,220	907	1,117	4,244	1,685	781	986	3,452	3,905	1,688	2,103	7,696
Scotland	271	89	83	443	195	79	76	350	466	168	159	793
1979-1983												
England & Wales	1,919	646	1,169	3,734	1,495	555	958	3,008	3,414	1,201	2,127	6,742
Scotland	193	53	65	311	171	42	86	299	364	95	151	610
Northern Ireland	81	21	29	131	57	18	22	97	138	39	51	228
1984-1988												
England & Wales	1,101	637	1,162	2,900	871	526	958	2,355	1,972	1,163	2,120	5,255
Scotland	149	41	78	268	126	33	60	219	275	74	138	487
Northern Ireland	69	18	23	110	56	9	16	81	125	27	39	191
1989-1993												
England & Wales	539	491	1,104	2,134	475	420	976	1,871	1,014	911	2,080	4,005
Scotland	164	42	51	257	100	39	55	194	264	81	106	451
Northern Ireland	69	25	18	112	34	9	14	57	103	34	32	169
1994-1998												
England & Wales	346	275	958	1,579	288	226	891	1,405	634	501	1,849	2,984
Scotland	109	31	71	211	80	28	59	167	189	59	130	378
Northern Ireland	39	4	15	58	36	7	11	54	75	11	26	112
1999-2003												
England & Wales	285	165	871	1,321	243	150	822	1,215	528	315	1,693	2,536
Scotland	58	25	65	148	41	13	72	126	99	38	137	274
Northern Ireland	24	5	17	46	22	3	17	42	46	8	34	88
2004-2008												
England & Wales	261	132	802	1,195	224	105	681	1,010	485	237	1,483	2,205
Scotland	52	19	46	117	48	13	55	116	100	32	101	233
Northern Ireland	17	5	22	44	14	3	22	39	31	8	44	83
2009 only												
England & Wales	53	36	149	238	44	21	115	180	97	57	264	418
Scotland	10	1	10	21	12	1	14	27	22	2	24	48
Northern Ireland	4	1	4	9	4	0	5	9	8	1	9	18

Notes:
ICD codes used to define deaths were as follows: ¶ 1959-1967: ICD-7 754.0, 754.2, 754.3, 754.5, 754.6, 754.7 ¶ 1968-1978: ICD-8 746, 747.1, 747.2, 747.3, 747.4, 759.0 ¶ 1979-2000: ICD-9 754, 746, 747, 759.3 ¶ 2001-2009: ICD-10 Q20, Q21, Q22, Q23, Q24 (except Q24.6), Q25 (except Q25.0), Q26.2, Q26.3, Q26.4,Q89.3

Source:
Knowles RL, Bull C, Wren C , Dezateux C. Mortality with congenital heart defects in England and Wales, 1959-2009: exploring technological change through period and birth cohort analysis. Arch Dis Child 2012. ¶ General Register Office for Scotland, personal communication (2012). ¶ Northern Ireland Statistics Research Agency, personal communication (2012).

Figure 1.13
Congenital heart disease deaths, time trends by age, UK

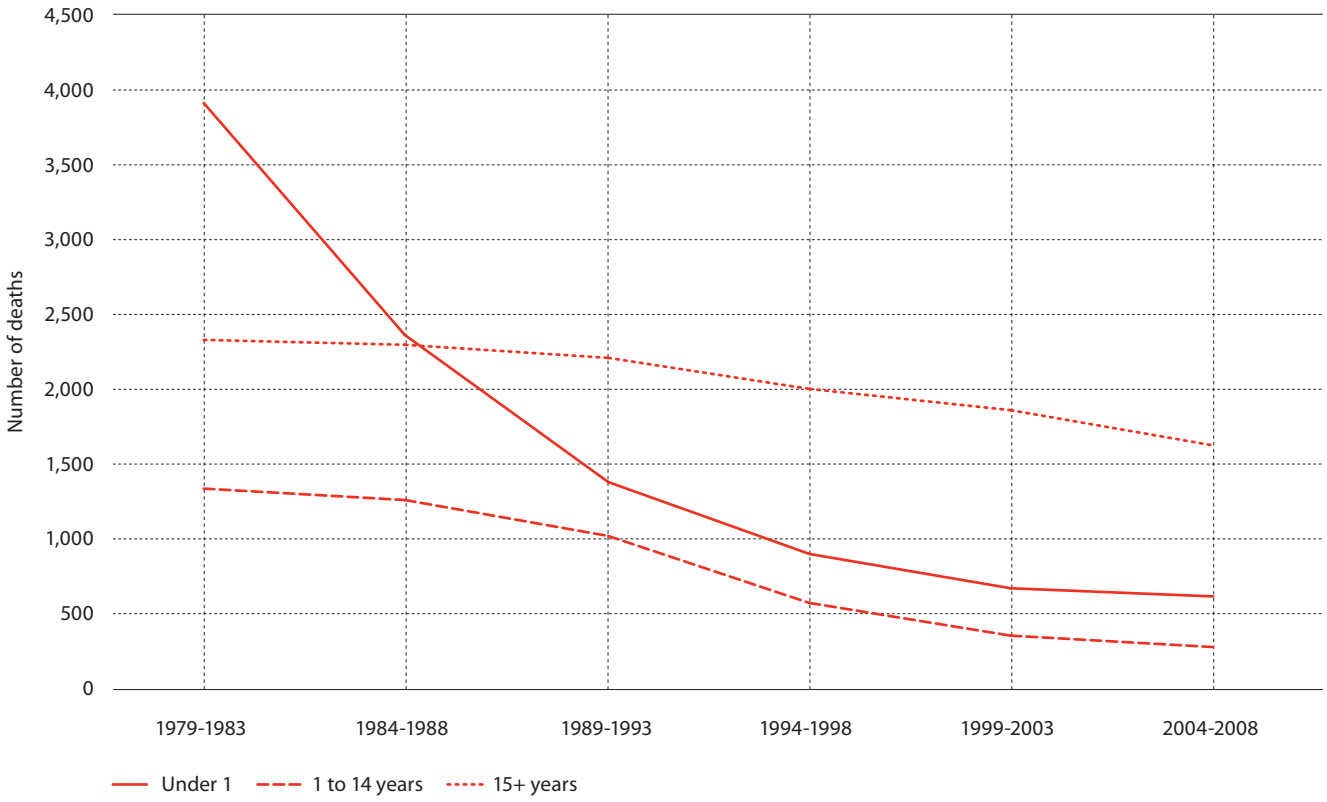


Table 1.14
Centres and procedures for congenital heart disease, by patient age, procedure type and country, UK 2009/10

	Number of centres	Procedure count	**All Surgical**	Neonate Surgical	Infant Surgical	Child Surgical	Adult Surgical	**All Catheter**	Neonate Catheter	Infant Catheter	Child Catheter	Adult Catheter
UK	**32**	**9,262**	**5,285**	**918**	**1,674**	**1,664**	**1,029**	**3,977**	**255**	**436**	**1,490**	**1,796**
England	29	8,595	**4,856**	824	1,531	1,520	981	**3,739**	213	400	1,402	1,724
Scotland	1	406	**280**	65	105	105	5	**126**	31	25	66	4
Wales	1	47	**8**				8	**39**		1		38
Northern Ireland	1	214	**141**	29	38	39	35	**73**	11	10	22	30

Notes:
Cardiac surgical or interventional procedures are defined as any cardiac or intrathoracic great vessel procedure carried out in patients.
¶ Neonate: 1-30 days, Infant: 31- 365 days, Child: 1-16 years, Adult: more than 16 years.

Source:
National Institute for Cardiovascular Outcomes Research (2012). Congenital Heart Disease. University College London: London.

Figure 1.14
Congenital heart disease procedures, by patient age and procedure type, UK 2009/10

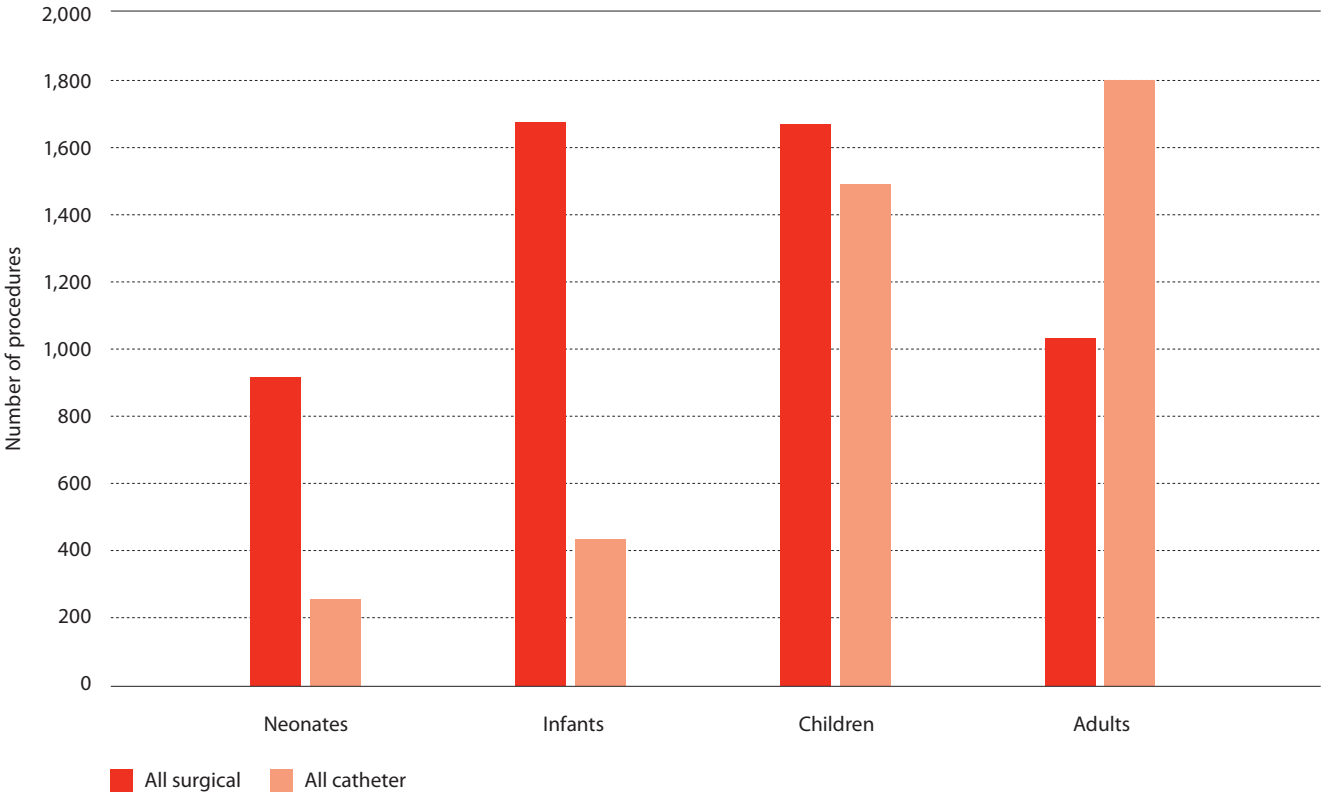


Table 1.15
Congenital heart disease procedures, by patient age and procedure type, UK 2010/11

Number of procedures	All ages	Neonate	Infant	Child	Adult
Surgical procedures	5,593	954	1,857	1,752	1,090
Bypass	4,454	515	1,341	1,570	1,028
Non-Bypass	1,199	439	516	182	62
Catheter procedures	4,152	218	466	1,652	1,816

Notes:
Neonate: 1-30 days, Infant: 31- 365 days, Child: 1-16 years, Adult: more than 16 years old.

Source:
National Institute for Cardiovascular Outcomes Research (2012). Congenital Heart Disease. University College London: London.

Table 1.16
Survival rates for congenital heart disease procedures, UK 2009/10

	Number of procedures	30 day survival	One year survival
Surgical procedures	3,885	97.5%	93.7%
Catheter procedures	2,782	99.5%	98.6%

Notes:
Cardiac surgical or interventional procedures are defined as any cardiac or intrathoracic great vessel procedure carried out in patients.
¶ Numbers are for most common interventional treatments (surgery and catheter procedures).

Source:
National Institute for Cardiovascular Outcomes Research (2012). Congenital Heart Disease. University College London: London.

Table 1.17
Congenital heart disease operations and survival rates, time trends, UK

	Number of operations	30 Day Survival	1 Year Survival
		%	%
2000/01	6,011	96.5	91.7
2001/02	5,962	96.6	93.0
2002/03	6,448	97.1	93.7
2003/04	7,410	97.2	93.7
2004/05	7,367	97.4	93.7
2005/06	8,097	97.7	94.6
2006/07	8,517	97.6	94.4
2007/08	8,387	97.9	95.1
2008/09	8,861	97.8	94.6
2009/10	9,262	98.0	95.3
2010/11	9,557	97.7	94.9

Source:
National Institute for Cardiovascular Outcomes Research (2012). Congenital Heart Disease. University College London: London.

Figure 1.17
Congenital heart disease operations and survival rates, time trends, UK

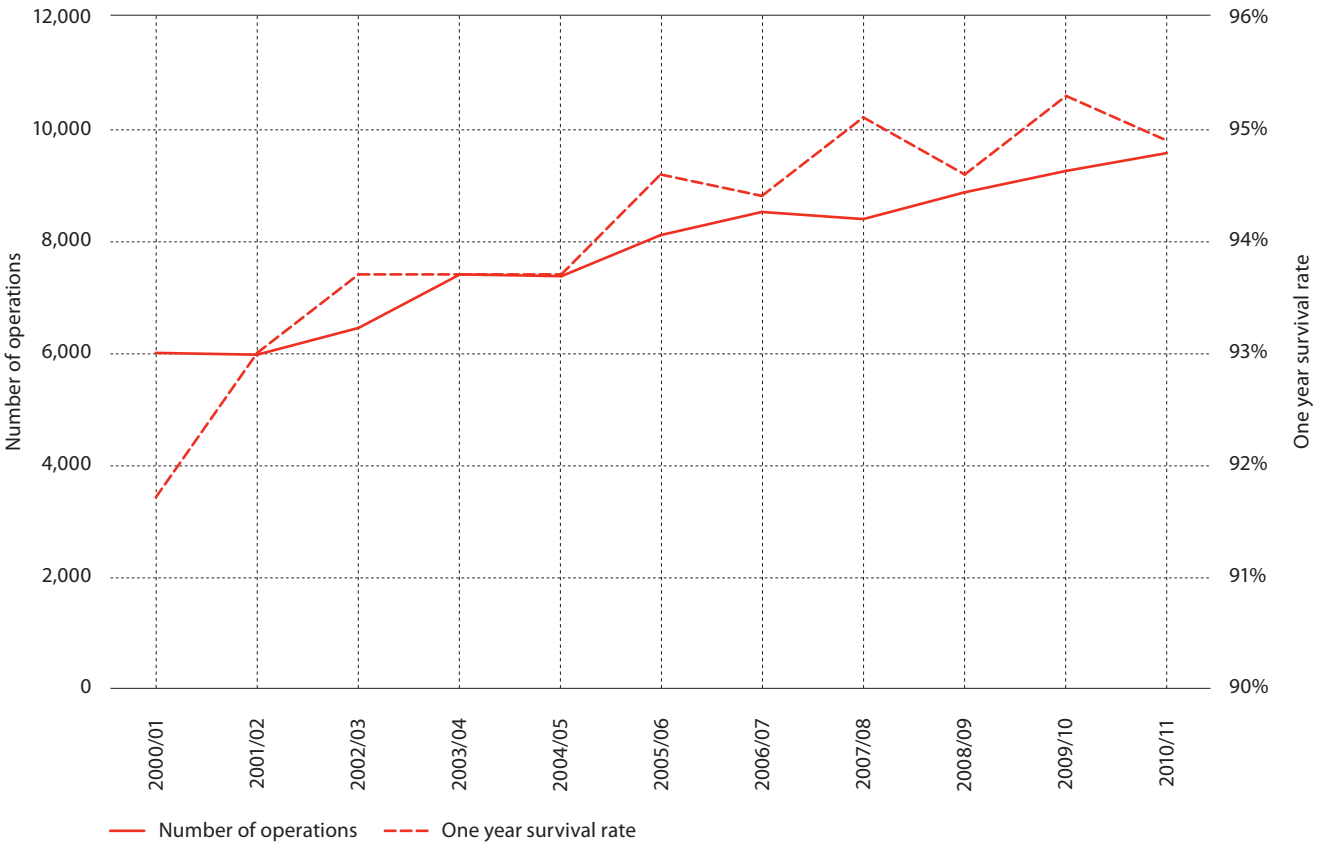


Table 1.18
Hospital episodes and bed days for congenital heart disease, by patient age and condition, England 2011/12

Number of hospital episodes and bed days	Finished consultant episodes					Bed Days
	All ages	0-14 years	15-59	60-74	75+	
All diagnoses	**17,391,681**	**1,990,144**	**7,438,486**	**3,864,690**	**4,098,361**	**48,631,585**
Congenital malformations of cardiac chambers and connections (Q20)	2,749	2,462	282	5	0	14,166
Congenital malformations of cardiac septa (Q21)	9,886	6,158	3,013	558	157	28,172
Congenital malformations of pulmonary and tricuspid valves (Q22)	1,424	989	401	31	3	5,797
Congenital malformations of aortic and mitral valves (Q23)	2,198	1,520	537	126	15	12,402
Other congenital malformations of heart (Q24)	1,083	777	233	63	10	3,780
Congenital malformations of great arteries (Q25)	4,668	3,884	689	69	26	17,716
Congenital malformations of great veins (Q26)	468	364	87	16	1	1,707
Other congenital malformations of peripheral vascular system (Q27)	2,153	713	1,208	184	48	2,846
Other congenital malformations of circulatory system (Q28)	1,617	304	1,099	188	26	4,473
All congenital heart disease (Q20-28)	26,246	17,171	7,549	1,240	286	91,059

Notes:
Finished consultant episodes; ordinary admissions and day cases combined. ¶ ICD-10 codes in parentheses. ¶ A bed-day is a day during which a person is confined to a bed and in which the patient stays overnight in a hospital.

Source:
Department of Health (2012). Hospital Episode Statistics 2011/12. www.hesonline.nhs.uk (accessed December 2012).

Table 1.19
Hospital episodes and bed days for congenital heart disease, by patient age and condition, Wales 2010/11

Number of hospital episodes and bed days	Finished consultant episodes					Bed Days
	All ages	0-14 years	15-59	60-74	75+	
All diagnoses	**886,282**	**90,118**	**371,698**	**199,592**	**224,874**	**3,925,186**
Congenital malformations of cardiac chambers and connections (Q20)	24	23	1	0	0	64
Congenital malformations of cardiac septa (Q21)	165	101	48	13	3	293
Congenital malformations of pulmonary and tricuspid valves (Q22)	15	15	0	0	0	26
Congenital malformations of aortic and mitral valves (Q23)	28	15	12	1	0	75
Other congenital malformations of heart (Q24)	30	18	12	0	0	115
Congenital malformations of great arteries (Q25)	65	56	6	2	1	227
Congenital malformations of great veins (Q26)	6	4	0	2	0	36
Other congenital malformations of peripheral vascular system (Q27)	49	9	19	9	12	219
Other congenital malformations of circulatory system (Q28)	54	2	40	11	1	201
All congenital heart disease (Q20-28)	436	243	138	38	17	1,256

Notes:
Finished consultant episodes; ordinary admissions and day cases combined. ¶ ICD-10 codes in parentheses. ¶ A bed-day is a day during which a person is confined to a bed and in which the patient stays overnight in a hospital.

Source:
NHS Wales Informatics Service (2011). The Patient Episode Database for Wales- 2010/11. www.infoandstats.wales.nhs.uk (accessed December 2012).

Table 1.20
Hospital episodes and bed days for congenital heart disease, by patient age and condition, Scotland 2010/11

Number of hospital episodes and bed days	Finished consultant episodes					Bed Days
	All ages	0-14 years	15-59	60-74	75+	
Congenital malformations of cardiac chambers and connections (Q20)	121	102	19	0	0	1,697
Congenital malformations of cardiac septa (Q21)	387	204	139	34	10	2,518
Congenital malformations of pulmonary and tricuspid valves (Q22)	71	43	26	2	0	705
Congenital malformations of aortic and mitral valves (Q23)	81	41	32	7	1	627
Other congenital malformations of heart (Q24)	47	21	20	5	1	178
Congenital malformations of great arteries (Q25)	221	179	28	8	6	2,075
Congenital malformations of great veins (Q26)	18	9	6	3	0	118
Other congenital malformations of peripheral vascular system (Q27)	146	41	77	25	3	362
Other congenital malformations of circulatory system (Q28)	129	28	84	17	0	752
All congenital heart disease (Q20-28)	1,221	668	431	101	21	9,032

Notes:
Finished consultant episodes; inpatients and day cases combined. ¶ ICD-10 codes in parentheses. ¶ One bed day is completed when a patient stays in the hospital for one day. ¶ Bed Days: sum of the episode duration for all episodes that ended within the financial year.

Source:
Information Services Division, Scotland (2013). SMR01 linked database as at 05 January 2013 (personal communication).

Table 1.21
Hospital episodes and bed days for congenital heart disease, by patient age and condition, Northern Ireland 2010/11

Number of hospital episodes and bed days	Finished consultant episodes					Bed Days
	All ages	0-14 years	15-59	60-74	75+	
Congenital malformations of cardiac chambers and connections (Q20)	118	95	23	0	0	712
Congenital malformations of cardiac septa (Q21)	924	678	174	51	21	5,709
Congenital malformations of pulmonary and tricuspid valves (Q22)	114	99	*	<5	0	794
Congenital malformations of aortic and mitral valves (Q23)	166	100	49	*	<5	599
Other congenital malformations of heart (Q24)	181	93	61	22	5	1,119
Congenital malformations of great arteries (Q25)	404	356	37	*	<5	4,001
Congenital malformations of great veins (Q26)	28	16	12	0	0	118
Other congenital malformations of peripheral vascular system (Q27)	70	*	41	12	*	602
Other congenital malformations of circulatory system (Q28)	128	<5	98	26	<5	486
All congenital heart disease (Q20-28)	1,801	1,139	486	134	42	11,558

Notes:
Finished consultant episodes; ordinary admissions and day cases combined. ¶ ICD-10 codes in parentheses. ¶ * indicates a value which is not less than five but cannot be determined from data. ¶ FCE Bed Days: sum of the episode duration for all episodes that ended within the financial year. ¶ Data from Health & Social Care hospitals.

Source:
Hospital Information Branch (2013). Hospital Inpatient System 2010/11. Personal communication.

Table 1.22
Children's Congenital Cardiac Services in England: Selected Service Standards

Review area	Standard
A congenital heart network for the child and family	Specialist Surgical Centres (in partnership with NHS commissioners) will provide active leadership in the Congenital Heart Networks
	Establish a model of care that delivers all aspects of the care and treatment
	The Specialist Surgical Centres and services within the Congenital Heart Network will hold regular multi-disciplinary meetings
	Each Specialist Surgical Centre will have a formally nominated Clinical Lead with responsibility for the service overall
	Specialist Surgical Centres will collaborate to facilitate referrals to each other when necessary
	Interventional procedures must only be undertaken at a Specialist Surgical Centre in view of the need for on-site surgical support
	Congenital Heart Networks will be supported by specialised Children's Cardiology Centres and District Children's Cardiology Services to reduce surgical interventions
Prenatal diagnosis	Centres must adhere to the screening and diagnostic standards formulated by the NHS. Foetal Anomaly Screening Programme and the British Congenital Cardiac Association
	Agree and establish protocols with feto-maternal medicine units and tertiary neonatal units in each Congenital Heart Networks
	Counselling for major congenital cardiac anomalies should be performed by foetal cardiology specialists with support from other members of the multi- disciplinary team
The specialist surgical centre	All children requiring investigation and treatment will receive care from staff trained in caring for children
	All paediatric cardiac surgical cases should be carried out by a dedicated paediatric cardiac surgical team
	Each Specialist Surgical Centre must be staffed by a minimum of 4 full time consultant congenital cardiac surgeons
	Each Specialist Surgical Centre must perform a minimum of 400 paediatric surgical procedures each year
	Each Specialist Surgical Centre must be staffed by a minimum of 1 consultant paediatric cardiologist per half million population served
	Specialist Surgical Centres must provide a co-located multi-disciplinary 24-hour pain management service
	Same-day cancellations for non-clinical reasons of elective cases shall not be more than 0.8%
	All children who have operations cancelled for non-clinical reasons are to be offered another binding date within 28 days
Age appropriate care	The transition to adult services will be tailored to reflect individual circumstances, taking into account any special needs
	Young people should have the opportunity to be seen by the consultant for part of the consultation without a parent being present
	Young people must have the opportunity to be seen by a Clinical Psychologist on their own

Information and making choices	Arrangements should be in place to allow parents, carers, children and young people to actively participate in decision making at every stage
	A Children's Cardiac Specialist Nurse must be present at all outpatient appointments
	Information must be made available to parents and carers in a wide range of formats and on more than one occasion
The family experience	There should be dedicated clinical facilities that are designed around the needs of children
	There must be facilities in place to ensure easy and convenient access for parents and carers
	Children should have access to general resources including toys, books, magazines and computers
	The outcome of relevant local and national audits will be made easily available to patients, parents / carers and the general public
Excellent care	Each Specialist Surgical Centre must have a dedicated management group for the internal management and coordination of service delivery
	All healthcare professionals must take part in a programme of continuing professional development that is recorded in a training register
	All clinical teams will operate within a robust and documented clinical governance framework

Source:
National Health Services (2012). Children's Congenital Cardiac Services in England: Service Standards. NHS Specialised Services.

Table 1.23
Quality of life for adolescents with congenital heart disease, by age and disease severity, England 2006

	Mean score	*Base*
8-11 Year olds		
Great complexity	69.4	*96*
Moderate complexity	78.2	*94*
Simple	76.8	*124*
Heart condition affects daily life		
Not at all	78.9	*183*
A bit	71.1	*107*
A lot	57.8	*20*
12-16 Year olds		
Great complexity	75.0	*75*
Moderate complexity	74.6	*131*
Simple	78.5	*112*
Heart condition affects daily life		
Not at all	81.6	*199*
A bit	69.5	*106*
A lot	53.4	*18*

Notes:
Mean ConQol index scores are presented by severity of disease, according to the classification of the American College of Cardiology for both groups.
¶ A higher score means a higher health-related quality of life reported.

Source:
Macran S, Birks Y, Parsons J, Sloper P, Hardman G, Kind P, van Doorn C, Thompson D, Lewin R. (2006). The development of a new measure of quality of life for children with congenital cardiac disease. Cardiol Young; 16: 165-172.

Table 1.24
Quality of life scores for adults with congenital heart disease, by quality measure and treatment category, Birmingham, England 2002

	Treatment categories					*Population normative values*
	Surgically cured	Surgically corrected	Surgically palliated	Medical	Inoperable	
Physical functioning	77.1	82.2	69.1	85.8	39.1	*92.6*
Role – physical	78.1	78.0	72.7	86.2	53.6	*88.5*
Role – emotional	70.7	76.3	80.3	83.6	66.7	*82.8*
Social functioning	73.5	82.0	79.3	85.9	58.8	*88.4*
Mental health	64.8	73.6	65.9	76.7	56.8	*72.9*
Energy/vitality	53.2	61.5	56.3	63.9	35.0	*60.3*
Pain	79.1	82.3	86.0	81.0	58.9	*83.8*
General health perception	58.2	64.7	57.3	67.4	26.9	*76.3*
Base	*68*	*105*	*23*	*70*	*10*	

Notes:
'Surgically cured' indicates they had curative surgery. 'Surgically corrected' indicates they have undergone anatomical correction with a possible requirement of a further operation. 'Surgically palliated' indicates alleviation of symptoms without cure. 'Medical' patients had no clinical indication for cardiac surgery or intervention. 'Inoperable' was for conditions deemed inoperable apart from organ transplantation. ¶ A higher SF-36 score indicates a better health state. ¶ Population normative data for people aged 30–34 years (from the Oxford Healthy Life Survey 1991/2, HRSU, Oxford), which was similar to the median age for the patients.

Source:
Lane DA, Lip GYH, Millane TA. (2002). Quality of life in adults with congenital heart disease. Heart; 88: 71-75.

MEDICAL RISK FACTORS

This section presents statistics on the prevalence of medical risk factors for cardiovascular disease including blood pressure, blood cholesterol, diabetes and overweight and obesity. Where possible, patterns in the prevalence of each of these risk factors by age, sex, socioeconomic status, geography and ethnicity are explored.

Summary

- Blood pressure is not commonly measured in children but estimates from Wales suggest that high blood pressure is very rare amongst children.
- In 2009 more than 28,000 children and young people in Great Britain had been diagnosed with diabetes.
- Type 1 diabetes is the most common form of diabetes in children in all UK countries.
- Type 2 diabetes is more common in Asian and Black diabetic children than in White British.
- Cholesterol levels are not often measured in children, but estimates from Scotland suggest that very few children have high cholesterol levels.
- Obesity is more prevalent amongst boys than girls and is more common in older children.
- Data from England show an increase in the percentage of obese children from 11% of boys and 12% of girls in 1995 to 17% of boys and 16% of girls in 2011.
- The past five years of data have not shown such alarming increases in childhood obesity in the UK.
- Regional variations have been found in the prevalence of obesity amongst children.
- Although ethnic differences in the prevalence in obesity have been found amongst children, the use of one growth reference curve for all ethnicities makes direct comparisons difficult.
- Surveys indicate that Greece has the highest prevalence of obesity in both boys and girls amongst European countries. However, data collection and the ages of children measured vary between countries.

CHAPTER TWO —

MEDICAL RISK FACTORS

Medical risk factors are modifiable risk factors which can often be treated through medical intervention or may be changed by altering an individual's lifestyle. Although some medical risk factors, such as blood pressure and cholesterol, are rarely measured in children, they are still recognised as risk factors for cardiovascular disease (CVD) when present in this age group. Other medical risk factors such as obesity and diabetes are more commonly measured and are associated with more immediate health risks in children and young people along with an increased risk of developing CVD later in life.

Blood Pressure

Blood pressure is defined as the physical pressure exerted on arteries (blood vessels) as blood travels through them. The highest pressure is created when the heart contracts to circulate blood around the body. This is called systolic blood pressure. The lowest pressure occurs when the heart relaxes between beats; this is called diastolic blood pressure. The Global Burden of Disease 2010 report ranked high blood pressure (hypertension) as the second highest risk factor contributing to the global burden of disease [1]. Hypertension often does not cause immediate problems, but it is a major risk factor for cardiovascular diseases such as strokes and heart diseases.

The relationship between high blood pressure and associated conditions described above is well understood for adults but much less so in children. The burden of hypertension in childhood is not well documented, due to a lack of major studies and there are no definitive trials on screening for hypertension in children in the UK. This encouraged the UK National Screening Committee to conduct an external review on screening for hypertension in children in 2010. Hypertension in childhood can be due to an existing underlying disease (secondary hypertension) and can lead to potential future problems such as essential hypertension [2].

Din-Dzietham et al. (2007) reported that the prevalence of hypertension in children is rising due to increasing childhood obesity levels [3]. Although this could be a significant health issue in the young, measurement of blood pressure in children is not considered at either GP practices or hospitals unless there is a clinical indication. There is not a simple, acknowledged and validated test for identifying childhood hypertension. As the size of the arm varies according to age and size of the child, it is difficult to access cuffs used to measure blood pressure which would fit every child. This can lead to difficulties as if the cuff is too small there will be an overestimation of the blood pressure of the individual. Even if the blood pressure is measured correctly, the normal range varies with body size and age and standard tables based on sex, age and height should be consulted before classifying the child's blood pressure as hypertensive. These tables have traditionally been developed in the United States (US) based on data from 70,000 American children for each sex, age group and seven height categories. The US tables remain the reference of choice as they are based on a large sample size, compared to European reference values which are based on around 28,000 individuals. Interpretation of UK children's measurements based on US tables, may however, prove inaccurate as US children have higher levels of obesity and possibly therefore higher mean blood pressure. The UK National Screening Committee concluded that screening for hypertension in children is not recommended due to the lack of understanding of the condition and complexities of measurement [2].

Although there is little measurement of blood pressure for children in the UK, the Quality and Outcomes Framework Statistics report in Wales estimated the prevalence of high blood pressure in children aged 0 to 14 years as extremely low (0.01%) based on data supplied by GP practices (Table 2.1).

Diabetes mellitus

The term diabetes mellitus describes a group of metabolic disorders in which a person has a high concentration of glucose in the blood (hyperglycaemia) either due to the pancreas not producing enough insulin, or due to the body not responding to the insulin which is produced. There are two main forms of diabetes called type 1 and type 2. Type 1 diabetes usually develops in childhood and adolescence due to a lack of insulin, requiring lifelong insulin treatment. Type 2 diabetes is commonly caused by increased resistance to insulin in the body. This type usually develops in adults and the condition is related to obesity, lack of physical activity and unhealthy diets. Treatment usually starts with lifestyle modification and weight loss but where this does not work hypoglycaemic drugs or insulin can be taken. Other forms of diabetes include gestational diabetes (a state of hyperglycaemia first developed during pregnancy) and those resulting from other rare causes such as genetic disorders, pancreatitis, cystic fibrosis and exposure to certain drugs [4]. Diabetes is associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels.

Individuals who develop diabetes in childhood must live with this condition throughout their lives, and it may lead to development of the complications described above. Those children and young people with diabetes can delay or minimise these complications by receiving effective regular care. The Department of Health commissioned the Royal College of Paediatrics and Child Health (RCPCH) to conduct a survey and make an accurate estimate of the number of children and young people living with diabetes in England in 2009 [5]. This survey established that there were 22,783 children and young people aged between 0 and 17 years with diabetes. Around 97% of them had type 1 diabetes and most of them were over 10 years of age (Table 2.2). This report estimated that in children and young people in England type 1 diabetes prevalence was 186.3 per every 100,000 individuals and for type 2 was 3.0/100,000 [5]. In Scotland there were 3,742 diabetic patients aged 19 years or under. Around 98% of them had type 1 diabetes and most of them were over 10 years of age (Table 2.3). The National Paediatric Diabetes Audit Report showed that in 2010 in Wales there were 1,544 type 1 and 2 diabetic patients aged 19 years or under with a 0.21% prevalence rate (Table 2.4). In the 2010/11 Northern Ireland Health Survey 0.4% of adult respondents stated that their children had diabetes [6].

There are regional differences in the prevalence of diabetes among children and young people. A Royal College of Paediatrics and Child Health report shows that the prevalence in the North East of England is around 280 per 100,000 population of 0 to 17 year olds compared to 137/100,000 prevalence in the East Midlands (Table 2.5). Children also showed a slightly different distribution among types of diabetes according to ethnic group. Around 95% of white diabetic children had type 1 diabetes and 1% had type 2 diabetes. The proportion of type 2 was higher (around 8%) among Asian and Black diabetic children (Table 2.6).

Blood Cholesterol

Cholesterol binds lipids to protein to form lipoproteins which allows it to circulate around the body. There are two main types of lipoproteins: LDL (low-density lipoprotein) and HDL (high-density lipoprotein). The National Institute of Health and Care Excellence recommend retaining the threshold of 5.0mmol/l of total cholesterol for tracking levels of raised cholesterol. High serum LDL cholesterol levels increases the risk of Coronary Heart Disease (CHD). HDL-cholesterol is the fraction of cholesterol that removes cholesterol (via the liver) from the blood. Low levels of HDL-cholesterol are associated with an increased risk of CHD and a worse prognosis after a heart attack. Blood cholesterol levels can be reduced by drugs, physical activity and by dietary changes, in particular a reduction in the consumption of saturated fat. Guidelines on HDL-cholesterol generally recommend treatment for those with concentrations below 1.0mmol/l[7].

Some children and young people may develop high level of cholesterol due to an inherited condition called Familial Hypercholesterolemia (FH). It is characterised by a high concentration of serum LDL cholesterol levels, increasing the risk of premature CHD[8].

Various screening options have been suggested to screen cholesterol levels in children. There is no consensus among experts on the cost-effectiveness of this approach for the NHS. National surveys have not measured cholesterol levels in children in the UK. Based on data submitted by GP practices, the Information Services Division in Scotland estimated that in 2010/11 around 0.3 boys per 1,000 registered children and less than 0.1 girls per 1,000 registered children had high cholesterol levels (Table 2.7).

Obesity

The most significant long term impact of childhood obesity is its persistence into adulthood which is more likely for severe obesity or obesity that occurs in late childhood[9]. As well as being an independent risk factor for cardiovascular disease (CVD), obesity is also a major risk factor for high blood pressure, raised blood cholesterol, diabetes and impaired glucose tolerance[10].

Within adults overweight and obesity is classified using uniform cut offs in body mass index (BMI). Individuals with a BMI equal to or greater than 30kg/m^2 are considered obese whilst those with a BMI between 25 and 30kg/m^2 are considered overweight. Within children and adolescents the classification of overweight and obesity is more problematic. Constant changes in body composition during growth mean that the relationship between BMI and adiposity during childhood is age-dependent; this is further complicated by the sex and ethnicity of the individual. There is no clear agreement on the best way to define overweight and obesity in children. UK data is often reported using the National BMI percentile classification, otherwise known as the UK90 growth reference, where children are classified as overweight or obese using the 85th and 95th percentiles of a UK reference population as cut points. The International Obesity Taskforce (IOTF) has developed an international classification based on age and sex-specific BMI cut-off points which is often used for international comparisons. These two methods result in different estimates of childhood overweight and obesity[11].

Prevalence

Data from the Scottish Health Survey (SHeS), combining years 2008 to 2011, demonstrated a higher prevalence of overweight and obesity amongst boys (33%) than girls (28%) (Table 2.8, Figure 2.8).

The National Child Measurement Programme (NCMP) collects annual height and weight measurements from over one million primary school children from two school year groups in England, Reception (aged 4 to 5 years) and Year 6 (aged 10 to 11 years). NCMP data from the 2011/12 school year show a much lower prevalence of obesity for both sexes in Reception (boys = 10.1%, girls = 8.8%) than in Year 6 (boys = 20.6%, girls = 17.4%). For both year groups boys had a slightly higher prevalence than girls (Table 2.9, Figures 2.9a and 2.9b).

Trends

Data from England show an increase in the percentage of children who are obese from 11% of boys and 12% of girls in 1995 to 17% of boys and 16% of girls in 2011. For Scotland, although there has been an increase in obesity prevalence from 13% of boys in 1998 to 18% in 2011, over the same period of time the prevalence amongst girls has only increased from 13% to 14%. Both countries show little change in prevalence in recent years. Data from the Welsh Health Survey, available from 2007, do not show any clear trend over time with the highest prevalence of obesity in boys (23%) found in 2010 and the highest in girls in 2007 (19%). The lowest figures were from 2008 for both sexes (boys = 17%, girls = 15%). Data from the new Northern Ireland Health Survey only covers two years, 2010 and 2011, however, both years show a higher prevalence of overweight and obesity amongst girls than boys, which differs to data from the other three UK countries (Table 2.10, Figure 2.10). Data from the NCMP from 2006/07 to 2011/12 show an increase in the prevalence of overweight and obesity amongst Year 6 pupils from 33.2% to 35.4% in boys and from 30.0% to 32.4% in girls. Over the same time period there has been no increase in prevalence amongst Reception pupils (Table 2.11, Figure 2.11).

Regional variations

The 2011 HSE shows variations in prevalence by region in England. For boys the highest prevalence of both obesity (30%) and overweight and obesity (45%) was found in the North East, with London showing the second highest prevalence with 27% of children classified as obese and 40% as overweight and obese. The lowest prevalence was found in Yorkshire and The Humber with 20% of boys overweight and obese and 7% obese. Amongst girls the North West had the highest prevalence of both with 39% of girls overweight and obese and 25% obese. As with boys London showed the second highest prevalence with 35% of girls overweight and obese and 19% obese. The lowest prevalence was found in the East Midlands with only 19% overweight and obese and 8% obese (Table 2.12, Figure 2.12). The NCMP, which collects

data from a much larger number of children, reports that in 2011/12 London had the highest prevalence of obesity for both Reception (10.9%) and Year 6 (22.5%) pupils, this was followed by the North East for both year groups (Reception = 10.8%, Year 6 = 22.1%). The lowest prevalence was found in the South East (Reception = 8.3%, Year 6 = 16.5%) (Table 2.13, Figure 2.13).

Income, deprivation and urban setting

Although data from England show that the highest prevalence of obesity amongst boys was found for those in the lowest quintile of household income (25%) there was no clear trend, as boys in the highest quintile of income showed the same prevalence as those in the middle quintile (14%). They also had the second highest prevalence of overweight and obesity (34%) after the poorest boys (41%). Amongst girls those in the middle quintile had the highest prevalence of both obesity (22%) and overweight and obesity (36%), with girls from the highest quintile of income showing the lowest prevalence of both (overweight and obesity = 14%, obesity = 5%) (Table 2.14, Figure 2.14). In Scotland data from the SHeS showed the lowest prevalence of obesity amongst boys in the highest quintile of income with 14% and the highest prevalence amongst boys in the lowest quintile of income with 20%. For girls the prevalence of obesity was similar between those in the highest income quintile (14%) and those in the lowest (13%) (Table 2.15, Figure 2.15).

Among children of both sexes in England, those living in the most deprived areas showed the highest prevalence of both overweight and obesity (boys = 39%, girls = 36%) and obesity (boys = 29%, girls = 22%). For girls the lowest prevalence was found for those living in the least deprived areas (overweight and obese = 18%, obese = 10%). However, amongst boys the lowest prevalence was found for three quintiles (first, third and fourth) within all of which 28% of boys were overweight and obese and 11% obese (Table 2.16, Figure 2.16). Data from Scotland showed an increase in the prevalence of obesity amongst boys with increasing deprivation, from a low of 13.8% in the least deprived areas to a high of 21.0% in the most deprived. This was reflected in the data for girls.

Although the highest prevalence of obesity was found for those living in the most deprived areas (17.8%) and the lowest for those in the least deprived areas (10.4%) there was no clear trend with increasing deprivation (Table 2.17, Figure 2.17). The NCMP, however, shows a clear trend of increasing prevalence with increasing deprivation (Table 2.18, Figure 2.18). The NCMP also showed that children living in urban settings were more likely to be obese (Reception = 9.8%, Year 6 = 19.9%) than those living in non-urban settings such as towns and fringe areas (Reception = 8.1%, Year 6 = 16.3%) or villages, hamlets and isolated dwellings (Reception = 7.8%, Year 6 = 15.6%) (Table 2.19, Figure 2.19).

Ethnic and International differences

NCMP data suggests that the highest prevalence of obesity is found amongst those of Black or Black British ethnicity for both year groups (Reception = 15.6%, Year 6 = 27.5%), with the lowest prevalence found amongst the Chinese ethnic group (Reception = 7.3%, Year 6 = 16.7%) (Table 2.20, Figure 2.20). In 2012, the International Obesity Taskforce (IOTF) collated data on overweight and obesity in children worldwide. Caution should be used in interpreting these data as the studies used different age groups and different definitions of overweight and obesity. For both genders the highest levels were recorded in Greece, with 44% of boys and 37% of girls measured as overweight or obese (Tables 2.21a and b, Figures 2.21a and b).

1. Institute for Health Metrics and Evaluation (2012). Global Burden of Diseases, Injuries, and Risk Factors Study 2010. Institute for Health Metrics and Evaluation. USA.
2. NSC (2010). Screening for Hypertension in Children: External review against programme appraisal criteria for the UK National Screening Committee. UK National Screening Committee: London.
3. Din-Dzietham R, Lie Y, Bielo MV, Shamsa F (2007). High blood pressure trends in children and adolescents in national surveys, 1963 to 2002. Circulation; 116:1488-1496.
4. WHO (1999). About diabetes. World Health Organization: Geneva.
5. Royal College of Paediatrics and Child Health (2009). Growing up with Diabetes: children and young people with diabetes in England. RCPCH: London.
6. Public Health Information & Research Branch (2012). Health Survey Northern Ireland. Department of Health, Social Services & Public Safety: Belfast. Personal communication.
7. National Institute for Health and Clinical Excellence (2008). Lipid modification. NICE: London.
8. Goldstein JL et al. (2001). Familial hypercholesterolemia. In The Metabolic and Molecular Bases of Inherited Disease, edition 8, 2863–2913 (Eds Scriver CS et al.) New York: McGraw-Hill Book Co.
9. Serdula M, Ivery D, Coates R, Freedman D, Williamson D and Byers T (1993). Do obese children become obese adults? A review of the literature. Prev Med 22:167-177.
10. World Health Organization (2000). Obesity – preventing and managing the global epidemic. Report of a WHO Consultation on Obesity. World Health Organization: Geneva.
11. For details of the International classification system see Department of Health (2003). Health Survey for England 2002. The Stationery Office: London

Table 2.1
High blood pressure, by age, Wales 2011/12

	Age group (years)	
	0 -14	15-34
	%	%
High blood pressure	0.01	0.48
Base	*504,517*	*802,547*

Notes:
Not all the GP practices are included. Age specific data is only available for 459 GP practices out of 474.

Source:
Health Statistics and Analysis Unit (2012).SDR 164/2012 General Medical Services Contract: Quality and Outcomes Framework Statistics, 2011-12.
¶ Welsh Government. Personal communication.

Table 2.2
Diabetes in children and young people, by age and type, England 2009

	Type 1		Type 2		Other types		Total	
	Number	%	Number	%	Number	%	Number	%
0-4 years	827	0.026	0	0.000	31	0.001	858	0.027
5-9	3,920	0.137	6	< 0.001	34	0.001	3,960	0.138
10-14	8,715	0.289	128	0.004	114	0.004	8,957	0.297
15	2,327	0.370	72	0.011	45	0.007	2,444	0.389
16	2,498	0.390	71	0.011	51	0.008	2,620	0.409
17	2,201	0.330	51	0.008	45	0.007	2,297	0.344
Ages 0-17	**20,488**	**0.186**	**328**	**0.003**	**320**	**0.003**	**22,783**	**0.207**

Notes:
Response rate: 97% of hospitals with paediatric medical services responded. ¶ Prevalence is based on 97% sample and 2009 mid year population estimates. ¶ Cells do not add up to the total number, because age and type was not provided for some children. ¶ Other types of diabetes include gestational diabetes, and those resulting from other rare causes such as genetic disorders, pancreatitis, cystic fibrosis and exposure to certain drugs.

Source:
Royal College of Paediatrics & Child Health (2009) Growing up with Diabetes: children and young people with diabetes in England. RCPCH: London.

Table 2.3
Diabetes in children and young people, by age and type, Scotland 2010

	Type 1		Type 2		Total	
	Number	%	Number	%	Number	%
0-4 years	91	0.031	1	0.000	92	0.031
5-9	491	0.182	5	0.002	496	0.184
10-14	1,277	0.443	11	0.004	1,288	0.447
15 -19	1,807	0.558	59	0.018	1,866	0.577
Ages 0-19	**3,666**	**0.312**	**76**	**0.006**	**3,742**	**0.318**

Notes:
Prevalence based on 2010 mid year population estimates.

Source:
Scottish Diabetes Survey Monitoring Group (2011). Scottish Diabetes Survey 2010. NHS Scotland: Edinburgh.

Table 2.4
Diabetes in children and young people, by age, Wales 2010/11

Type 1 and 2	Number	%
0-4 years	43	0.02
5-11	392	0.17
12-15	554	0.37
16-19	555	0.34
Ages 0 -19	**1,544**	**0.21**

Notes:
Data collected from 14 Paediatric Diabetes Units within the six Welsh Health Boards, comprising all hospitals in Wales providing paediatric diabetes services.

Source:
Royal College of Paediatrics and Child Health (2012). National Paediatric Diabetes Audit Report 2010-11. RCPCH: London.

Table 2.5
Diabetes in children and young people, by age and health authority, England 2009

	0-17 years	0-4	5-9	10-14	15	16	17	Rate per 100,000 children
	Number of children							
Strategic Health Authority								
North East	1,488	48	268	631	184	191	166	279.5
North West	2,717	100	532	1,194	316	351	224	181.3
Yorkshire & The Humber	2,032	72	324	880	258	220	278	182.6
East Midlands	1,281	47	242	507	154	152	179	137.0
West Midlands	2,439	81	448	1,042	279	304	285	203.3
East of England	2,052	81	383	866	250	238	234	167.3
London	2,452	151	497	1,039	266	266	233	150.6
South East Coast	2,499	97	446	1,103	267	353	233	270.3
South Central	1,969	74	398	786	218	259	234	223.7
South West	2,207	108	421	909	252	286	231	208.8

Notes:
97% of hospitals with paediatric medical services responded.

Source:
Royal College of Paediatrics & Child Health (2009) Growing up with Diabetes: children and young people with diabetes in England. RCPCH: London.

Table 2.6
Types of diabetes in diabetic children, by ethnicity, England & Wales 2010/11

	Asian	Black	Mixed	White	Other	*Not stated*
	%	%	%	%	%	%
Type 1	80.3	82.5	91.3	94.8	85.7	*93.3*
Type 2	8.1	8.4	2.0	1.0	5.6	*1.8*
Other	10.9	8.2	6.0	4.1	7.8	*2.0*
Not specified	*0.7*	*0.8*	*0.8*	*0.2*	*0.9*	*2.9*

Notes:
Patients from age 0- 24 included. Data collected from a total of 180 Paediatric Diabetes Units in England and Wales. ¶ Other forms of diabetes include gestational diabetes, and those resulting from other rare causes such as genetic disorders, pancreatitis, cystic fibrosis and exposure to certain drugs.

Source:
Royal College of Paediatrics & Child Health (2009) Growing up with Diabetes: children and young people with diabetes in England. RCPCH: London.

Figure 2.6
Types of diabetes in diabetic children, by ethnicity, England & Wales 2010/11

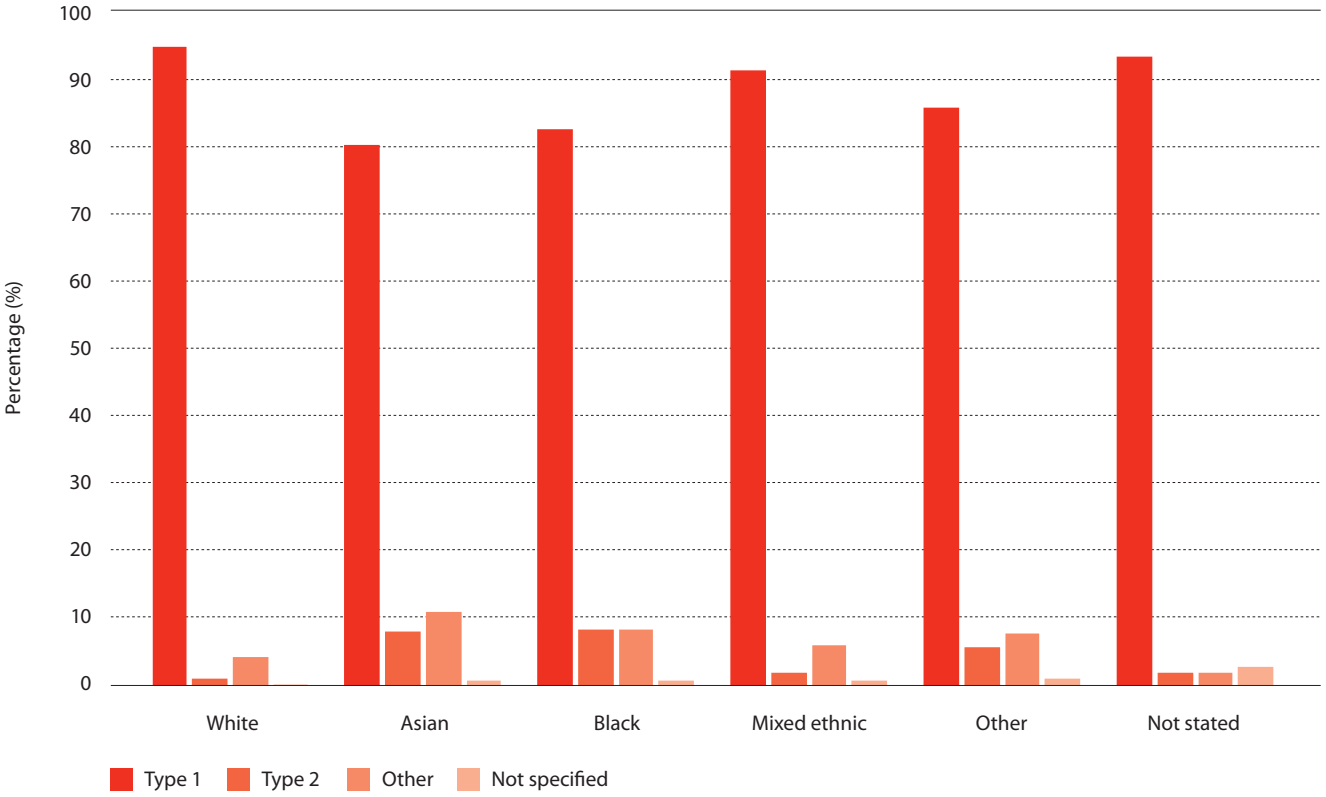


Table 2.7
High cholesterol in children, by gender, Scotland 2003/04 & 2010/11

	2003/04	2010/11
Number of boys	30	120
Number of girls	10	20
Boys per 1,000 registered	0.1	0.3
Girls per 1,000 registered	<0.1	<0.1

Notes:
Patients in Scotland consulting with a GP or Practice Nurse. Data based on 59 GP practices (6% sample).

Source:
Information Services Division Scotland (2012). Practice team Information (PTI). www.isdscotland.org/pti (accessed April 2013).

Table 2.8
Body mass index (BMI) status in children, by gender and age, Scotland 2008-11

	2-3 years	4-5	6-7	8-9	10-11	12-13	14-15	**2-15**
	%	%	%	%	%	%	%	**%**
Boys								
Underweight	2	3	2	2	2	3	3	**2**
Healthy weight	65	71	74	65	57	62	63	**65**
Overweight	18	17	14	16	16	18	16	**16**
Obese	15	9	10	18	26	17	18	**16**
Overweight and obese	**33**	**26**	**24**	**34**	**42**	**35**	**34**	**33**
Base	*364*	*393*	*441*	*390*	*416*	*426*	*420*	***2,850***
Girls								
Underweight	1	1	2	2	4	4	2	**2**
Healthy weight	73	72	78	70	68	63	66	**70**
Overweight	16	14	11	12	13	17	16	**14**
Obese	10	13	9	16	15	17	16	**14**
Overweight and obese	**26**	**27**	**20**	**28**	**28**	**33**	**32**	**28**
Base	*358*	*428*	*338*	*371*	*418*	*404*	*384*	***2,701***

Notes:
BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Underweight is defined as a BMI less than or equal to the 2nd percentile; Healthy weight is defined as a BMI greater than the 2nd percentile but less than the 85th percentile; Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. Overweight and obese is defined as a BMI greater than or equal to the 85th percentile.

Source:
Scottish Centre for Social Research (2012). Scottish Health Survey 2011. The Scottish Government: Edinburgh.

Figure 2.8
Overweight and obese children, by gender and age, Scotland 2008-11

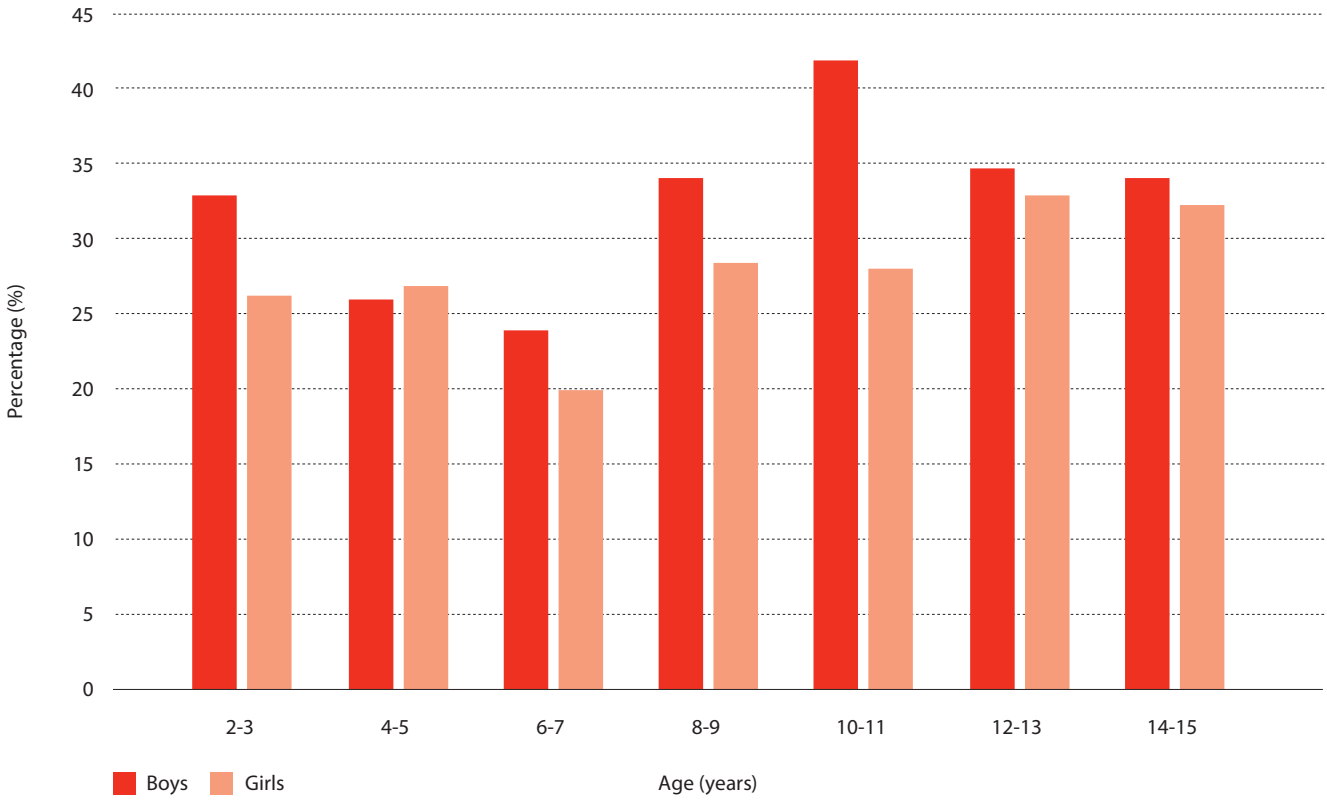


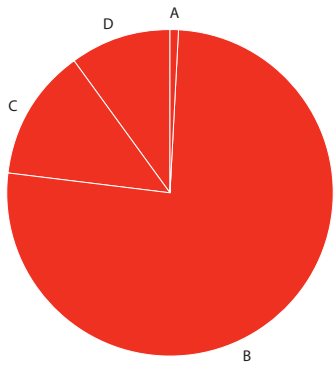
Table 2.9
Body mass index (BMI) status in children, by gender and school year, England 2011/12

	Underweight	Healthy Weight	Overweight	Obese	*Base*
	%	%	%	%	
Reception					
Boys	1.2	75.0	13.8	10.1	*276,750*
Girls	0.8	77.9	12.6	8.8	*264,505*
Both	1.0	76.4	13.2	9.4	*541,255*
Year 6					
Boys	1.1	64.0	14.3	20.6	*254,006*
Girls	1.5	66.6	14.4	17.4	*241,347*
Both	1.3	65.3	14.4	19.0	*495,353*

Notes:
Reception year pupils aged 4 to 5 years, Year 6 pupils aged 10 to 11 years. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Underweight is defined as a BMI less than or equal to the 2nd percentile; Healthy weight is defined as a BMI greater than the 2nd percentile but less than the 85th percentile; Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. Overweight and obese is defined as a BMI greater than or equal to the 85th percentile.

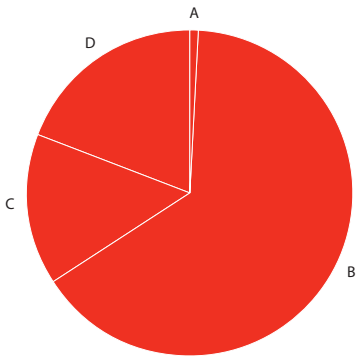
Source:

Figure 2.9a
Body mass index (BMI) status in Reception children, England 2011/12



A. Underweight (1%)
B. Healthy Weight (76%)
C. Overweight (13%)
D. Obese (10%)

Figure 2.9b
Body mass index (BMI) status in Year 6 children, England 2011/12



A. Underweight (1%)
B. Healthy Weight (65%)
C. Overweight (15%)
D. Obese (19%)

Table 2.10
Overweight and obesity in children, time trends by gender and country, UK

	1995	1996	1997	1998	1999	2000	2001	2002
	%	%	%	%	%	%	%	%
ENGLAND								
Boys								
Overweight	13	14	13	15	14	12	15	14
Obese	11	12	13	13	16	14	15	17
Overweight including obese	**24**	**26**	**26**	**28**	**31**	**27**	**31**	**31**
Base	*1,918*	*2,130*	*3,061*	*1,980*	*977*	*875*	*1,652*	*3,744*
Girls								
Overweight	13	12	13	14	14	13	15	14
Obese	12	12	12	14	14	14	14	17
Overweight including obese	**25**	**24**	**26**	**27**	**27**	**27**	**30**	**31**
Base	*1,901*	*2,012*	*3,068*	*1,872*	*950*	*841*	*1,698*	*3,634*
SCOTLAND								
Boys								
Overweight				15				
Obese				13				
Overweight including obese				**28**				
Base				*1,742*				
Girls								
Overweight				15				
Obese				13				
Overweight including obese				**28**				
Base				*1,675*				
WALES								
Boys								
Overweight								
Obese								
Overweight including obese								
Base								
Girls								
Overweight								
Obese								
Overweight including obese								
Base								
NORTHERN IRELAND								
Boys								
Overweight								
Obese								
Overweight including obese								
Base								
Girls								
Overweight								
Obese								
Overweight including obese								
Base								

	2003	2004	2005	2006	2007	2008	2009	2010	2011
	%	%	%	%	%	%	%	%	%
ENGLAND									
Boys									
Overweight	15	14	16	13	14	15	15	14	15
Obese	17	19	18	17	17	17	16	17	17
Overweight including obese	**32**	**33**	**34**	**31**	**31**	**31**	**31**	**31**	**31**
Base	*1,452*	*623*	*1,102*	*2,821*	*2,885*	*2,880*	*1,526*	*2,079*	*687*
Girls									
Overweight	15	17	13	14	14	14	13	14	13
Obese	16	18	18	15	16	15	15	15	16
Overweight including obese	**31**	**35**	**31**	**29**	**31**	**29**	**28**	**29**	**29**
Base	*1,392*	*581*	*1,091*	*2,668*	*2,792*	*2,740*	*1,464*	*2,033*	*666*
SCOTLAND									
Boys									
Overweight	16					19	15	15	17
Obese	16					17	15	16	18
Overweight including obese	**32**					**36**	**30**	**31**	**35**
Base	*1,172*					*637*	*947*	*641*	*625*
Girls									
Overweight	17					14	13	16	15
Obese	12					13	15	13	14
Overweight including obese	**29**					**27**	**28**	**29**	**29**
Base	*1,191*					*630*	*897*	*558*	*616*
WALES									
Boys									
Overweight					15	17	15	15	15
Obese					20	17	20	23	21
Overweight including obese					**35**	**34**	**35**	**38**	**36**
Base					*906*	*832*	*1,045*	*999*	*1,085*
Girls									
Overweight					18	16	15	18	16
Obese					19	15	18	16	18
Overweight including obese					**37**	**31**	**33**	**34**	**34**
Base					*859*	*710*	*974*	*972*	*960*
NORTHERN IRELAND									
Boys									
Overweight								18	21
Obese								8	10
Overweight including obese								**25**	**30**
Base								*252*	*310*
Girls									
Overweight								21	23
Obese								9	10
Overweight including obese								**30**	**32**
Base								*252*	*281*

Notes:

BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). Overweight and obese is defined as a BMI greater than or equal to the 85th percentile. ¶ For English data, 2003 - 2011 estimates have been weighted for non-response. All of the Scottish and Northern Ireland estimates are weighted for non-response. ¶ Ages 2 to 15 years.

Source:

Joint Health Surveys Unit (2012). Health Survey for England 2011. The Information Centre: Leeds. Copyright © 2012, Re-used with the permission of The Health and Social Care Information Centre. All rights reserved. ¶ Scottish Centre for Social Research (2011). Scottish Health Survey 2010. The Scottish Government: Edinburgh. ¶ Welsh Assembly Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff. ¶ Public Health Information & Research Branch (2012). Health Survey Northern Ireland. Department of Health, Social Services & Public Safety: Belfast. Personal communication.

Figure 2.10
Overweight and obesity in children aged 2 to 15 years, time trends by gender and country, UK

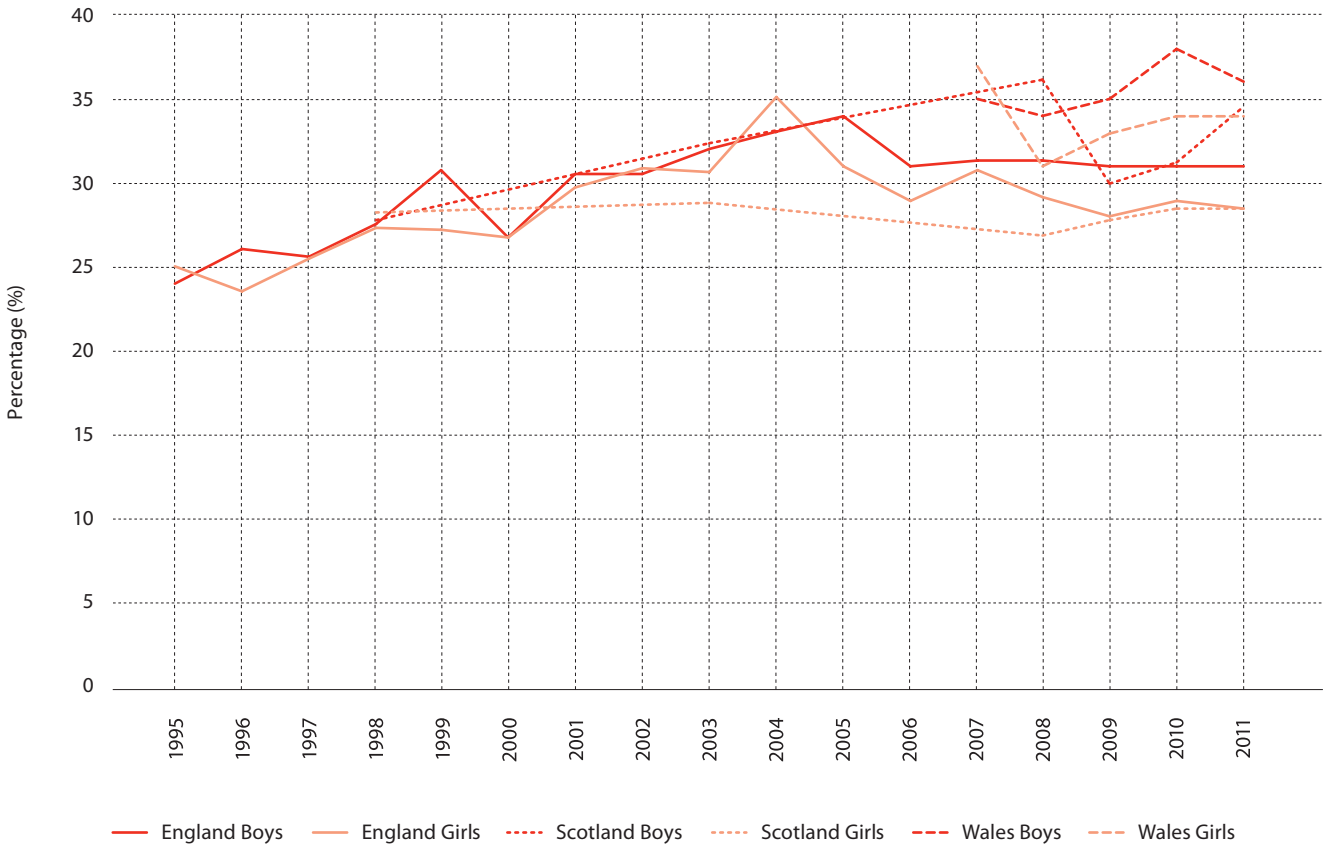


Table 2.11
Overweight and obesity in children, time trends by gender and school year, England

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
	%	%	%	%	%	%
RECEPTION						
Boys						
Overweight	13.6	13.6	13.8	13.9	13.8	13.6
Obese	10.7	10.4	10.2	10.5	10.1	9.9
Overweight and obese	**24.3**	**24.0**	**24.0**	**24.3**	**23.9**	**23.5**
Base	*223,361*	*244,587*	*259,008*	*269,246*	*276,750*	*289,302*
Girls						
Overweight	12.4	12.3	12.6	12.7	12.6	12.5
Obese	9.0	8.8	8.9	9.2	8.8	9.0
Overweight and obese	**21.5**	**21.1**	**21.5**	**21.8**	**21.3**	**21.6**
Base	*212,566*	*233,065*	*247,161*	*257,253*	*264,505*	*276,360*
YEAR 6						
Boys						
Overweight	14.2	14.4	14.4	14.6	14.3	14.7
Obese	19.0	20.0	20.0	20.4	20.6	20.7
Overweight and obese	**33.2**	**34.3**	**34.5**	**35.0**	**34.9**	**35.4**
Base	*227,984*	*255,302*	*256,338*	*256,848*	*254,006*	*251,274*
Girls						
Overweight	14.1	14.2	14.2	14.6	14.4	14.7
Obese	15.8	16.6	16.5	17.0	17.4	17.7
Overweight and obese	**30.0**	**30.7**	**30.7**	**31.6**	**31.8**	**32.4**
Base	*212,505*	*240,119*	*241,342*	*243,019*	*241,347*	*239,844*

Notes:
Reception year pupils aged 4 to 5 years, Year 6 pupils aged 10 to 11 years. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Overweight and obese is defined as a BMI greater than or equal to the 85th percentile.

Source:
Joint Health Surveys Unit (2012). National Child Measurement Programme 2011/12. The Information Centre: Leeds.

Figure 2.11
Overweight and obesity in children, time trends by gender and school year, England

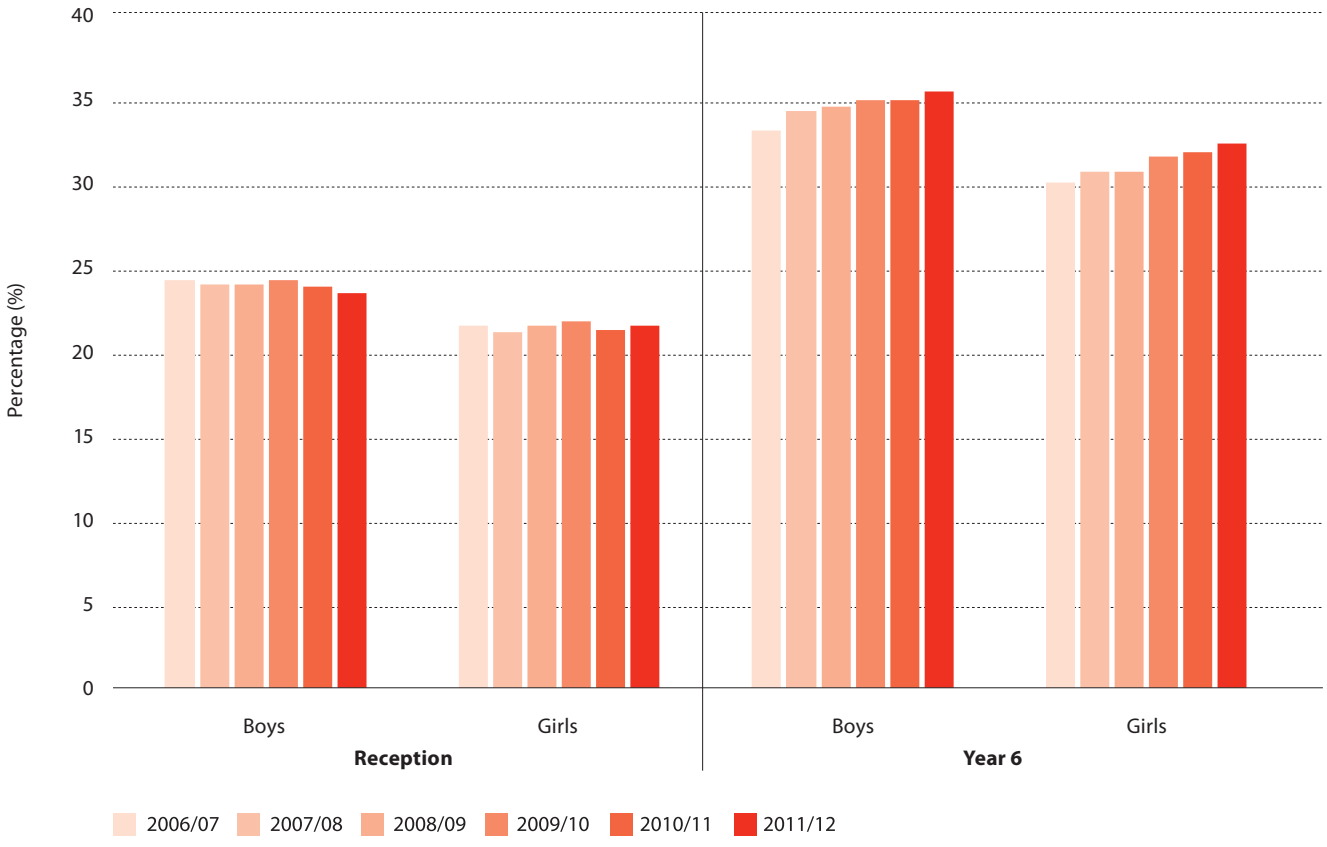


Table 2.12
Body mass index (BMI) status in children, by gender and health authority, England 2011

	Overweight	Obese	**Overweight and obese**	*Base*
	%	%	**%**	
Boys				
North East	15	30	**45**	*69*
North West	15	18	**33**	*85*
Yorkshire and The Humber	13	7	**20**	*69*
East Midlands	18	10	**28**	*56*
West Midlands	14	18	**32**	*72*
East of England	19	9	**28**	*63*
London	14	27	**40**	*86*
South East Coast	15	10	**25**	*55*
South Central	15	11	**26**	*68*
South West	11	22	**33**	*55*
Girls				
North East	[6]	[13]	**[19]**	*43*
North West	14	25	**39**	*90*
Yorkshire and The Humber	11	12	**23**	*68*
East Midlands	11	8	**19**	*61*
West Midlands	11	19	**30**	*69*
East of England	8	17	**25**	*77*
London	16	19	**35**	*81*
South East Coast	23	11	**34**	*57*
South Central	7	13	**20**	*56*
South West	13	12	**25**	*58*

Notes:
This table provides data for regional analysis by the configuration of strategic health authorities (SHAs) in place from July 2006. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. Overweight and obese is defined as a BMI greater than or equal to the 85th percentile. ¶ [ ] Results in brackets should be treated with caution because of the small base size. ¶ Ages 2 to 15 years.

Source:
Joint Health Surveys Unit (2012) Health Survey for England 2011. The Information Centre: Leeds.

Figure 2.12
Overweight and obese children aged 2 to 15 years, by gender and health authority, England 2011

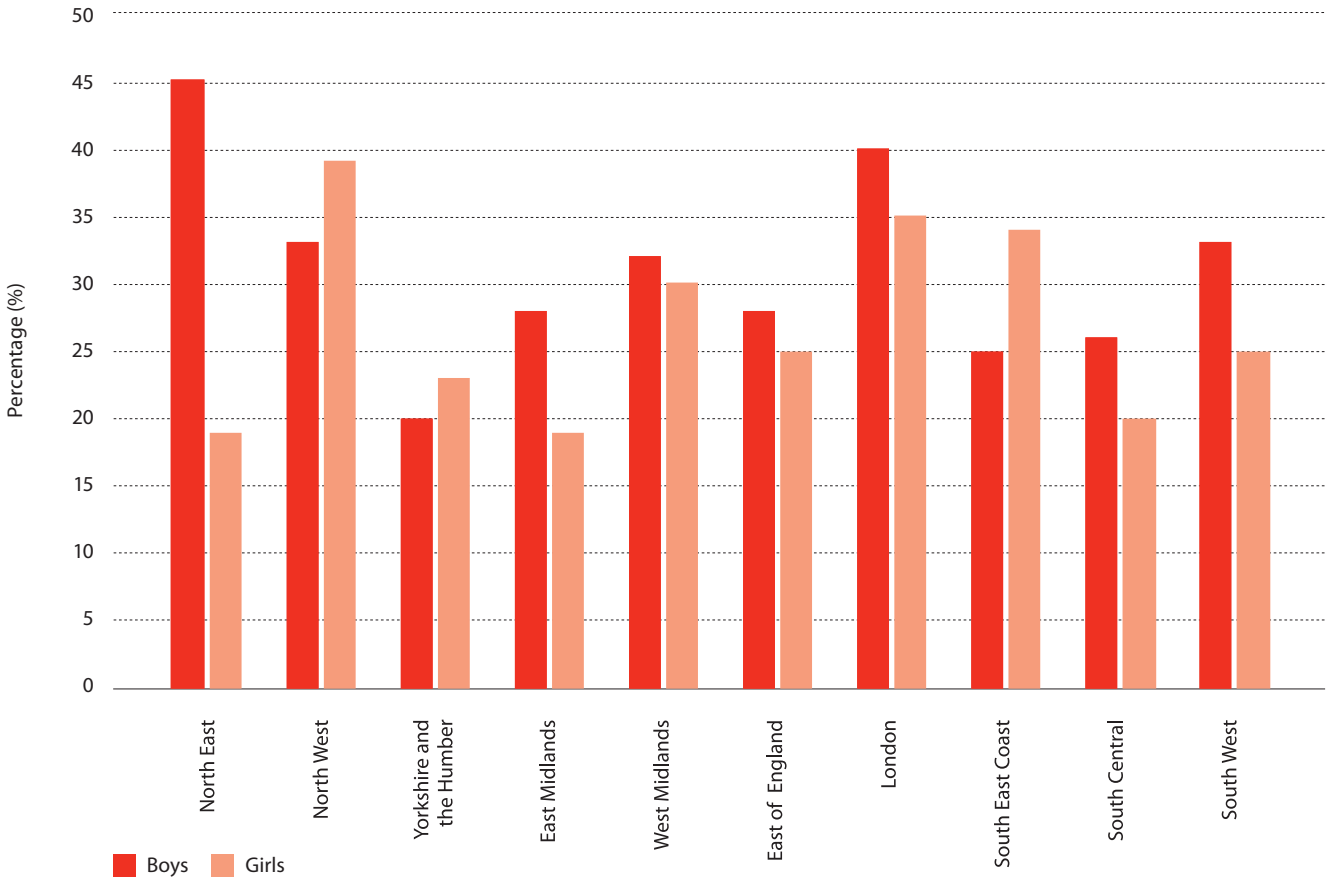


Table 2.13
Overweight and obese children, by school year, region and local authority, England 2011/12

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
England		**13.1**	**14.7**	**9.5**	**19.2**	***565,662***	***491,118***
North East		**13.7**	**14.9**	**10.8**	**22.1**	***27,688***	***24,809***
00EJ	County Durham	13.3	15.8	10.5	22.5	*5,372*	*4,757*
00EH	Darlington	14.8	13.9	9.2	17.8	*1,076*	*922*
00CH	Gateshead	14.0	14.5	10.0	21.6	*1,859*	*1,843*
00EB	Hartlepool	13.8	15.3	9.8	24.5	*1,125*	*962*
00EC	Middlesbrough	12.4	14.2	10.0	19.3	*1,754*	*1,539*
00CJ	Newcastle upon Tyne	15.3	15.1	14.5	24.9	*2,861*	*2,402*
00CK	North Tyneside	14.0	14.4	10.2	22.0	*2,138*	*1,924*
00EM	Northumberland	13.8	14.8	9.5	19.2	*3,081*	*2,994*
00EE	Redcar and Cleveland	14.0	14.3	10.6	21.3	*1,463*	*1,422*
00CL	South Tyneside	13.2	14.9	12.5	24.5	*1,552*	*1,374*
00EF	Stockton-on-Tees	12.7	14.9	10.9	22.1	*2,307*	*1,905*
00CM	Sunderland	13.4	15.0	11.1	23.9	*3,100*	*2,765*
North West		**13.5**	**15.0**	**9.8**	**19.8**	***75,399***	***66,092***
16UB	Allerdale	13.6	14.6	9.8	21.3	*734*	*741*
16UC	Barrow-in-Furness	13.4	17.4	11.7	23.8	*717*	*703*
00EX	Blackburn with Darwen	11.0	14.6	9.7	17.3	*2,117*	*1,854*
00EY	Blackpool	13.9	13.4	8.5	18.7	*1,583*	*1,318*
00BL	Bolton	11.9	13.8	8.7	21.0	*1,709*	*1,410*
30UD	Burnley	13.1	12.6	11.2	22.4	*1,115*	*930*
00BM	Bury	13.1	13.1	9.4	18.5	*2,181*	*1,962*
16UD	Carlisle	15.4	16.0	9.5	18.5	*1,011*	*967*
00EQ	Cheshire East	12.4	13.8	8.3	17.0	*3,688*	*3,272*
00EW	Cheshire West and Chester	15.9	14.5	9.5	20.1	*3,488*	*3,085*
30UE	Chorley	12.8	13.4	8.1	16.7	*1,131*	*1,012*
16UE	Copeland	12.6	14.6	10.7	24.9	*618*	*526*
16UF	Eden	12.0	14.0	10.1	20.8	*358*	*428*
30UF	Fylde	13.0	16.7	7.6	14.9	*615*	*618*
00ET	Halton	13.2	15.2	9.6	19.5	*1,447*	*1,326*
30UG	Hyndburn	11.9	15.2	9.6	18.8	*1,019*	*915*
00BX	Knowsley	14.0	15.6	11.7	24.0	*1,733*	*1,612*
30UH	Lancaster	16.8	14.7	9.4	15.2	*1,197*	*1,141*
00BY	Liverpool	14.6	14.9	12.3	23.1	*4,608*	*3,878*
00BN	Manchester	12.8	15.2	11.3	23.8	*5,856*	*4,353*
00BP	Oldham	11.4	13.5	10.4	20.3	*2,941*	*2,658*
30UJ	Pendle	14.0	15.2	10.6	19.5	*1,125*	*1,010*
30UK	Preston	13.0	13.8	9.3	16.0	*1,548*	*1,329*
30UL	Ribble Valley	13.6	18.0	9.6	15.0	*522*	*568*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
00BQ	Rochdale	11.5	15.7	10.4	21.8	*2,776*	*2,381*
30UM	Rossendale	14.5	15.7	9.9	16.8	*805*	*690*
00BR	Salford	13.1	14.6	10.8	21.0	*2,698*	*2,140*
00CA	Sefton	15.5	15.1	9.5	19.9	*2,687*	*2,530*
16UG	South Lakeland	15.0	15.6	9.2	14.9	*819*	*784*
30UN	South Ribble	14.3	13.5	9.1	18.4	*1,178*	*1,048*
00BZ	St. Helens	12.4	14.9	8.1	20.3	*1,800*	*1,572*
00BS	Stockport	11.7	14.7	8.3	18.4	*2,982*	*2,659*
00BT	Tameside	15.0	15.9	9.3	19.4	*2,679*	*2,232*
00BU	Trafford	13.2	16.7	8.4	17.1	*2,578*	*2,205*
00EU	Warrington	13.6	15.5	9.0	20.9	*2,297*	*2,091*
30UP	West Lancashire	15.8	15.7	10.8	19.3	*1,164*	*1,066*
00BW	Wigan	13.0	16.3	8.6	19.3	*3,335*	*3,053*
00CB	Wirral	14.9	15.9	9.7	19.8	*3,567*	*3,161*
30UQ	Wyre	13.5	16.1	8.9	15.0	*973*	*864*
Yorkshire and The Humber		**13.1**	**14.4**	**9.1**	**19.2**	***58,840***	***50,984***
00CC	Barnsley	12.2	14.0	7.8	19.4	*2,672*	*2,155*
00CX	Bradford	12.5	13.4	10.3	21.8	*6,990*	*6,130*
00CY	Calderdale	12.5	15.3	8.9	19.1	*2,349*	*2,166*
36UB	Craven	14.3	13.5	7.4	12.3	*421*	*489*
00CE	Doncaster	13.7	14.7	10.2	18.6	*3,377*	*2,875*
00FB	East Riding of Yorkshire	14.9	15.6	8.9	17.6	*3,286*	*3,187*
36UC	Hambleton	13.0	16.3	6.4	17.6	*794*	*772*
36UD	Harrogate	11.7	15.3	6.2	11.8	*1,355*	*1,245*
00FA	Kingston upon Hull, City of	14.4	14.5	11.7	22.3	*3,088*	*2,505*
00CZ	Kirklees	13.3	13.7	9.2	19.6	*5,238*	*4,386*
00DA	Leeds	13.6	15.3	9.3	19.7	*8,507*	*6,971*
00FC	North East Lincolnshire	16.0	16.4	11.0	18.9	*1,848*	*1,610*
00FD	North Lincolnshire	15.8	15.8	8.0	20.0	*1,824*	*1,528*
36UE	Richmondshire	9.3	15.6	4.3	13.3	*461*	*475*
00CF	Rotherham	9.4	12.4	6.8	20.3	*3,019*	*2,686*
36UF	Ryedale	16.3	13.2	10.1	16.4	*406*	*385*
36UG	Scarborough	15.3	12.6	7.8	14.5	*944*	*812*
36UH	Selby	13.0	13.1	7.5	18.0	*964*	*856*
00CG	Sheffield	11.0	14.4	8.6	19.4	*5,863*	*5,109*
00DB	Wakefield	13.6	15.2	9.1	19.6	*3,571*	*2,989*
00FF	York	13.6	12.8	8.6	16.4	*1,863*	*1,653*
East Midlands		**13.4**	**14.8**	**9.0**	**18.4**	***46,648***	***42,378***
17UB	Amber Valley	14.1	15.3	8.3	17.5	*1,259*	*1,191*
37UB	Ashfield	11.8	14.6	7.8	18.6	*1,191*	*1,071*
37UC	Bassetlaw	14.2	13.9	10.0	19.7	*1,098*	*955*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
31UB	Blaby	11.8	16.2	6.5	18.0	*930*	*955*
17UC	Bolsover	11.7	16.9	8.6	20.4	*783*	*735*
32UB	Boston	16.0	17.8	10.8	19.1	*714*	*602*
37UD	Broxtowe	14.0	13.0	9.5	19.2	*1,017*	*853*
31UC	Charnwood	13.7	14.7	8.7	16.7	*1,641*	*1,459*
17UD	Chesterfield	14.4	12.8	7.5	19.5	*1,016*	*914*
34UB	Corby	15.6	16.2	12.7	19.4	*771*	*653*
34UC	Daventry	11.8	15.4	6.6	15.0	*786*	*804*
00FK	Derby	13.0	14.2	8.1	19.5	*2,837*	*2,535*
17UF	Derbyshire Dales	17.4	13.9	7.5	15.6	*558*	*660*
32UC	East Lindsey	16.3	16.6	10.1	19.7	*1,048*	*1,148*
34UD	East Northamptonshire	13.8	14.7	8.7	17.8	*933*	*841*
17UG	Erewash	15.0	15.1	8.2	19.4	*1,068*	*1,017*
37UE	Gedling	11.4	14.6	8.9	17.0	*1,077*	*934*
31UD	Harborough	11.2	14.6	7.6	12.6	*881*	*828*
17UH	High Peak	14.2	16.9	7.6	14.8	*971*	*888*
31UE	Hinckley and Bosworth	12.4	15.1	8.0	15.4	*1,065*	*1,015*
34UE	Kettering	13.6	15.6	9.3	17.3	*1,151*	*971*
00FN	Leicester	12.9	14.4	10.7	20.7	*4,003*	*3,421*
32UD	Lincoln	15.3	16.3	10.2	22.3	*969*	*789*
37UF	Mansfield	12.8	15.3	8.7	19.4	*1,082*	*936*
31UG	Melton	11.1	11.6	10.7	18.2	*512*	*440*
37UG	Newark and Sherwood	14.1	12.5	9.8	18.9	*1,107*	*1,068*
17UJ	North East Derbyshire	14.1	14.8	7.9	18.4	*908*	*886*
32UE	North Kesteven	14.9	14.1	7.8	17.7	*986*	*1,104*
31UH	North West Leicestershire	12.2	14.6	10.1	14.2	*1,010*	*916*
34UF	Northampton	13.1	14.5	9.3	18.6	*2,359*	*2,056*
00FY	Nottingham	14.0	15.0	10.9	22.2	*3,105*	*2,625*
31UJ	Oadby and Wigston	10.8	16.3	7.5	17.4	*548*	*528*
37UJ	Rushcliffe	10.5	14.4	4.7	11.2	*1,204*	*989*
00FP	Rutland	14.2	11.1	7.5	13.9	*120*	*144*
17UK	South Derbyshire	13.4	14.0	6.0	18.2	*1,056*	*933*
32UF	South Holland	15.4	15.2	11.3	21.9	*799*	*809*
32UG	South Kesteven	13.5	13.1	8.1	17.9	*1,430*	*1,293*
34UG	South Northamptonshire	12.7	14.1	8.6	14.7	*918*	*866*
34UH	Wellingborough	10.6	16.0	10.6	18.9	*895*	*726*
32UH	West Lindsey	16.6	18.3	11.4	19.0	*842*	*820*
West Midlands		**13.0**	**15.0**	**10.5**	**21.2**	***62,326***	***55,428***
00CN	Birmingham	12.4	15.7	11.9	24.3	*13,974*	*12,256*
47UB	Bromsgrove	12.4	14.3	7.7	17.5	*964*	*899*
41UB	Cannock Chase	15.7	17.2	11.6	23.2	*1,017*	*856*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
00CQ	Coventry	13.2	14.7	11.2	20.6	*3,984*	*3,372*
00CR	Dudley	13.6	15.4	11.2	22.6	*3,416*	*3,295*
41UC	East Staffordshire	13.0	16.4	9.7	18.8	*1,058*	*900*
00GA	Herefordshire, County of	13.8	14.2	8.0	15.6	*1,575*	*1,434*
41UD	Lichfield	11.1	15.3	8.8	15.5	*907*	*769*
47UC	Malvern Hills	15.3	15.8	10.0	15.7	*641*	*600*
41UE	Newcastle-under-Lyme	13.4	15.0	8.8	20.1	*1,205*	*1,039*
44UB	North Warwickshire	12.7	15.5	8.7	19.4	*612*	*625*
44UC	Nuneaton and Bedworth	12.3	15.0	10.1	19.7	*1,511*	*1,357*
47UD	Redditch	13.6	15.0	8.5	17.0	*1,080*	*899*
44UD	Rugby	10.4	14.2	5.6	16.3	*1,135*	*1,026*
00CS	Sandwell	11.4	14.9	11.2	25.7	*4,061*	*3,564*
00GG	Shropshire	14.3	15.1	9.1	17.6	*2,475*	*2,510*
00CT	Solihull	10.7	12.7	7.2	16.3	*2,176*	*1,994*
41UF	South Staffordshire	13.0	14.6	9.7	20.1	*844*	*829*
41UG	Stafford	13.5	13.9	7.9	18.3	*1,149*	*1,036*
41UH	Staffordshire Moorlands	14.9	15.2	8.4	19.8	*872*	*823*
00GL	Stoke-on-Trent	13.9	15.2	12.2	23.8	*3,228*	*2,497*
44UE	Stratford-on-Avon	13.1	14.9	5.4	14.6	*1,140*	*1,023*
41UK	Tamworth	13.2	14.6	8.0	16.8	*773*	*684*
00GF	Telford and Wrekin	13.4	15.2	10.6	21.0	*1,719*	*1,636*
00CU	Walsall	12.9	14.2	11.3	23.2	*3,324*	*2,988*
44UF	Warwick	12.5	12.7	7.9	17.5	*1,345*	*1,087*
00CW	Wolverhampton	14.8	15.0	13.1	24.4	*2,968*	*2,540*
47UE	Worcester	14.1	16.4	11.1	19.5	*1,087*	*959*
47UF	Wychavon	14.0	14.6	9.4	18.3	*1,080*	*1,063*
47UG	Wyre Forest	16.7	16.1	13.1	20.3	*1,006*	*868*
East of England		**13.2**	**14.4**	**8.7**	**17.2**	***63,295***	***54,831***
42UB	Babergh	13.8	13.0	7.7	14.2	*855*	*823*
22UB	Basildon	12.2	15.8	8.7	18.8	*2,108*	*1,731*
00KB	Bedford	14.7	14.2	10.0	18.4	*1,794*	*1,560*
22UC	Braintree	10.8	13.4	7.4	17.2	*1,632*	*1,478*
33UB	Breckland	12.7	14.8	7.3	19.7	*1,201*	*1,179*
22UD	Brentwood	13.1	12.2	7.7	14.9	*679*	*670*
33UC	Broadland	13.5	14.4	6.9	16.9	*1,165*	*1,212*
26UB	Broxbourne	17.2	17.5	13.4	17.4	*1,129*	*827*
12UB	Cambridge	11.8	13.3	7.1	17.2	*932*	*723*
22UE	Castle Point	14.4	14.3	8.3	20.4	*780*	*842*
00KC	Central Bedfordshire	11.3	14.1	7.4	15.8	*2,932*	*2,600*
22UF	Chelmsford	12.7	14.4	8.4	16.5	*1,691*	*1,572*
22UG	Colchester	12.1	15.1	8.0	18.0	*1,858*	*1,653*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
26UC	Dacorum	14.4	13.1	8.6	14.0	*1,609*	*1,233*
12UC	East Cambridgeshire	13.0	13.5	8.1	14.6	*915*	*687*
26UD	East Hertfordshire	12.2	13.8	6.5	12.3	*1,459*	*1,280*
22UH	Epping Forest	10.1	14.2	7.5	15.8	*1,299*	*1,075*
12UD	Fenland	14.7	14.6	12.1	22.7	*979*	*897*
42UC	Forest Heath	9.9	10.8	8.6	19.8	*555*	*435*
33UD	Great Yarmouth	14.5	16.4	9.7	21.7	*1,014*	*941*
22UJ	Harlow	14.8	14.2	9.8	20.3	*1,127*	*895*
26UE	Hertsmere	10.0	13.1	7.0	13.4	*1,095*	*888*
12UE	Huntingdonshire	15.5	15.7	7.1	15.7	*1,749*	*1,645*
42UD	Ipswich	13.2	14.9	9.7	18.6	*1,576*	*1,183*
33UE	King's Lynn and West Norfolk	16.8	15.3	10.0	20.3	*1,404*	*1,334*
00KA	Luton	11.5	15.6	11.1	22.9	*3,073*	*2,519*
22UK	Maldon	13.1	17.7	9.3	14.4	*567*	*623*
42UE	Mid Suffolk	11.6	12.3	7.2	13.0	*935*	*899*
26UF	North Hertfordshire	13.8	13.5	7.4	12.6	*1,410*	*1,211*
33UF	North Norfolk	14.2	14.3	9.9	20.1	*768*	*735*
33UG	Norwich	15.2	15.2	11.1	19.6	*1,393*	*1,023*
00JA	Peterborough	13.2	14.9	10.1	19.2	*2,436*	*2,025*
22UL	Rochford	14.1	18.6	6.7	14.3	*839*	*824*
12UG	South Cambridgeshire	15.4	14.0	7.3	13.3	*1,633*	*1,431*
33UH	South Norfolk	14.1	14.0	8.3	16.7	*1,158*	*1,183*
00KF	Southend-on-Sea	14.1	15.1	7.7	21.7	*1,880*	*1,661*
26UG	St. Albans	12.3	13.0	7.5	10.2	*1,720*	*1,357*
42UF	St. Edmundsbury	11.3	13.4	7.4	13.4	*1,146*	*972*
26UH	Stevenage	12.5	11.6	7.4	16.5	*1,026*	*802*
42UG	Suffolk Coastal	13.2	15.1	7.2	15.3	*1,042*	*1,029*
22UN	Tendring	13.2	15.0	9.8	18.5	*1,290*	*1,203*
26UJ	Three Rivers	14.3	11.9	10.1	15.9	*979*	*813*
00KG	Thurrock	13.7	16.3	10.0	21.1	*2,192*	*1,607*
22UQ	Uttlesford	13.1	10.6	4.8	13.5	*869*	*733*
26UK	Watford	10.5	14.1	8.9	18.2	*1,104*	*881*
42UH	Waveney	15.3	13.2	11.2	18.7	*1,086*	*1,002*
26UL	Welwyn Hatfield	14.8	14.4	8.8	16.0	*1,212*	*935*
London		**12.4**	**15.0**	**10.9**	**22.5**	***89,482***	***72,686***
00AB	Barking and Dagenham	12.9	15.4	13.5	26.9	*3,237*	*2,281*
00AC	Barnet	11.4	14.6	9.4	18.7	*3,407*	*2,829*
00AD	Bexley	14.0	15.9	10.7	22.1	*2,854*	*2,421*
00AE	Brent	11.2	15.0	11.6	22.8	*3,530*	*2,964*
00AF	Bromley	12.5	15.3	7.5	16.0	*3,272*	*2,826*
00AG	Camden	13.6	15.3	10.1	21.1	*1,542*	*1,359*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
00AH	Croydon	12.6	15.4	11.8	22.2	*4,251*	*3,549*
00AJ	Ealing	10.7	14.5	12.6	21.9	*4,023*	*3,255*
00AK	Enfield	13.5	16.3	13.3	24.4	*4,037*	*3,373*
00AL	Greenwich	15.6	16.3	12.5	25.0	*3,396*	*2,483*
00AM	Hackney	13.2	15.0	13.2	26.8	*2,612*	*2,240*
00AN	Hammersmith and Fulham	14.7	14.8	10.2	25.7	*1,364*	*1,118*
00AP	Haringey	12.6	15.2	12.2	23.6	*2,666*	*2,167*
00AQ	Harrow	11.9	15.4	9.1	20.7	*2,483*	*2,014*
00AR	Havering	13.5	14.6	9.8	20.4	*2,607*	*2,379*
00AS	Hillingdon	11.7	14.7	9.5	20.7	*3,457*	*2,868*
00AT	Hounslow	10.9	15.6	11.9	23.0	*3,193*	*2,450*
00AU	Islington	13.9	16.1	9.9	22.5	*1,715*	*1,442*
00AW	Kensington and Chelsea	13.3	15.5	9.0	21.7	*765*	*631*
00AX	Kingston upon Thames	10.5	12.1	5.8	15.2	*1,749*	*1,431*
00AY	Lambeth	12.2	14.9	10.7	24.0	*3,003*	*2,449*
00AZ	Lewisham	13.8	15.0	11.2	25.1	*3,270*	*2,533*
00BA	Merton	12.1	15.1	9.5	20.5	*2,299*	*1,673*
00BB	Newham	10.7	13.9	13.0	25.7	*4,368*	*3,422*
00BC	Redbridge	12.9	14.9	11.5	23.6	*3,593*	*3,155*
00BD	Richmond upon Thames	11.0	13.2	6.0	12.3	*1,984*	*1,357*
00BE	Southwark	13.4	15.0	11.9	27.8	*2,688*	*2,205*
00BF	Sutton	11.5	14.4	8.7	19.5	*2,131*	*1,847*
00BG	Tower Hamlets	11.0	15.1	13.0	25.3	*2,753*	*2,429*
00BH	Waltham Forest	12.4	14.8	9.7	23.4	*3,267*	*2,535*
00BJ	Wandsworth	11.7	14.8	10.4	20.0	*2,682*	*1,841*
00BK	Westminster	11.9	14.1	11.4	26.1	*1,284*	*1,160*
South East		**12.5**	**14.3**	**8.3**	**16.5**	***87,844***	***76,433***
45UB	Adur	14.6	14.8	10.4	17.1	*536*	*486*
45UC	Arun	13.0	14.4	10.3	18.1	*1,158*	*1,187*
29UB	Ashford	13.4	15.6	8.3	19.1	*1,302*	*1,254*
11UB	Aylesbury Vale	11.7	14.8	7.6	14.7	*1,986*	*1,695*
24UB	Basingstoke and Deane	12.5	13.6	8.6	16.3	*1,932*	*1,555*
00MA	Bracknell Forest	9.7	14.1	7.6	16.4	*1,305*	*1,034*
00ML	Brighton and Hove	11.2	14.3	7.7	15.4	*2,446*	*1,915*
29UC	Canterbury	11.3	16.2	7.9	15.4	*1,217*	*1,250*
38UB	Cherwell	11.5	13.5	7.2	17.2	*1,703*	*1,327*
45UD	Chichester	12.9	13.8	6.9	15.5	*951*	*821*
11UC	Chiltern	15.6	14.4	7.6	15.2	*940*	*831*
45UE	Crawley	10.5	15.3	8.1	18.8	*998*	*1,131*
29UD	Dartford	13.3	13.3	10.8	19.8	*1,172*	*992*
29UE	Dover	12.9	14.9	9.0	20.2	*1,068*	*968*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
24UC	East Hampshire	12.5	14.7	8.1	15.6	*1,133*	*1,020*
21UC	Eastbourne	15.0	14.0	8.3	17.3	*957*	*791*
24UD	Eastleigh	12.3	14.3	7.8	13.8	*1,321*	*1,141*
43UB	Elmbridge	9.8	12.8	5.1	13.9	*1,266*	*922*
43UC	Epsom and Ewell	12.7	13.0	6.7	12.3	*756*	*710*
24UE	Fareham	11.8	15.6	8.3	11.9	*1,030*	*1,015*
24UF	Gosport	15.9	13.6	8.3	16.5	*853*	*728*
29UG	Gravesham	11.7	13.4	11.0	20.5	*1,157*	*1,010*
43UD	Guildford	11.4	12.5	6.4	15.6	*1,239*	*1,002*
24UG	Hart	11.4	13.2	5.7	12.5	*1,012*	*934*
21UD	Hastings	14.2	15.1	11.8	18.8	*1,022*	*856*
24UH	Havant	11.9	15.5	10.4	17.1	*1,129*	*996*
45UF	Horsham	12.6	14.4	8.4	12.5	*838*	*1,196*
00MW	Isle of Wight	12.7	15.9	10.4	18.0	*1,163*	*1,187*
21UF	Lewes	10.7	13.0	8.0	14.8	*922*	*832*
29UH	Maidstone	16.1	13.0	10.5	18.4	*1,621*	*1,504*
00LC	Medway	13.9	13.8	9.5	20.3	*2,973*	*2,713*
45UG	Mid Sussex	12.7	12.1	5.3	13.1	*1,386*	*1,223*
00MG	Milton Keynes	11.9	14.4	10.3	18.8	*3,215*	*2,862*
43UE	Mole Valley	11.4	13.6	6.1	10.9	*756*	*663*
24UJ	New Forest	14.0	12.9	7.7	13.2	*1,517*	*1,442*
38UC	Oxford	10.3	13.8	8.1	19.5	*1,295*	*989*
00MR	Portsmouth	13.3	15.0	9.7	21.1	*2,154*	*1,618*
00MC	Reading	13.5	16.4	10.6	19.0	*1,821*	*1,374*
43UF	Reigate and Banstead	11.6	13.0	7.2	13.7	*1,435*	*1,114*
21UG	Rother	14.1	12.6	8.9	17.7	*718*	*665*
43UG	Runnymede	12.1	16.6	10.1	15.9	*730*	*573*
24UL	Rushmoor	13.4	15.3	10.1	18.2	*1,121*	*881*
29UK	Sevenoaks	13.0	14.4	6.3	17.1	*1,228*	*1,073*
29UL	Shepway	13.9	15.2	8.7	18.5	*1,039*	*1,013*
00MD	Slough	10.3	14.0	12.0	21.5	*1,860*	*1,509*
11UE	South Bucks	11.3	12.3	8.7	14.8	*609*	*522*
38UD	South Oxfordshire	14.2	13.3	6.4	13.8	*1,406*	*1,160*
00MS	Southampton	13.2	15.1	9.0	19.0	*2,502*	*1,886*
43UH	Spelthorne	14.4	17.7	8.5	17.6	*1,045*	*807*
43UJ	Surrey Heath	11.6	13.9	7.1	14.9	*885*	*757*
29UM	Swale	12.7	13.8	8.5	18.2	*1,594*	*1,437*
43UK	Tandridge	10.1	13.1	7.1	16.3	*780*	*627*
24UN	Test Valley	14.3	16.1	9.9	13.8	*1,165*	*1,002*
29UN	Thanet	12.0	14.7	8.1	19.4	*1,362*	*1,309*
29UP	Tonbridge and Malling	12.9	14.4	6.7	19.3	*1,350*	*1,231*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
29UQ	Tunbridge Wells	13.7	13.3	8.4	14.4	*1,188*	*1,013*
38UE	Vale of White Horse	11.7	13.7	7.1	15.3	*1,286*	*1,045*
43UL	Waverley	11.4	11.9	5.9	10.7	*1,223*	*926*
21UH	Wealden	11.1	15.0	6.9	15.1	*1,276*	*1,179*
00MB	West Berkshire	13.2	14.9	7.6	15.2	*1,596*	*1,438*
38UF	West Oxfordshire	12.8	14.8	6.1	11.9	*1,170*	*980*
24UP	Winchester	11.4	13.8	6.7	10.8	*1,126*	*999*
00ME	Windsor and Maidenhead	10.9	13.8	7.1	14.3	*1,362*	*1,159*
43UM	Woking	11.4	15.1	6.2	16.7	*1,078*	*875*
00MF	Wokingham	9.7	14.9	6.4	13.9	*1,585*	*1,506*
45UH	Worthing	13.3	15.8	7.5	14.8	*991*	*884*
11UF	Wycombe	12.6	13.9	8.1	17.8	*1,884*	*1,689*
South West		**14.0**	**14.4**	**8.7**	**16.6**	***51,045***	***44,646***
00HA	Bath and North East Somerset	15.1	12.8	10.8	13.7	*1,798*	*1,513*
00HN	Bournemouth	14.8	14.7	8.0	15.2	*1,596*	*1,215*
00HB	Bristol, City of	13.6	13.7	9.7	19.0	*4,423*	*3,435*
23UB	Cheltenham	16.0	12.3	9.0	15.8	*1,047*	*867*
19UC	Christchurch	12.5	12.5	8.2	12.3	*417*	*407*
00HE	Cornwall	14.3	14.8	9.1	16.5	*4,519*	*3,549*
23UC	Cotswold	15.2	12.4	7.4	17.6	*730*	*732*
18UB	East Devon	14.8	16.1	7.0	12.4	*1,031*	*1,106*
19UD	East Dorset	11.1	14.5	6.2	16.1	*682*	*745*
18UC	Exeter	13.5	13.5	7.5	16.8	*1,040*	*913*
23UD	Forest of Dean	15.4	11.9	9.8	19.1	*746*	*764*
23UE	Gloucester	14.3	14.0	9.2	20.6	*1,467*	*1,290*
40UB	Mendip	15.5	14.2	9.5	18.8	*1,042*	*913*
18UD	Mid Devon	14.3	16.2	10.6	18.5	*841*	*724*
18UE	North Devon	12.7	16.3	7.8	15.5	*915*	*865*
19UE	North Dorset	14.0	15.6	7.4	15.0	*692*	*533*
00HC	North Somerset	14.6	14.0	8.1	15.6	*2,095*	*1,853*
00HG	Plymouth	14.6	14.9	9.4	19.6	*2,737*	*2,086*
00HP	Poole	13.3	14.0	9.7	15.1	*1,486*	*1,189*
19UG	Purbeck	11.8	12.4	7.7	13.5	*365*	*370*
40UC	Sedgemoor	15.0	16.6	8.8	17.1	*1,130*	*1,045*
00HD	South Gloucestershire	11.6	13.8	6.9	15.1	*2,651*	*2,444*
18UG	South Hams	13.7	12.5	6.6	13.2	*708*	*752*
40UD	South Somerset	15.2	14.2	10.5	17.2	*1,531*	*1,411*
23UF	Stroud	14.4	14.6	7.6	15.4	*1,122*	*1,178*
00HX	Swindon	13.9	16.8	9.9	18.9	*2,496*	*2,006*
40UE	Taunton Deane	11.0	14.2	7.3	14.8	*1,060*	*881*

LA code	LA name	Overweight		Obese		*Bases*	
		Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
		%	%	%	%		
18UH	Teignbridge	15.0	14.7	8.2	17.0	*1,128*	*1,174*
23UG	Tewkesbury	13.5	16.8	9.7	17.5	*815*	*779*
00HH	Torbay	13.1	14.7	6.0	15.1	*1,148*	*889*
18UK	Torridge	15.9	15.8	8.5	15.3	*579*	*587*
18UL	West Devon	18.2	15.1	9.6	20.0	*499*	*471*
19UH	West Dorset	13.9	14.5	10.6	13.9	*865*	*812*
40UF	West Somerset	13.9	15.3	6.9	18.5	*231*	*216*
19UJ	Weymouth and Portland	15.0	16.4	11.9	17.1	*588*	*590*
00HY	Wiltshire	13.2	13.8	7.5	15.9	*4,825*	*4,342*

Notes:
Reception year pupils aged 4 to 5 years, Year 6 pupils aged 10 to 11 years. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile.

Source:
Joint Health Surveys Unit (2012). National Child Measurement Programme 2011/12. The Information Centre: Leeds.

Table 2.14
Body mass index (BMI) status in children, by gender and household income, England 2011

	Equivalised household income quintile				
	Highest	2nd	3rd	4th	Lowest
	%	%	%	%	%
Boys					
Overweight	20	13	13	11	16
Obese	14	9	14	17	25
Overweight and obese	**34**	**21**	**27**	**29**	**41**
Base	*111*	*117*	*87*	*139*	*124*
Girls					
Overweight	9	11	14	10	13
Obese	5	16	22	13	19
Overweight and obese	**14**	**27**	**36**	**23**	**32**
Base	*88*	*124*	*36*	*23*	*32*

Notes:
Equivalised household income is designed to be comparable across households of different sizes. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. Overweight and obese is defined as a BMI greater than or equal to the 85th percentile. ¶ Ages 2 to 15 years.

Source:
Joint Health Surveys Unit (2012). Health Survey for England 2011. The Information Centre: Leeds.

Figure 2.14
Overweight and obese children aged 2 to 15 years, by gender and household income, England 2011

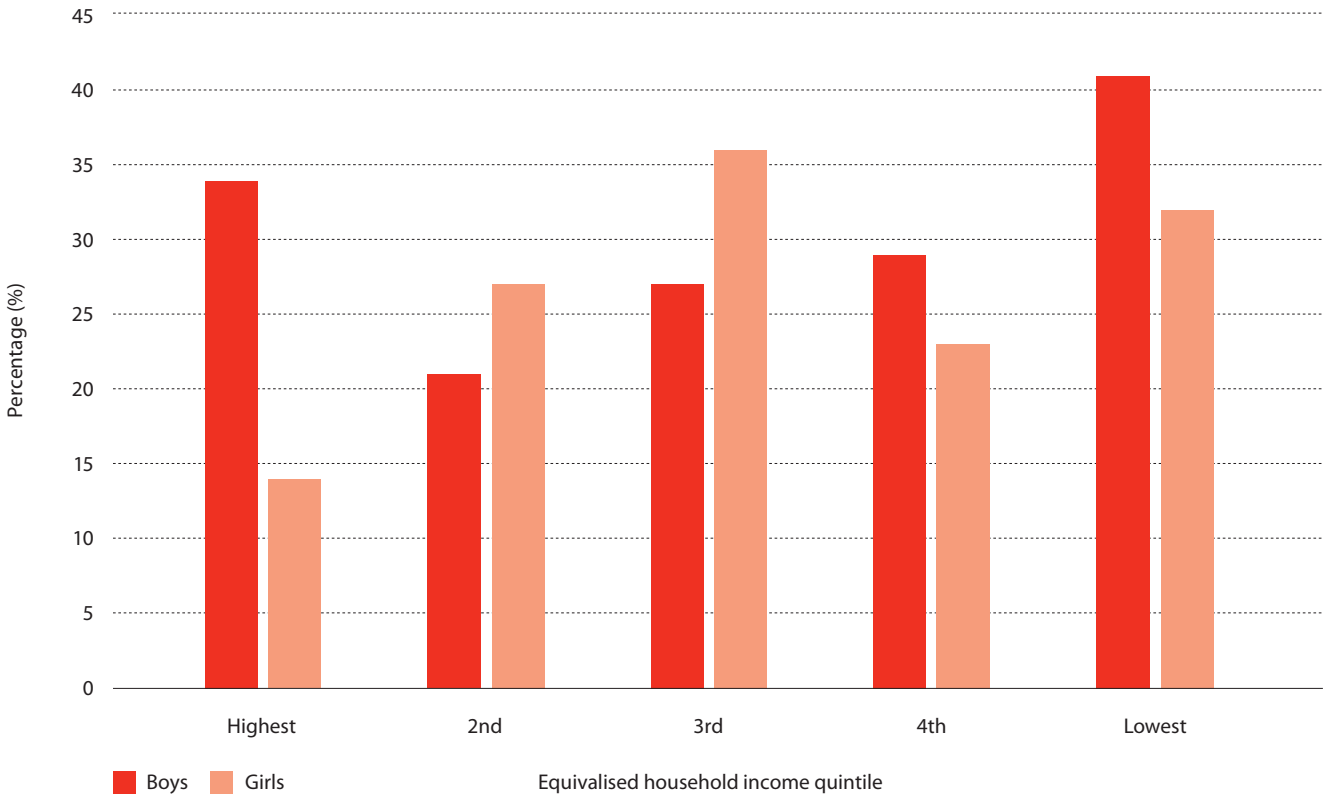


Table 2.15
Body mass index (BMI) status in children, by gender and household income, Scotland 2008-11

	Equivalised household income quintile				
	Highest	2nd	3rd	4th	Lowest
	%	%	%	%	%
Boys					
Overweight	16.6	16.0	18.0	15.8	14.6
Obese	14.2	15.5	15.8	16.4	19.7
Overweight and obese	**30.8**	**31.5**	**33.8**	**32.2**	**34.3**
Base	*473*	*580*	*517*	*524*	*512*
Girls					
Overweight	14.4	15.8	13.9	13.8	10.8
Obese	14.0	10.3	13.5	16.6	13.2
Overweight and obese	**28.4**	**26.1**	**27.4**	**30.3**	**24.0**
Base	*449*	*564*	*506*	*476*	*476*

Notes:
Equivalised household income is designed to be comparable across households of different sizes. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. Overweight and obese is defined as a BMI greater than or equal to the 85th percentile. ¶ Ages 2 to 15 years.

Source:
Scottish Centre for Social Research (2012). Scottish Health Survey 2011. The Scottish Government: Edinburgh.

Figure 2.15
Overweight and obese children aged 2 to 15 years, by gender and household income, Scotland 2008-11

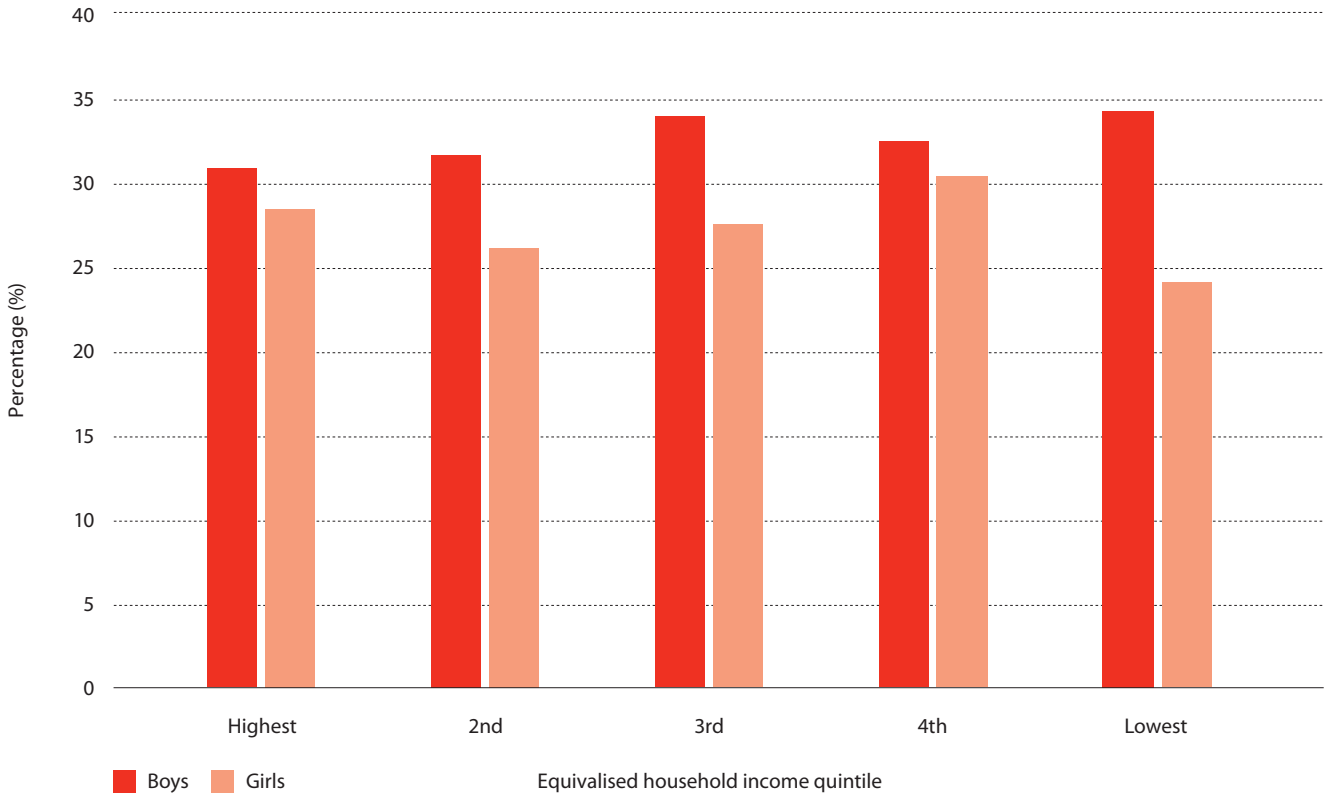


Table 2.16
Body mass index (BMI) status in children, by gender and deprivation quintile, England 2011

	Index of Multiple Deprivation (IMD) quintile				
	Lowest	2nd	3rd	4th	Highest
	%	%	%	%	%
Boys					
Overweight	17	15	16	17	10
Obese	11	19	12	11	29
Overweight and obese	**28**	**34**	**28**	**28**	**39**
Base	*171*	*123*	*120*	*124*	*140*
Girls					
Overweight	8	19	15	7	14
Obese	10	14	14	19	22
Overweight and obese	**18**	**33**	**29**	**26**	**36**
Base	*153*	*120*	*126*	*119*	*142*

Notes:
IMD is a relative measure of deprivation used to rank small areas from most deprived to least deprived using a composite score of indicators. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. Overweight and obese is defined as a BMI greater than or equal to the 85th percentile. ¶ Ages 2 to 15 years.

Source:
Joint Health Surveys Unit (2012). Health Survey for England 2011. The Information Centre: Leeds.

Figure 2.16
Overweight and obese children aged 2 to 15 years, by gender and deprivation quintile, England 2011

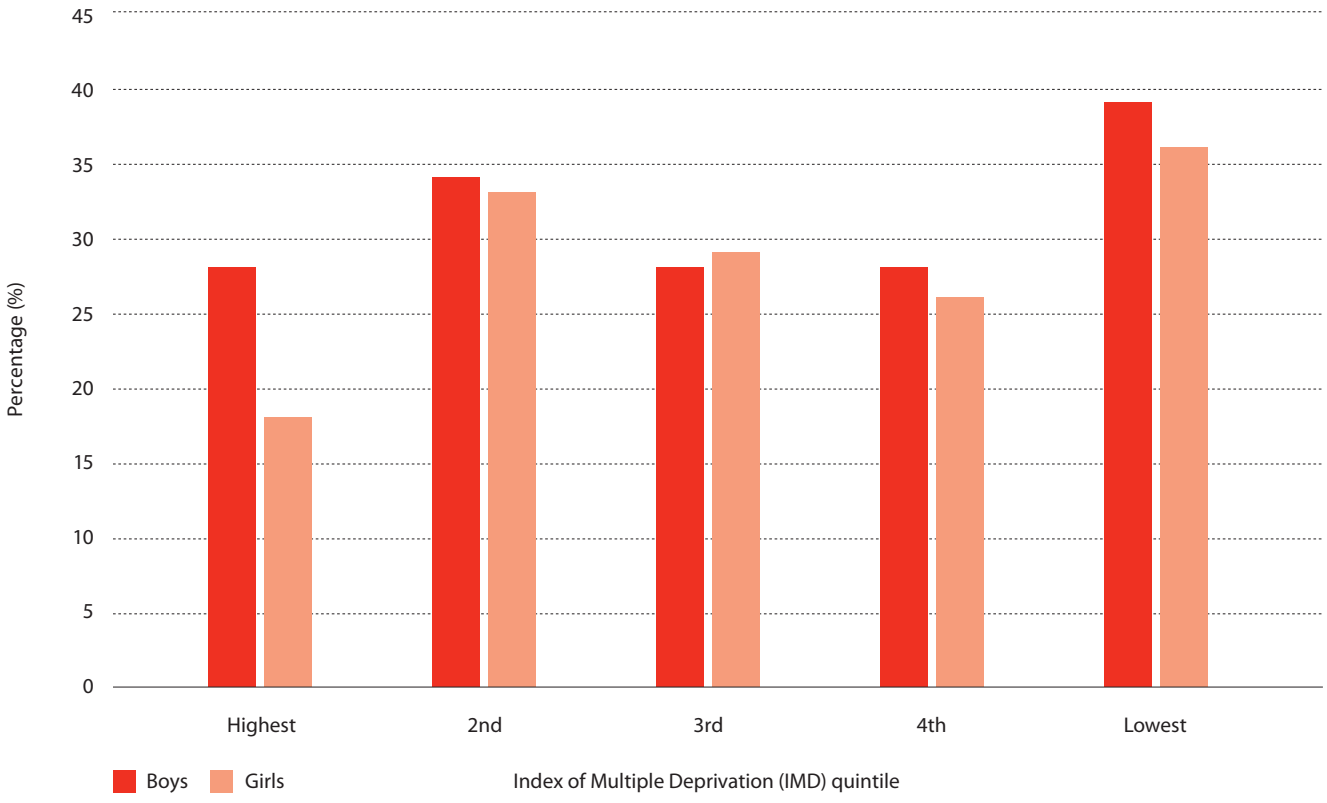


Table 2.17
Body mass index (BMI) status in children, by gender and deprivation quintile, Scotland 2008-11

	Scottish Index of Multiple Deprivation (SIMD) quintile				
	Lowest	2nd	3rd	4th	Highest
	%	%	%	%	%
Boys					
Underweight	2.3	1.9	2.2	2.5	2.1
Healthy weight	67.3	65.4	67.7	63.7	61.3
Overweight	16.5	17.9	14.3	17.1	15.6
Obese	13.8	14.9	15.8	16.7	21.0
Overweight and obese	**30.4**	**32.7**	**30.1**	**33.8**	**36.6**
Base	*537*	*649*	*540*	*435*	*540*
Girls					
Underweight	1.6	2.3	0.2	0.7	4.1
Healthy weight	72.8	71.1	68.8	70.8	65.2
Overweight	15.2	12.1	15.9	15.2	12.9
Obese	10.4	14.6	13.2	13.3	17.8
Overweight and obese	**25.6**	**26.7**	**29.1**	**28.5**	**30.7**
Base	*537*	*649*	*540*	*435*	*540*

Notes:
SIMD is a relative measure of deprivation used to rank small areas from most deprived to least deprived using a composite score of indicators. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Underweight is defined as a BMI less than or equal to the 2nd centile; Healthy weight is defined as a BMI greater than the 2nd centile but less than the 85th centile; Overweight is defined as a BMI greater than or equal to the 85th centile but less than the 95th centile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th centile. Overweight and obese is defined as a BMI greater than or equal to the 85th centile. ¶ Ages 2 to 15 years.

Source:
Scottish Centre for Social Research (2012). Scottish Health Survey 2011. The Scottish Government: Edinburgh.

Figure 2.17
Overweight and obese children aged 2 to 15 years, by gender and deprivation quintile, Scotland 2008-11

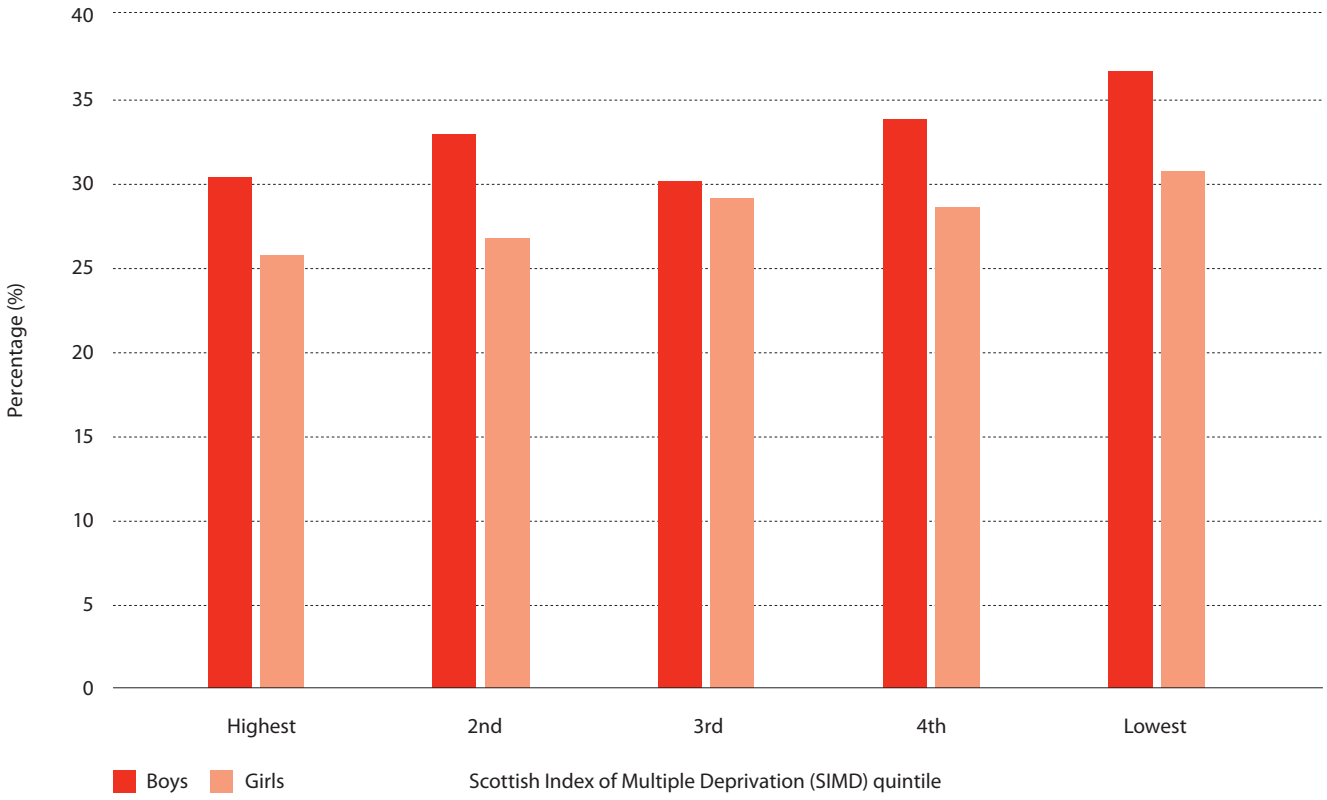


Table 2.18
Body mass index (BMI) status in children, by school year and deprivation decile, England 2011/12

	Index of Multiple Deprivation (IMD) decile										
	Lowest	2nd	3rd	4th	5th	6th	7th	8th	9th	Highest	Total
	%	%	%	%	%	%	%	%	%	%	%
Reception											
Underweight	0.8	0.7	0.7	0.8	0.9	0.9	0.8	1.1	1.2	1.3	0.9
Healthy weight	80.6	79.0	78.2	77.8	77.2	76.3	75.8	74.5	73.9	73.0	76.5
Overweight	11.9	12.8	12.9	13.0	13.1	13.2	13.3	13.6	13.4	13.4	13.1
Obese	6.8	7.5	8.2	8.3	8.8	9.6	10.1	10.8	11.6	12.3	9.5
Overweight and obese	**18.7**	**20.3**	**21.1**	**21.4**	**21.9**	**22.9**	**23.4**	**24.4**	**25.0**	**25.7**	**22.6**
Base	*57,724*	*55,973*	*52,342*	*51,873*	*53,321*	*54,638*	*56,582*	*57,903*	*59,384*	*65,922*	*565,662*
Year 6											
Underweight	1.1	1.1	1.0	1.1	1.1	1.2	1.3	1.3	1.5	1.6	1.3
Healthy weight	71.1	69.3	68.3	66.1	65.9	64.2	62.9	61.6	60.1	59.2	64.9
Overweight	14.2	14.3	14.6	14.9	14.7	15.0	14.8	14.9	14.8	14.8	14.7
Obese	13.7	15.3	16.0	17.9	18.3	19.6	20.9	22.3	23.5	24.3	19.2
Overweight and obese	**27.8**	**29.6**	**30.6**	**32.8**	**32.9**	**34.6**	**35.7**	**37.1**	**38.4**	**39.1**	**33.9**
Base	*53,586*	*50,967*	*45,031*	*45,517*	*46,720*	*48,427*	*49,139*	*48,317*	*49,154*	*54,260*	*491,118*

Notes:
Reception year pupils aged 4 to 5 years, Year 6 pupils aged 10 to 11 years. ¶ IMD is a relative measure of deprivation used to rank small areas from most deprived to least deprived using a composite score of indicators. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Underweight is defined as a BMI less than or equal to the 2nd centile; Healthy weight is defined as a BMI greater than the 2nd centile but less than the 85th centile; Overweight is defined as a BMI greater than or equal to the 85th centile but less than the 95th centile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th centile. Overweight and obese is defined as a BMI greater than or equal to the 85th centile.

Source:

Figure 2.18
Overweight and obese children, by school year and deprivation decile, England 2011/12

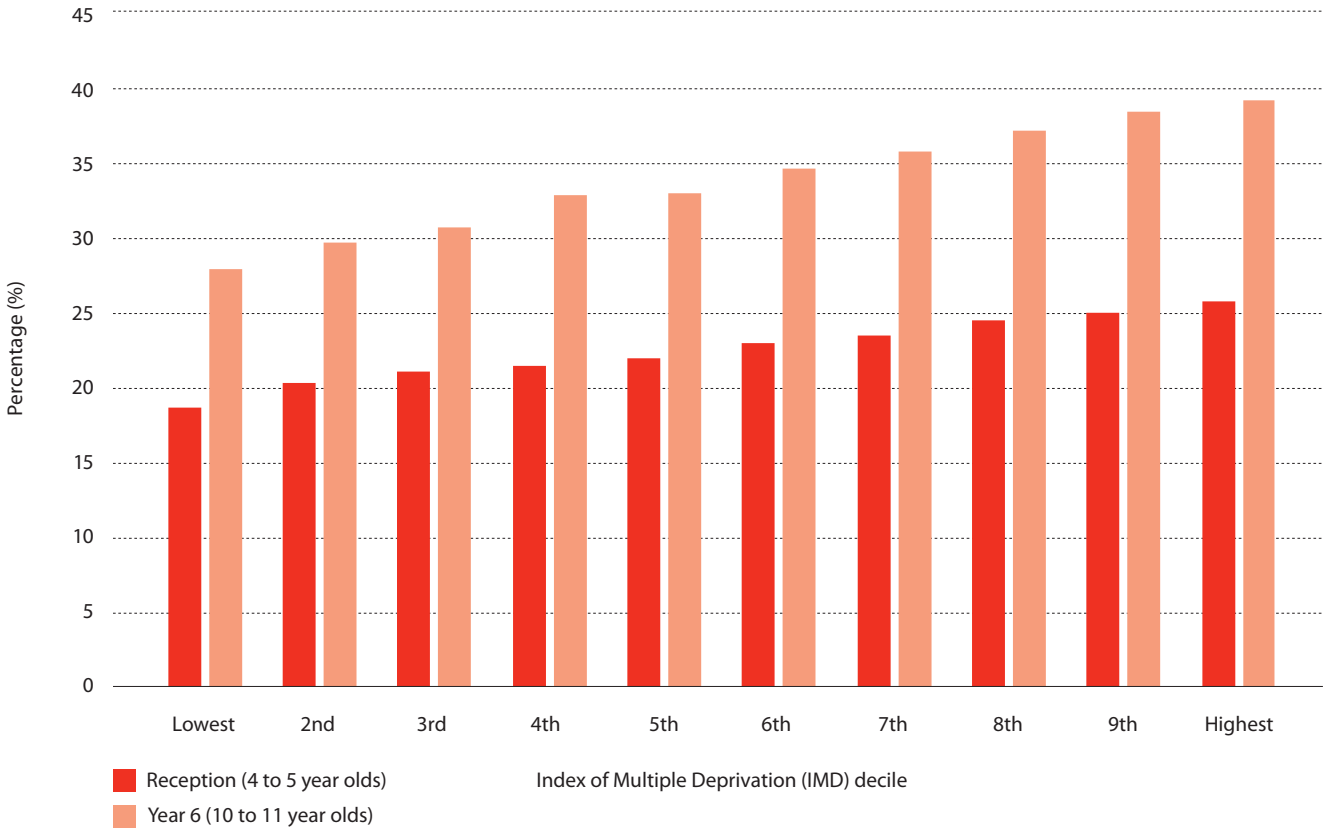


Table 2.19
Body mass index (BMI) status in children, by school year and urban/rural classification, England 2011/12

	Underweight		Healthy Weight		Overweight		Obese		*Bases*	
	Reception	Year 6	Reception	Year 6	Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
	%	%	%	%	%	%	%	%		
Total	**0.9**	**1.3**	**76.5**	**64.9**	**13.1**	**14.7**	**9.5**	**19.2**	***562,648***	***488,367***
Village, Hamlet & Isolated Dwelling	0.5	0.9	78.1	68.9	13.6	14.6	7.8	15.6	*46,165*	*44,533*
Town and Fringe	0.5	0.9	78.1	68.2	13.3	14.5	8.1	16.3	*46,141*	*43,316*
Urban	1.0	1.3	76.2	64.1	13.0	14.7	9.8	19.9	*470,342*	*400,518*

Notes:
Reception year pupils aged 4 to 5 years, Year 6 pupils aged 10 to 11 years. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Underweight is defined as a BMI less than or equal to the 2nd percentile; Healthy weight is defined as a BMI greater than the 2nd percentile but less than the 85th percentile; Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. Overweight and obese is defined as a BMI greater than or equal to the 85th percentile. ¶ The Office for National Statistics (ONS) produced the Rural and Urban Classification in consultation with the Department for Environment, Food and Rural Affairs, the Department for Communities and Local Government and the Countryside Agency. ¶ Areas are defined through settlement form: dispersed dwellings, hamlet, village, small town, urban fringe and urban (>10,000 population).

Source:
Joint Health Surveys Unit (2012). National Child Measurement Programme 2011/12. The Information Centre: Leeds.

Figure 2.19

Overweight and obese children, by school year and urban/rural classification, England 2011/12

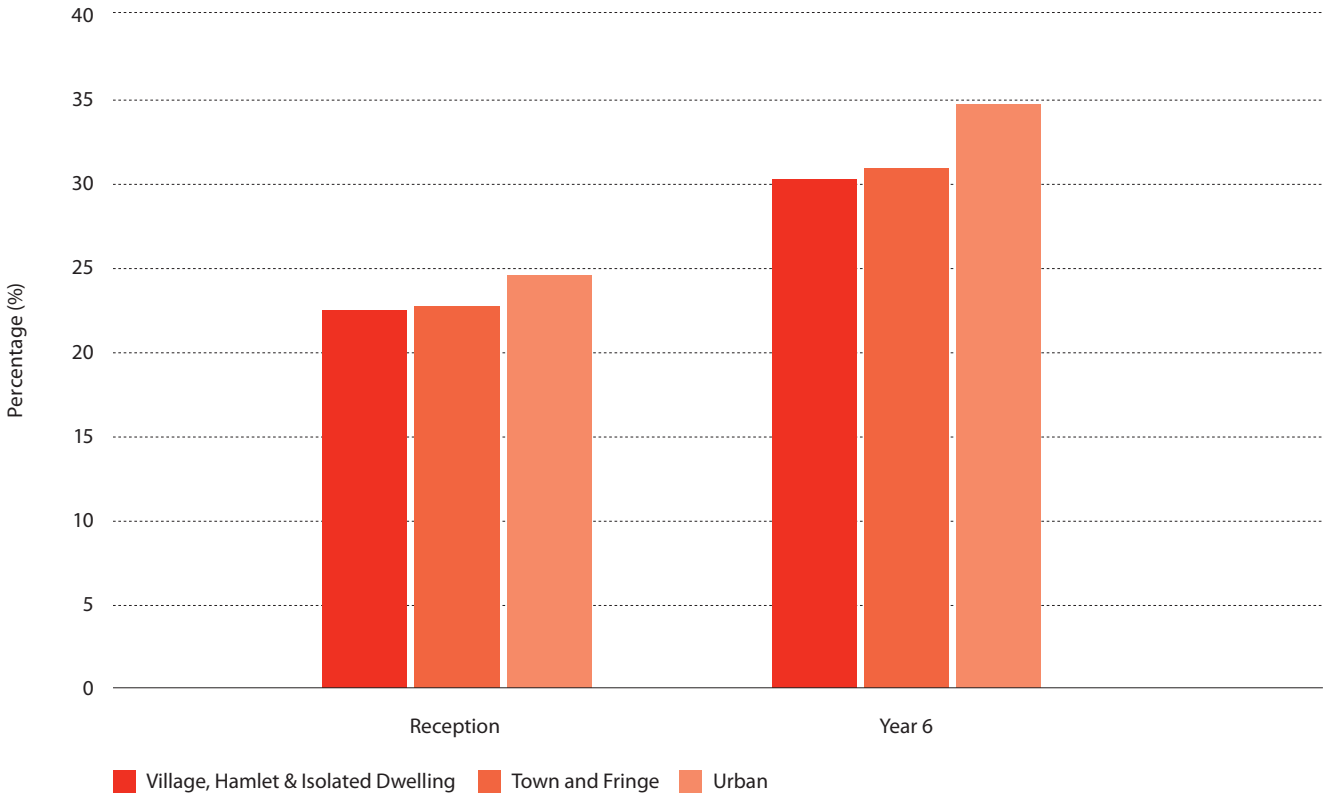


Table 2.20
Body mass index (BMI) status in children, by school year and ethnicity, England 2011/12

	Underweight		Healthy Weight		Overweight		Obese		*Bases*	
	Reception	Year 6	Reception	Year 6	Reception	Year 6	Reception	Year 6	*Reception*	*Year 6*
	%	%	%	%	%	%	%	%		
Total	**0.9**	**1.3**	**76.5**	**64.9**	**13.1**	**14.7**	**9.5**	**19.2**	***565,662***	***491,118***
Asian or Asian British	3.4	3.6	77.0	58.3	9.2	14.8	10.4	23.4	*52,673*	*43,665*
Black or Black British	1.0	1.0	68.8	55.4	14.6	16.2	15.6	27.5	*28,454*	*22,148*
Chinese	0.6	1.8	82.5	68.2	9.6	13.3	7.3	16.7	*1,953*	*1,501*
Mixed	1.0	1.3	76.8	62.7	12.3	14.8	9.9	21.2	*25,087*	*16,791*
White	0.5	1.0	77.0	66.4	13.6	14.5	8.9	18.1	*369,186*	*318,897*
Other Ethnicity	1.2	1.6	73.7	59.3	13.2	14.5	11.9	24.7	*8,937*	*7,724*
Unreported	0.9	1.2	76.9	65.6	13.0	14.8	9.1	18.1	*79,372*	*80,392*

Notes:
Reception year pupils aged 4 to 5 years, Year 6 pupils aged 10 to 11 years. ¶ BMI status classified using the UK reference curves (known as the UK90 National BMI percentile classification). ¶ Underweight is defined as a BMI less than or equal to the 2nd percentile; Healthy weight is defined as a BMI greater than the 2nd percentile but less than the 85th percentile; Overweight is defined as a BMI greater than or equal to the 85th percentile but less than the 95th percentile (i.e. overweight but not obese); Obese is defined as a BMI greater than or equal to the 95th percentile. ¶ Overweight and obese is defined as a BMI greater than or equal to the 85th percentile.

Source:
Joint Health Surveys Unit (2012). National Child Measurement Programme 2011/12. The Information Centre: Leeds.

Figure 2.20
Overweight and obese children, by school year and ethnicity, England 2011/12

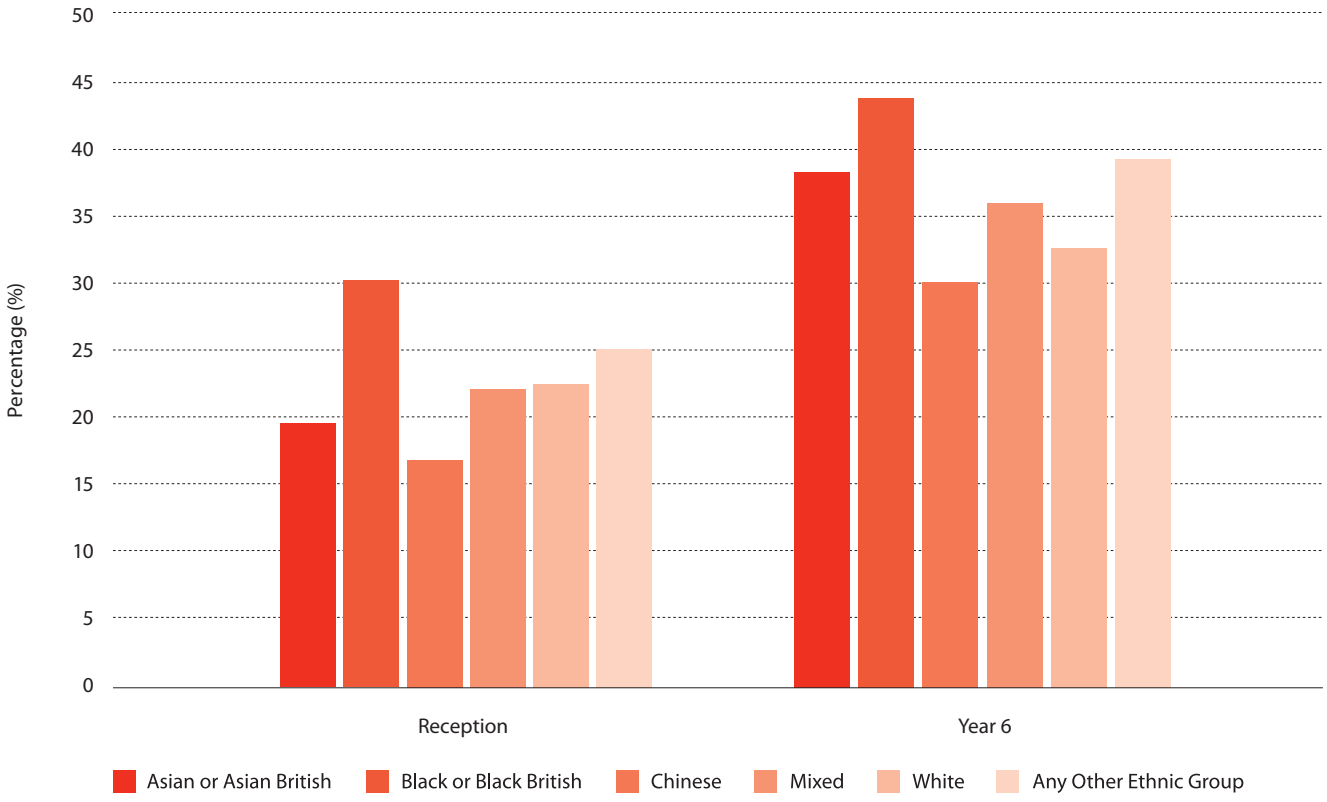


Table 2.21
Overweight and obese children, by gender and European country, latest year

Country	Year	Ages (years)	Boys	Girls
			%	%
Austria	2003	8 to 12	22.5	16.7
Belgium (regional)	2010	7	20.1	13.5
Bulgaria	2004	5 to 17	22.0	17.9
Cyprus	2003	11	30.2	28.8
Czech Republic	2005	6 to 17	24.6	16.8
Denmark	1996/7	5 to 16	14.1	15.3
England	**2009**	**5 to 17**	**21.8**	**26.1**
Estonia*	2005/06	11, 13 & 15	12.7	7.0
Finland*	2005/06	11, 13 & 15	18.7	13.0
France	2006/07	3 to 17	13.1	14.9
Germany	2008	4 to 16	22.6	17.7
Greece	2010	10 to 12	44.4	37.7
Hungary	2010	10 to 12	27.7	22.6
Iceland	1998	9	22.0	25.5
Italy	2008	7	37.2	34.7
Latvia*	2008	7	15.3	15.1
Lithuania	2008	7	16.1	16.2
Luxembourg*	2005-07	11, 13 & 15	15.0	10.0
Malta*	2005-06	11, 13 & 15	31.0	28.0
Netherlands	2010	10 to 12	16.8	15.4
Northern Ireland	**2005**	**2 to 15**	**27.0**	**25.0**
Norway	2010	10 to 12	15.1	13.8
Poland	2000	7 to 17	16.3	12.4
Portugal	2008	6 to 8	30.0	26.1
Romania*	2005-06	11, 13 & 15	14.7	8.7
Russian Federation	2005	7 to 11	17.3	16.9
Slovakia	2001	7 to 17	17.5	16.2
Slovenia	2007	6 to 17	28.7	24.4
Spain (regional)	1999-2000	5 to 17	32.9	22.9
Sweden	2000	10	17.0	19.5
Switzerland	2007	6 to 13	16.7	13.1
Turkey	2001	12 to 17	11.3	10.3

Notes:
All studies used International Obesity Taskforce (IOTF) definitions for childhood overweight and obesity, except Austria which used 90th percentile of reference population. ¶ The IOTF definitions are age and sex specific thresholds extrapolated from the adult BMI cut-offs of 25kg/m^2 and 30kg/m^2 for overweight and obesity respectively. ¶ The IOTF thresholds are used internationally, primarily for making international comparisons. ¶ *Indicates self-reported data.

Source:
International obesity taskforce (2012). Global Childhood Overweight. IOTF. http://www.iaso.org/iotf/obesity/ (Accessed January 2013).

Figure 2.21a
Overweight and obese boys, by European country, latest year

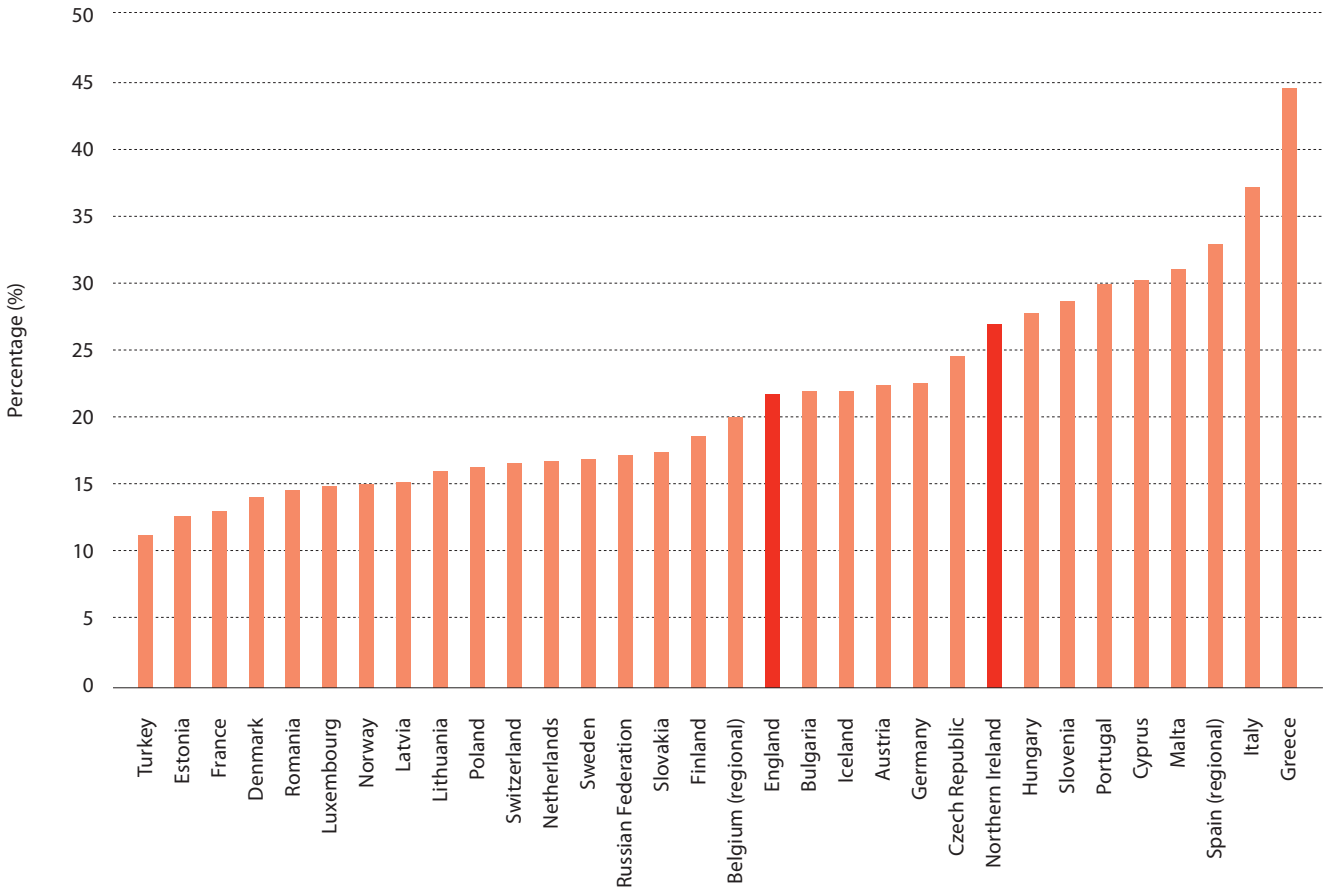
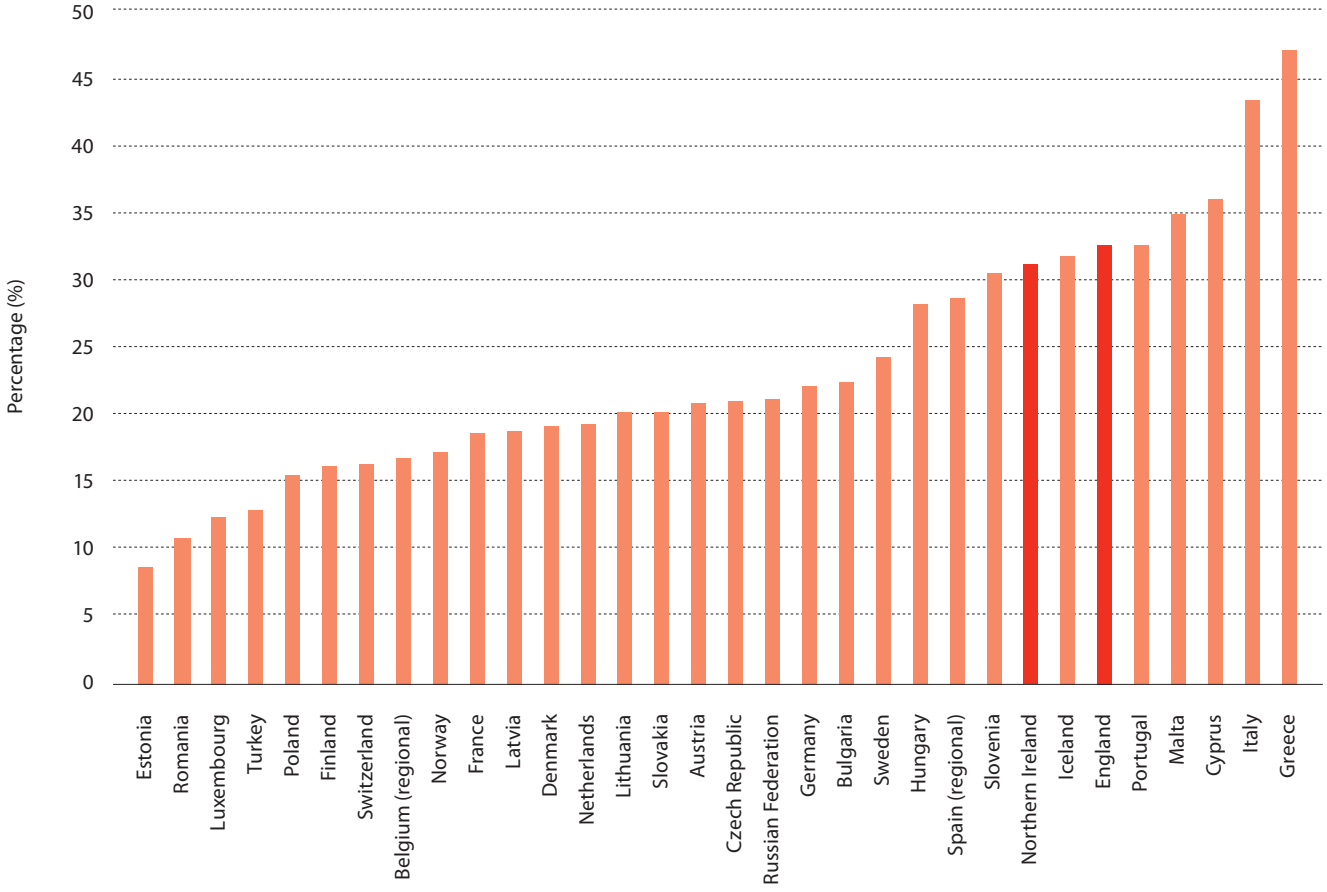


Figure 2.21b
Overweight and obese girls, by European country, latest year



BEHAVIOURAL RISK FACTORS

This section consists of four chapters of statistics focusing on the behavioural risk factors associated with cardiovascular disease. These chapters report on food and soft drink consumption (Chapter 3), physical inactivity (Chapter 4), alcohol consumption (Chapter 5) and smoking (Chapter 6). Where possible, patterns in the prevalence of each of these risk factors by age, sex, socioeconomic status, geography region and ethnicity are explored.

Summary

- Less than 1 in 5 children in the UK are meeting the recommended five or more portions of fruit and vegetables every day.
- Scotland reported a lower proportion of children drinking soft drinks than both Wales and England.
- A higher proportion of boys than girls met physical activity recommendations with this disparity increasing with age.
- The percentage of children who watched television for more than two hours on weekdays in England, Scotland and Wales was higher than for the United States of America, Ireland and many other European countries.
- By the age of 15, three quarters of girls in England and Scotland have consumed alcohol.
- The percentage of children and young people drinking regularly has decreased in England and Wales over the past two decades; in Scotland it has increased.
- One quarter of Scottish 15 year olds reported drinking more than the UK recommended limit for adults.
- In Scotland in 2010, around a third of children had smoked a cigarette.
- In Northern Ireland in 2010, 19% of 11 to 16 year olds reported having ever tried smoking tobacco, with 5% smoking every day.
- The prevalence of 11 to 15 year olds in England who have ever smoked declined from 44% in 2001 to 25% in 2011.

CHAPTER THREE —

DIET

Having an unhealthy diet is a key risk factor for a number of chronic diseases, including cardiovascular disease, cancer, hypertension and type 2 diabetes. The World Health Organization (WHO) recommends that children eat at least five portions of fruit and vegetables a day and reduce intake of saturated fat[1]. Additionally, populations and individuals are encouraged to limit intake of free sugars and salt.

Fruit and vegetable consumption

Data on fruit and vegetable consumption come from the Health Surveys of England[2], Scotland[3], and Wales[4], and the Young Persons' Behaviour and Health Attitudes Survey (YPBAS) in Northern Ireland[5]. The varying methods of diet assessment make it difficult to directly compare between countries. England and Scotland measured fruit and vegetable consumption in terms of portions per day, based on consumption the day before the interview. To make it easier for participants to recall their consumption accurately, portions were expressed in terms of every day units such as tablespoons, whole or half fruit or bowls. Northern Ireland asked post-primary pupils to report how many portions of fruit and vegetables they usually ate each day.

The survey results from 2010 and 2011 show that most children in the UK are falling short of the recommended five or more portions of fruit and vegetables per day. Twenty percent of children aged 5 to 15 years in England, 12% of children aged 5 to 15 years in Scotland and 13% of children aged 11 to 16 years in Northern Ireland reported consuming the recommended amounts (Table 3.1, Figure 3.1). In the Welsh Health Survey – which did not measure portions but rather whether fruit and vegetables were consumed daily or less than daily – 58% of boys and 63% of girls reported daily consumption of fruit. Fifty two percent of boys and 55% of girls reported daily consumption of vegetables (Table 3.2, Figure 3.2). An additional source of information about daily fruit consumption comes from the most recent Health Behaviour in School-aged Children (HBSC)[6] international study. Among the 43 HBSC countries and regions, the percentage of children reporting daily fruit consumption ranged from 9% (among 15 year old boys in Greenland) to 60% (among 11 year old girls in Denmark). Comparing the three home countries included in the survey (England, Scotland and Wales), the values ranged from 25% (among 15 year old boys in Wales) to 50% (among 11 year old girls in Scotland) (Table 3.3, Figure 3.3). In general, daily consumption decreased with age and a higher proportion of girls reported daily fruit consumption compared with boys.

Although the proportions of children meeting recommendations for fruit and vegetable consumption were higher in 2011 than they were in 2001, the number of boys meeting recommendations dropped by almost a quarter between 2009 and 2011 and by almost a tenth for girls during the same period (Table 3.4, Figure 3.4). The average number of portions of fruit and vegetables consumed also increased from 2.4 to 3.0 among boys and 2.6 to 3.3 among girls between 2001 and 2011 (Table 3.5, Figure 3.5). In Northern Ireland, the percentage of young people aged 11 to 16 years reporting to eat five or more portions of fruit and vegetables daily dropped from 15.1% in 2007 to 13.4% in 2010 (Table 3.6). In Scotland, the percentage of children meeting recommendations has not showed a consistent trend. In 2003 and 2011, 12% of boys were meeting recommendations. Thirteen percent of girls were meeting recommendations in 2003, a proportion that increased to 15% in 2009, before dropping to 11% in 2011 (Table 3.7, Figure 3.7). In Wales, the percentage of children reporting daily fruit consumption has remained fairly consistent, with 60% of all children reporting daily consumption in 2007 and 2011. Daily vegetable consumption increased from 49% in 2007 to 53% in 2011 (Table 3.8, Figure 3.8).

Foods high in fat, sugar and salt

Diets that are high in fat, sugar and salt (HFSS) can lead to energy imbalance and weight gain. Saturated fat has been linked to increased cholesterol levels and high salt has been linked to an elevated blood pressure.

Results from the National Diet and Nutrition Survey[7] show that in the UK about 13% of the energy in children's diets comes from saturated fat (Table 3.9).

A summary of eating habits among children aged 2 to 15 years in Scotland shows that the reported daily consumption of certain HFSS foods (e.g. crisps, sweets and chocolates) decreased between 2003 and 2011: consumption of crisps daily decreased from 52% to 38% and sweets and chocolates consumption decreased from 59% to 49% (Table 3.10). The Welsh Health Survey also featured consumption of specific HFSS foods. In the 2011 survey of 4 to 15 year olds, 29% of boys and 33% of girls reported to eat sweets daily and 18% of boys and girls reported to eat potato crisps daily (Table 3.11). In the 2010 HBSC survey, the percentage of children who reported drinking soft drinks daily ranged from 2% (among 11 and 13 year old girls in Finland and 11 year old girls in Sweden) to 49% (among 15 year old boys in Slovenia) (Table 3.12). Among the three home countries, Scotland had the lowest proportion of children who reported consuming soft drinks on a daily basis (18% of boys and 15% of girls aged 11 years) and England had the highest (43% of boys and 39% of girls aged 13 and 15 years) (Figure 3.12). In general, daily soft drink consumption increased with age and was more common among boys than girls.

Breakfast consumption

Several studies have shown that regular breakfast consumption is associated with higher intake of micronutrients and better diet quality in school-aged children[8]. According to the most recent HBSC study, the percentage of children 11 to 15 years of age who eat breakfast every school day in England, Scotland and Wales declines with age, with the highest rates occurring among 11 year olds and the lowest among 15 year olds (Table 3.13, Figure 3.13). In every age group, the percentage of boys reporting daily breakfast consumption was higher than that of girls. Among the three home countries reported in the HBSC study, 11 year olds in Scotland had the highest rates, with 79% of boys and 77% of girls reporting daily breakfast consumption.

1. World Health Organization (2004). Global Strategy on Diet, Physical Activity and Health. Geneva. http://www.who.int/dietphysicalactivity/strategy/eb11344/en/index.html (accessed January 2013).
2. Joint Health Surveys Unit (2012). Health Survey for England 2011. Updating of trend tables. The Information Centre: Leeds.
3. Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh.
4. Welsh Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff.
5. Northern Ireland Statistics and Research Agency (2011). Young Persons' Behaviour & Attitudes Survey 2010. Northern Ireland Statistics Research Agency (NISRA): Belfast.
6. Currie C et al. eds. (2012). Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, (Health Policy for Children and Adolescents, No. 6).
7. Department of Health (2012). National Diet Nutrition Survey: Headline results from years 1 and 2 (2008/2009-2010/2011). Department of Health: London.
8. Vereecken, C. (2009). Breakfast consumption and its socio-demographic and lifestyle correlates in schoolchildren in 41 countries participating in the HBSC study. International Journal of Public Health. 54 Suppl 2:180-90.

Table 3.1

Five or more portions of fruit and vegetables per day, children, by gender and country, England, Scotland and Northern Ireland latest year

	Year	Age (years)	Boys	Girls	All
			%	%	%
England	2010	5-15	19.3	20.2	20
Scotland	2011	5-15	12	11	12
Northern Ireland	2010	11-16			13.4
Bases					
England			*1,934*	*1,844*	*3,778*
Scotland			*1,677*	*1,544*	*3,221*
Northern Ireland					*998*

Notes:
Gender split not available for Northern Ireland.

Sources:
Joint Health Surveys Unit (2012) Health Survey for England 2010. Updating of trend tables. The Information Centre: Leeds. ¶ Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh. ¶ Northern Ireland Statistics and Research Agency (2011) Young Persons' Behaviour & Attitudes Survey 2010: Belfast.

Figure 3.1

Five or more portions of fruit and vegetables per day among children, by gender and country, England, Scotland and Northern Ireland latest year

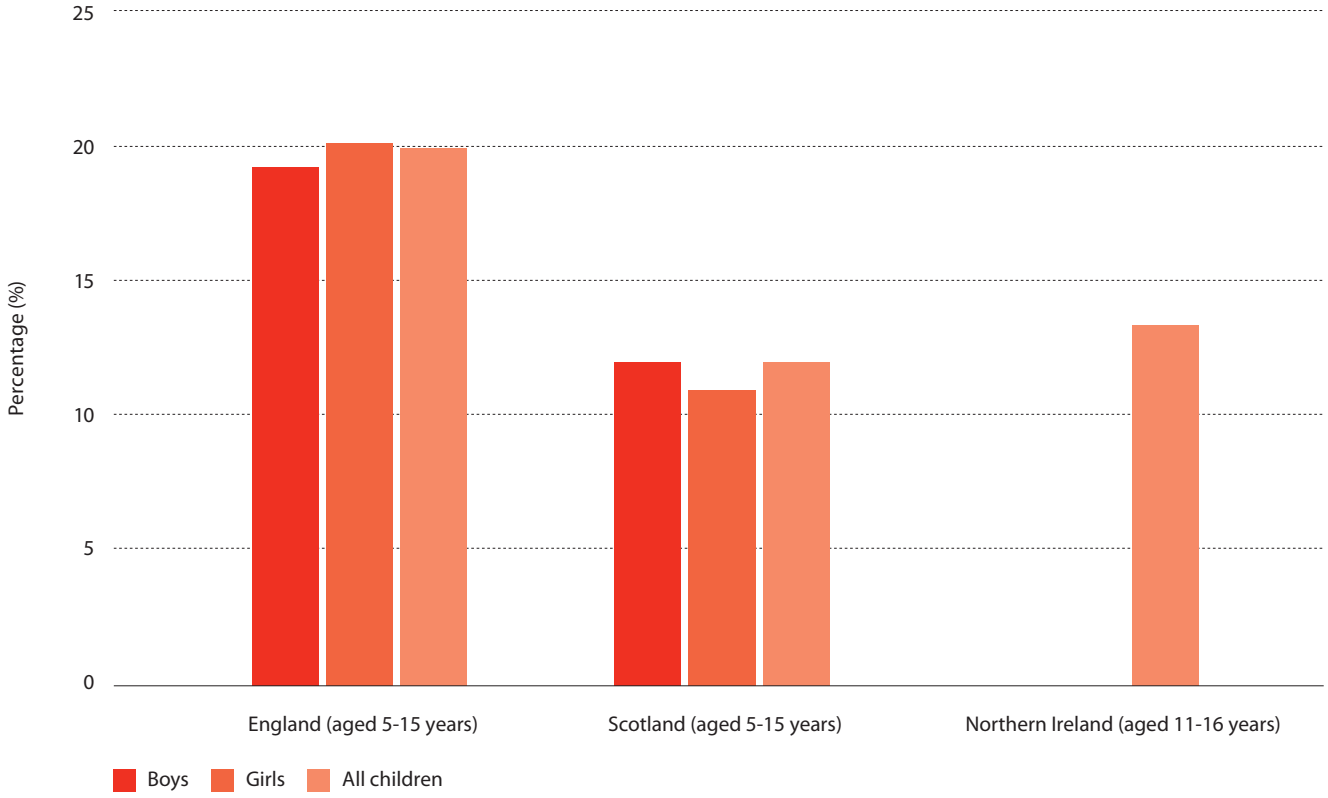


Table 3.2
Fruit and vegetable consumption in children, by gender, Wales 2011

	Boys	Girls	All
	%	%	%
Consume daily			
Fruit	58	63	60
Vegetables	52	55	53
Sweets	29	33	31
Chips	5	5	5
Potato crisps	18	18	18
Skimmed or semi-skimmed milk	64	62	63
Full fat milk	24	22	23
Low sugar soft drinks	20	17	19
Soft drinks	10	8	9
Water	64	69	66
Consume less than once a week			
Fruit	9	7	8
Vegetables	8	6	7
Sweets	5	4	5
Chips	18	20	19
Potato crisps	16	17	17
Skimmed or semi-skimmed milk	22	22	22
Full fat milk	67	68	67
Low sugar soft drinks	41	49	45
Soft drinks	57	64	61
Bases	*1,247*	*1,142*	*2,389*

Notes:
Bases vary: those shown are for the whole sample of children aged 4-15.

Source:
Welsh Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff.

Figure 3.2
Fruit and vegetable consumption in children aged 4 to 15 years, by gender, Wales 2011

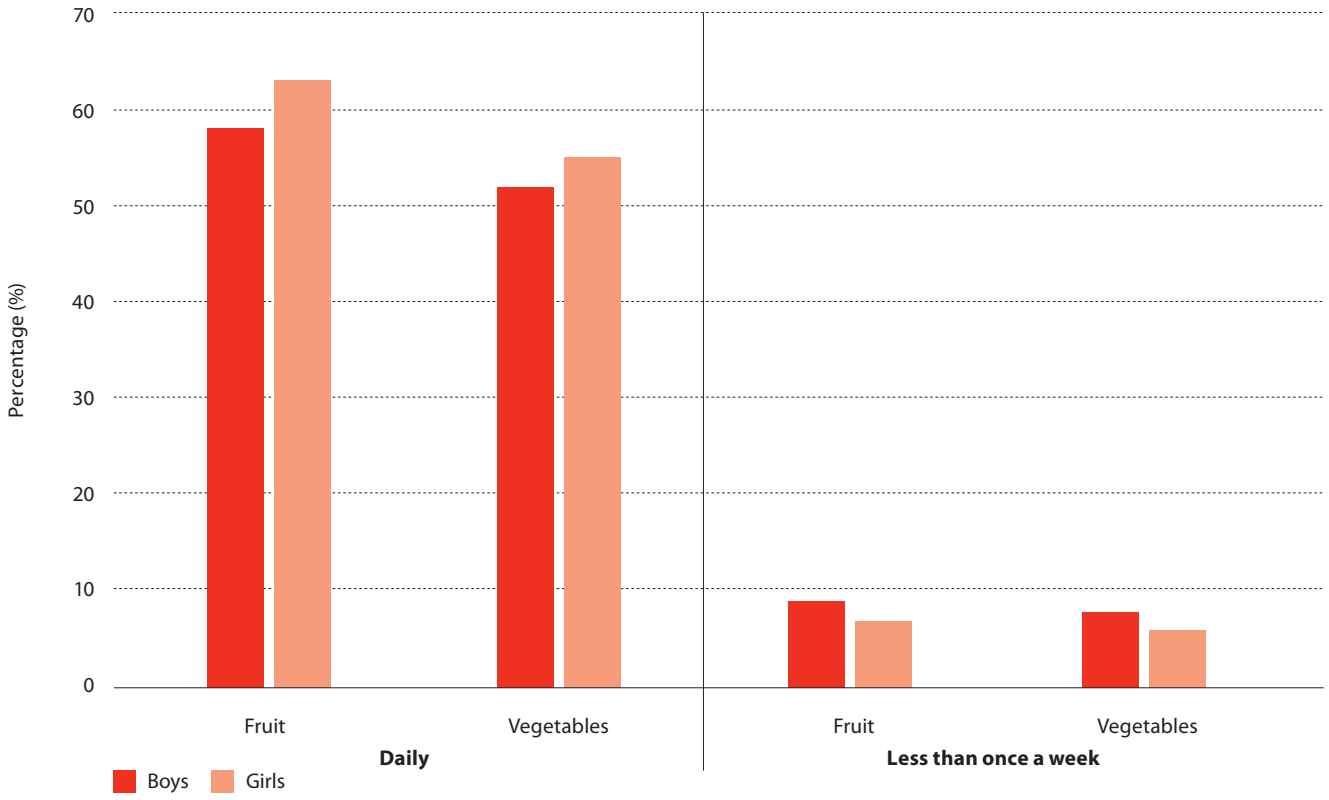


Table 3.3
Daily fruit consumption in children, by gender, age and country, HBSC 2009/10

	11 years		13 years		15 years	
	Girls	Boys	Girls	Boys	Girls	Boys
	%	%	%	%	%	%
Armenia	49	44	54	44	51	49
Austria	55	43	49	36	37	23
Belgium (Flemish)	38	31	35	26	29	17
Belgium (French)	50	49	50	49	50	43
Canada	53	43	48	41	45	37
Croatia	46	41	38	32	29	24
Czech Republic	55	42	46	39	40	29
Denmark	60	51	50	42	56	34
England	**46**	**34**	**43**	**37**	**40**	**33**
Estonia	32	29	29	25	27	17
Finland	33	25	26	20	29	15
France	44	43	43	36	38	31
Germany	48	36	43	30	40	23
Greece	41	37	37	34	28	26
Greenland	21	16	16	13	16	9
Hungary	50	36	41	33	27	25
Iceland	46	35	38	28	35	23
Ireland	46	41	38	32	35	28
Italy	51	44	43	39	39	33
Latvia	35	28	33	24	26	16
Lithuania	34	26	28	21	29	18
Luxembourg	47	41	40	34	40	32
FYRO Macedonia	52	45	48	43	44	29
Netherlands	46	38	35	27	30	20
Norway	53	40	46	36	49	29
Poland	45	33	36	25	25	20
Portugal	57	44	46	44	39	34
Romania	52	43	44	36	40	29
Russian Federation	41	35	34	33	30	27
Scotland	**50**	**42**	**35**	**31**	**34**	**26**
Slovakia	47	45	38	33	31	27
Slovenia	57	42	46	32	38	25
Spain	46	43	39	36	35	31
Sweden	41	31	27	23	26	22
Switzerland	54	46	48	38	41	30
Turkey	46	39	40	32	37	23
Ukraine	44	36	41	32	29	24
United States	55	45	45	42	36	33
Wales	**39**	**36**	**34**	**30**	**30**	**25**
HBSC average (gender)	46	38	40	33	35	27
HBSC average (total)	**42**		**36**		**31**	

Notes:
In the survey, young people were asked how often they eat fruit. Response options ranged from "never" to "more than once a day". The findings presented here are the proportions who reported eating fruit at least once a day.

Source:
Currie C et al. eds. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents, No. 6).

Figure 3.3
Daily fruit consumption in children, by gender, age and country, HBSC 2009/10

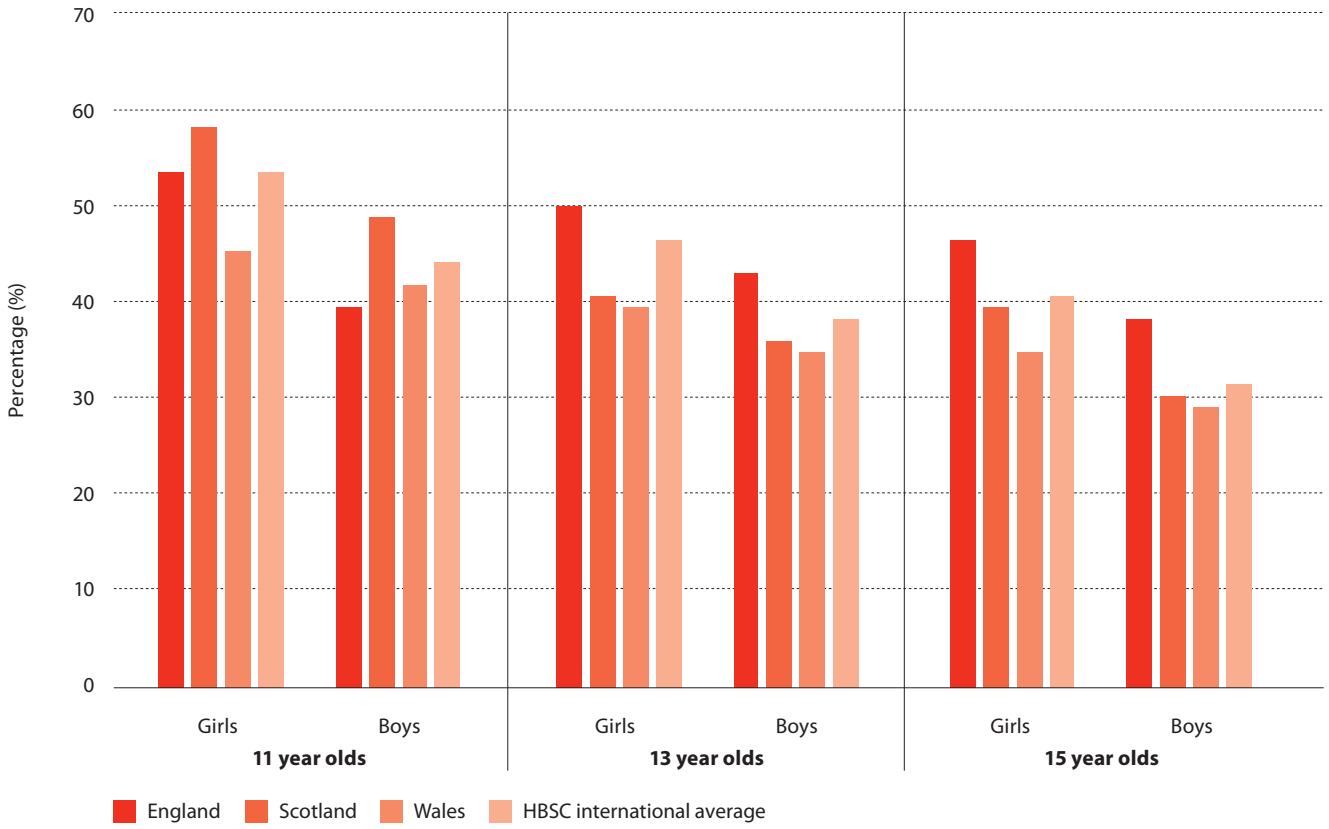


Table 3.4

Five or more portions of fruit and vegetables per day, children, by gender and age, England 2001 to 2011

	2001	2003	2005	2007	2009	2011
	%	%	%	%	%	%
Boys						
5 years	9.2	8.8	18.1	21.0	22.1	15.9
6	11.3	3.7	17.9	25.1	22.7	17.5
7	8.6	11.0	19.0	17.1	21.5	12.3
8	8.4	7.1	14.3	21.7	24.1	16.0
9	10.9	11.3	22.8	26.0	14.8	21.4
10	12.7	15.7	21.9	18.3	20.5	10.9
11	11.6	9.7	7.1	18.9	15.7	9.6
12	7.0	10.3	21.1	19.4	18.8	30.8
13	13.3	9.2	21.6	23.3	21.7	8.4
14	14.5	10.0	16.3	18.2	25.0	14.6
15	18.1	10.9	13.7	19.2	24.0	18.3
Total	**11.4**	**9.8**	**17.6**	**20.7**	**20.9**	**15.9**
Girls						
5 years	8.3	13.4	23.8	18.7	28.2	25.8
6	7.9	11.2	16.7	20.1	20.1	17.3
7	7.1	5.3	10.8	24.9	11.9	6.2
8	12.2	13.6	21.1	20.8	22.0	27.9
9	9.0	6.0	17.3	19.2	19.2	21.7
10	11.6	5.8	11.9	23.4	29.2	19.2
11	14.2	12.4	17.5	24.5	24.6	25.1
12	12.8	15.4	23.5	20.6	25.2	17.7
13	11.8	11.2	15.7	21.1	20.3	30.5
14	9.1	18.3	10.2	21.3	19.3	10.3
15	13.4	16.0	18.4	20.7	19.5	16.8
Total	**10.7**	**11.8**	**17.0**	**21.4**	**21.8**	**19.8**
Bases						
Boys						
5 years	*139*	*103*	*85*	*222*	*118*	*63*
6	*137*	*131*	*92*	*235*	*128*	*66*
7	*128*	*122*	*95*	*221*	*105*	*68*
8	*138*	*122*	*89*	*257*	*111*	*55*
9	*143*	*114*	*101*	*222*	*131*	*50*
10	*127*	*129*	*92*	*244*	*125*	*62*
11	*143*	*112*	*104*	*240*	*128*	*51*
12	*144*	*134*	*105*	*235*	*139*	*58*
13	*144*	*121*	*98*	*266*	*116*	*58*
14	*124*	*135*	*109*	*281*	*144*	*78*
15	*131*	*128*	*101*	*246*	*122*	*73*
Total	*1,498*	*1,350*	*1,070*	*2,670*	*1,367*	*682*
Girls						
5 years	*147*	*118*	*85*	*214*	*120*	*65*
6	*125*	*108*	*92*	*218*	*114*	*58*
7	*146*	*111*	*84*	*219*	*110*	*68*
8	*154*	*110*	*85*	*226*	*117*	*46*
9	*146*	*118*	*99*	*232*	*114*	*63*
10	*160*	*120*	*90*	*236*	*116*	*51*
11	*149*	*110*	*95*	*226*	*126*	*64*
12	*128*	*124*	*106*	*225*	*120*	*55*
13	*132*	*121*	*87*	*249*	*123*	*66*
14	*131*	*134*	*98*	*255*	*132*	*52*
15	*142*	*113*	*100*	*241*	*119*	*66*
Total	*1,560*	*1,285*	*1,021*	*2,541*	*1,312*	*653*

Notes:

Among children 5 to 15 years old. ¶ Data are weighted for child selection, and from 2003 non-response weighting was also applied.

Source:

Joint Health Surveys Unit (2012). Health Survey for England 2011. Updating of trend tables. The Information Centre: Leeds.

Figure 3.4

Five or more portions of fruit and vegetables per day in children aged 5 to 15 years, by gender, England 2001 to 2011

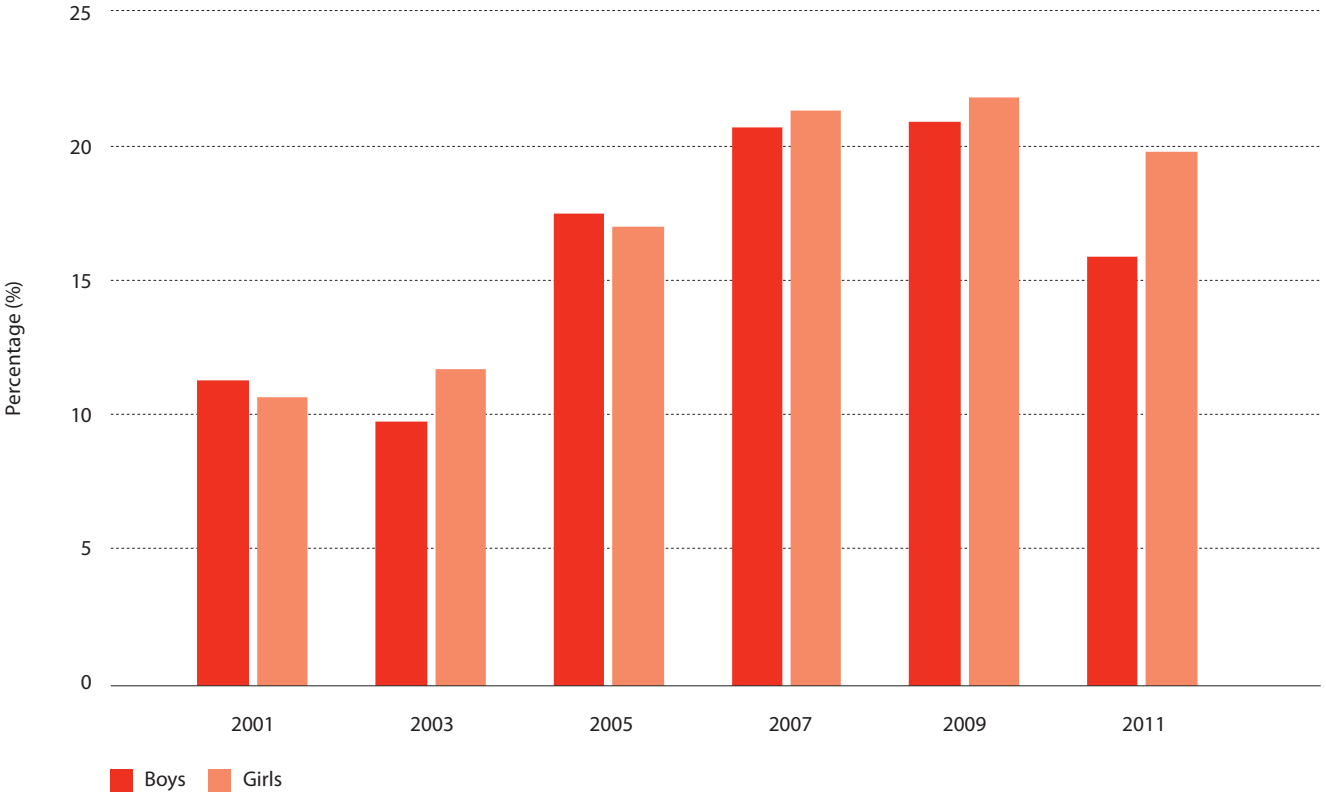


Table 3.5
Fruit and vegetable consumption in children, by gender and age, England 2001 to 2011

	Average number of portions daily					
	2001	2003	2005	2007	2009	2011
Boys						
5 years	2.4	2.7	3.0	3.3	3.4	3.3
6	2.5	2.1	3.0	3.7	3.4	3.1
7	2.1	2.4	3.7	3.0	3.3	2.9
8	2.3	2.2	2.9	3.4	3.5	3.0
9	2.3	2.6	3.1	3.5	2.9	[3.2]
10	2.4	2.6	3.2	3.2	3.2	2.9
11	2.5	2.3	2.7	3.2	3.0	[2.7]
12	2.1	2.4	3.4	3.1	3.0	3.5
13	2.3	2.3	3.6	3.4	3.4	2.5
14	2.9	2.3	2.6	3.1	3.6	3.2
15	2.7	2.3	2.8	3.0	3.2	3.1
Total	**2.4**	**2.4**	**3.1**	**3.3**	**3.3**	**3.0**
Girls						
5 years	2.4	2.5	3.4	3.3	3.9	3.6
6	2.4	2.6	3.2	3.5	3.3	3.2
7	2.2	2.3	2.9	3.4	3.3	2.8
8	2.7	2.6	3.3	3.4	3.4	3.8
9	2.4	2.2	3.1	3.3	3.2	3.2
10	2.6	2.3	2.8	3.6	3.8	3.5
11	2.8	2.5	3.1	3.5	3.4	3.6
12	2.9	2.9	3.3	3.5	3.3	3.2
13	2.9	2.6	3.1	3.5	3.3	3.5
14	2.6	2.9	2.6	3.4	3.2	2.2
15	2.8	2.7	3.1	3.2	3.4	3.2
Total	**2.6**	**2.6**	**3.1**	**3.4**	**3.4**	**3.3**
Bases						
Boys						
5 years	*139*	*103*	*85*	*222*	*118*	*63*
6	*137*	*131*	*92*	*235*	*128*	*66*
7	*128*	*122*	*95*	*221*	*105*	*68*
8	*138*	*122*	*89*	*257*	*111*	*55*
9	*143*	*114*	*101*	*222*	*131*	*50*
10	*127*	*129*	*92*	*244*	*125*	*62*
11	*143*	*112*	*104*	*240*	*128*	*51*
12	*144*	*134*	*105*	*235*	*139*	*58*
13	*144*	*121*	*98*	*266*	*116*	*58*
14	*124*	*135*	*109*	*281*	*144*	*78*
15	*131*	*128*	*101*	*246*	*122*	*73*
Total	*1,498*	*1,350*	*1,070*	*2,670*	*1,367*	*682*
Girls						
5 years	*147*	*118*	*85*	*214*	*120*	*65*
6	*125*	*108*	*92*	*218*	*114*	*58*
7	*146*	*111*	*84*	*219*	*110*	*68*
8	*154*	*110*	*85*	*226*	*117*	*46*
9	*146*	*118*	*99*	*232*	*114*	*63*
10	*160*	*120*	*90*	*236*	*116*	*51*
11	*149*	*110*	*95*	*226*	*126*	*64*
12	*128*	*124*	*106*	*225*	*120*	*55*
13	*132*	*121*	*87*	*249*	*123*	*66*
14	*131*	*134*	*98*	*255*	*132*	*52*
15	*142*	*113*	*100*	*241*	*119*	*66*
Total	*1,560*	*1,285*	*1,021*	*2,541*	*1,312*	*653*

Notes:
Among children 5 to 15 years old. ¶ Data are weighted for child selection, and from 2003 non-response weighting was also applied. ¶ Results in brackets [ ] signify a small unweighted base.

Source:
Joint Health Surveys Unit (2012). Health Survey for England 2011. Updating of trend tables. The Information Centre: Leeds.

Figure 3.5
Fruit and vegetable consumption in children aged 5 to 15 years, by gender, England 2001 to 2011

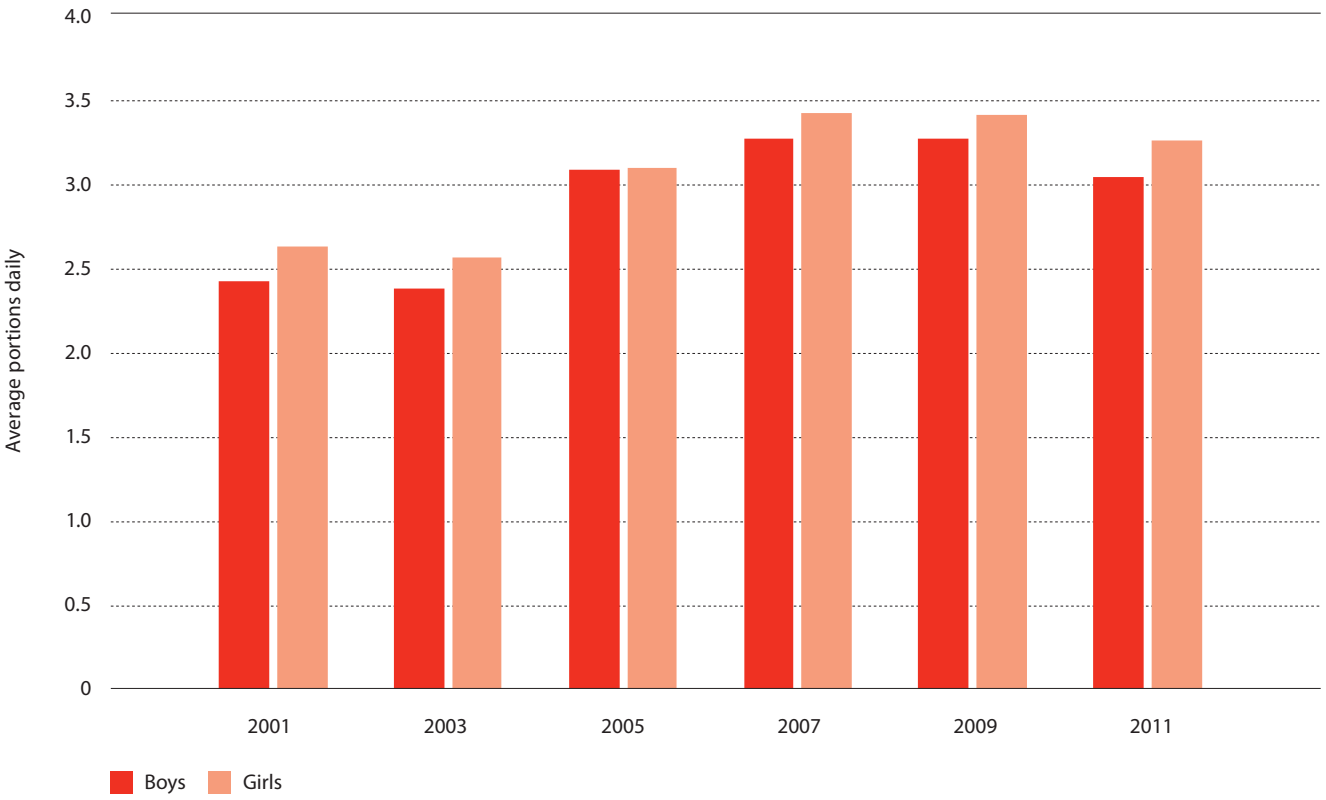


Table 3.6
Daily fruit and vegetable consumption in children, Northern Ireland 2007 & 2010

Portions daily	2007 %	*Base*	2010 %	*Base*
None	4.4	*150*	4.4	*330*
1	14.8	*505*	13.8	*1,035*
2	23.4	*799*	24.4	*1,822*
3	27.6	*940*	28.7	*2,143*
4	14.8	*503*	15.3	*1,146*
5	8.2	*279*	8.0	*594*
More than 5	6.9	*234*	5.4	*404*

Notes:
Among children 11 to 16 years old. ¶ The Young Persons' Behaviour and Attitudes Survey data has been weighted by year group, sex and religion to compensate for non-response bias.

Source:
Northern Ireland Statistics and Research Agency (2011). Young Persons' Behaviour & Attitudes Survey 2010. Northern Ireland Statistics Research Agency (NISRA): Belfast.

Table 3.7
Five or more portions of fruit and vegetables per day, children, by gender and age, Scotland 2003 to 2011

	2003	2008	2009	2010	2011
	%	%	%	%	%
Boys					
2-4 years		12	16	16	17
5-7	11	14	12	9	11
8-10	13	12	18	13	13
11-12	11	14	14	13	15
13-15	12	17	10	12	10
Total 2-15		**14**	**14**	**12**	**13**
Total 5-15	**12**	**14**	**13**	**11**	**12**
Girls					
2-4 years		11	17	14	16
5-7	11	14	19	16	7
8-10	12	11	14	12	14
11-12	11	12	21	10	9
13-15	15	19	9	10	13
Total 2-15		**13**	**16**	**13**	**12**
Total 5-15	**13**	**14**	**15**	**12**	**11**
Bases					
Boys					
2-4 years		*173*	*230*	*192*	*206*
5-7	*311*	*151*	*254*	*190*	*209*
8-10	*296*	*159*	*243*	*171*	*156*
11-12	*224*	*117*	*179*	*104*	*114*
13-15	*321*	*164*	*247*	*164*	*170*
Total 2-15		*764*	*1,153*	*821*	*855*
Total 5-15	*1,152*	*591*	*923*	*629*	*649*
Girls					
2-4 years		*155*	*263*	*176*	*214*
5-7	*326*	*135*	*211*	*147*	*162*
8-10	*298*	*150*	*237*	*133*	*176*
11-12	*237*	*135*	*158*	*104*	*110*
13-15	*309*	*177*	*231*	*148*	*171*
Total 2-15		*752*	*1,100*	*708*	*833*
Total 5-15	*1,170*	*597*	*837*	*532*	*619*

Source:
Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh.

Figure 3.7

Five or more portions of fruit and vegetables per day in children aged 5 to 15 years, by gender, Scotland 2003 to 2011

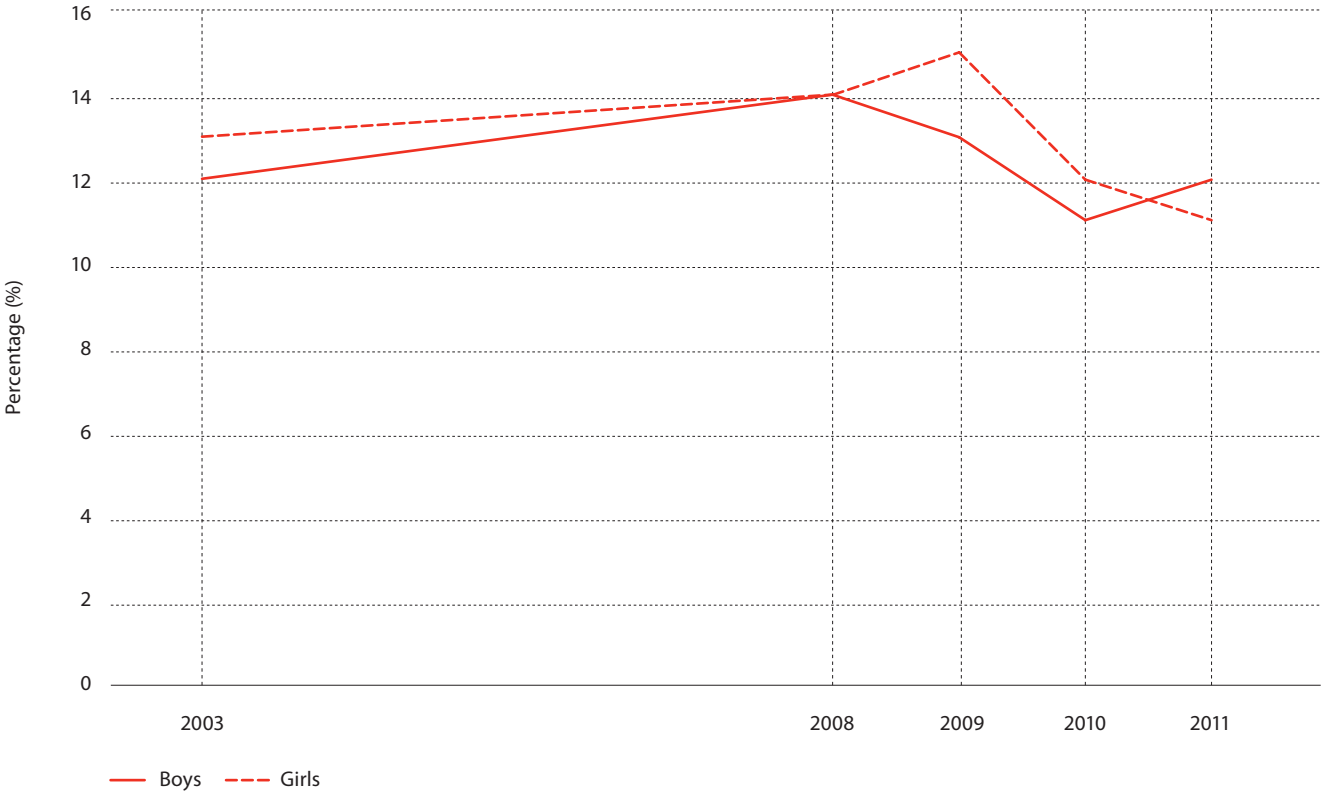


Table 3.8
Daily fruit and vegetable consumption in children, by gender, Wales 2007 to 2011

	2007	2008	2009	2010	2011
	%	%	%	%	%
Fruit					
Boys	57	55	59	57	58
Girls	63	61	61	63	63
All	60	58	60	60	60
Vegetables					
Boys	48	47	47	50	52
Girls	51	55	52	52	55
All	49	51	49	51	53
Bases					
Boys	*1,012*	*1,071*	*1,212*	*1,170*	*1,247*
Girls	*991*	*949*	*1,198*	*1,150*	*1,142*
All	*2,003*	*2,020*	*2,410*	*2,320*	*2,389*

Notes:
Bases vary: those shown are for the whole sample of children aged 4-15.

Source:
Welsh Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff.

Figure 3.8
Daily fruit and vegetable consumption in children aged 4 to 15 years, by gender, Wales 2007 to 2011

Table 3.9
Daily intake of energy and macronutrients in children, by gender and age, UK 2010/11

	Boys			Girls		
	4-10 years	11-18	4-18	4-10 years	11-18	4-18
Macronutrients						
Total Energy (kcal)	1,585.9	1,965.4	1,797.0	1,522.5	1,606.8	1,569.2
Total Energy (MJ)	6.7	8.3	7.6	6.4	6.8	6.6
Fat (g)	58.8	74.1	67.3	58.0	61.4	59.9
Fat (% total energy)	33.3	33.8	33.6	34.0	34.1	34.0
Saturated fat (g)	23.3	27.7	25.8	23.0	22.4	22.7
Saturated fat (% total energy)	13.1	12.6	12.9	13.5	12.4	12.9
Trans fatty acids (g)	1.2	1.5	1.3	1.2	1.2	1.2
Total sugars (g)	99.4	113.4	107.2	96.9	92.5	94.5
Non-milk extrinsic sugars (g)	61.7	81.8	72.9	60.8	65.2	63.3
Non-milk extrinsic sugars (% of total energy)	14.4	15.4	15.0	14.7	14.9	14.8
Non-starch polysaccharide fibre (g)	11.7	12.8	12.3	10.8	10.8	10.8
Bases:	*311*	*342*	*653*	*302*	*324*	*626*

Source:
Department of Health (2012). National Diet Nutrition Survey: Headline results from years 1 and 2 (2008/2009- 2010/2011). Department of Health: London.

Table 3.10
Eating habits in children, by gender, Scotland 2003 to 2010/11

	Boys			Girls			All 2-15 years		
	2003	2008/09	2010/11	2003	2008/09	2010/11	2003	2008/09	2010/11
	%	%	%	%	%	%	%	%	%
Food type and frequency of consumption									
Oily fish once a week or more	8	12	13	8	13	15	8	13	14
White fish once a week or more	45	51	50	39	45	47	42	48	49
Tuna fish once a week or more	29	28	25	37	36	33	33	32	29
Red meat 2+ times a week	55	59	59	52	56	57	53	57	58
Meat products 2+ times a week	48	43	43	39	32	35	43	38	39
Skimmed/semi-skimmed milk	51	55	56	50	59	60	51	57	58
Sweets or chocolates once a day or more	57	53	50	60	52	48	59	53	49
Biscuits once a day or more	51	44	44	45	41	36	48	42	40
Cakes 2+ times a week	31	33	35	28	31	34	30	32	34
Ice-cream once a week or more	58	53	53	57	54	51	58	53	52
Non-diet soft drinks once a day or more	46	39	39	43	36	38	44	38	38
Crisps once a day or more	50	36	38	53	35	39	52	36	38
Chips 2+ times a week	55	41	43	53	39	41	54	40	42
Potatoes, pasta, rice 5+ times a week	48	54	52	51	54	53	50	54	53
At least 2-3 slices of high fibre bread a day	16	35	36	13	34	32	14	35	34
High fibre cereal at least 5-6 times a week	27	28	30	22	26	27	25	27	28
Bases	*1,459*	*1,917*	*1,677*	*1,461*	*1,852*	*1,544*	*2,924*	*3,771*	*3,221*

Notes:
Among children 2 to 15 years old. ¶ The question wording about bread types changed in 2008 which resulted in a much higher prevalence of high fibre/white hybrid bread types. These figures are therefore not directly comparable. ¶ Bases vary: the smallest of the range is presented and may be marginally higher for some food items.

Source:
Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh.

Table 3.11
Eating habits in children, by gender, Wales 2011

	Boys	Girls	Total
	%	%	%
Consume daily			
Fruit	58	63	60
Vegetables	52	55	53
Sweets	29	33	31
Chips	5	5	5
Potato crisps	18	18	18
Skimmed or semi-skimmed milk	64	62	63
Full fat milk	24	22	23
Low sugar soft drinks	20	17	19
Soft drinks	10	8	9
Water	64	69	66
Consume less than once a week			
Fruit	9	7	8
Vegetables	8	6	7
Sweets	5	4	5
Chips	18	20	19
Potato crisps	16	17	17
Skimmed or semi-skimmed milk	22	22	22
Full fat milk	67	68	67
Low sugar soft drinks	41	49	45
Soft drinks	57	64	61
Base	*1,247*	*1,142*	*2,389*

Notes:
Among children 4 to 15 years old.

Source:
Welsh Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff.

Table 3.12
Daily soft drink consumption in children, by gender, age and country, HBSC 2009/10

	11 years		13 years		15 years	
	Girls	Boys	Girls	Boys	Girls	Boys
	%	%	%	%	%	%
Armenia	19	27	28	28	32	32
Austria	12	19	18	24	21	31
Belgium (Flemish)	22	29	30	36	34	46
Belgium (French)	26	24	27	30	28	36
Canada	6	9	9	15	12	17
Croatia	19	27	22	30	25	32
Czech Republic	16	19	23	27	20	28
Denmark	4	5	6	8	6	16
England	**32**	**38**	**39**	**43**	**39**	**43**
Estonia	6	9	5	8	3	7
Finland	2	5	2	7	3	7
France	17	24	27	32	26	34
Germany	13	17	18	26	19	28
Greece	4	8	7	13	10	17
Greenland	28	21	29	31	36	46
Hungary	23	24	27	34	28	36
Iceland	4	6	6	12	6	15
Ireland	15	15	17	24	19	29
Italy	15	18	17	22	18	26
Latvia	7	8	8	11	6	10
Lithuania	5	10	6	10	6	12
Luxembourg	16	20	26	35	34	47
FYRO Macedonia	22	23	30	35	36	36
Netherlands	17	22	30	36	31	45
Norway	5	8	8	10	11	18
Poland	21	28	25	35	23	31
Portugal	14	21	25	25	21	24
Romania	27	32	29	35	29	33
Russian Federation	22	26	22	28	16	24
Scotland	**15**	**18**	**18**	**25**	**21**	**32**
Slovakia	30	32	37	38	36	43
Slovenia	27	36	31	41	39	49
Spain	15	19	20	22	25	29
Sweden	2	5	5	8	6	12
Switzerland	19	23	25	30	27	37
Turkey	12	18	19	23	18	21
Ukraine	15	18	14	18	18	17
United States	25	25	31	31	31	33
Wales	**19**	**21**	**24**	**28**	**22**	**28**
HBSC average (gender)	16	19	20	25	22	28
HBSC average (total)	**18**		**23**		**25**	

Source:
Currie C et al. eds. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents).

Figure 3.12
Daily soft drink consumption in children, by gender, age and country, HBSC 2009/10

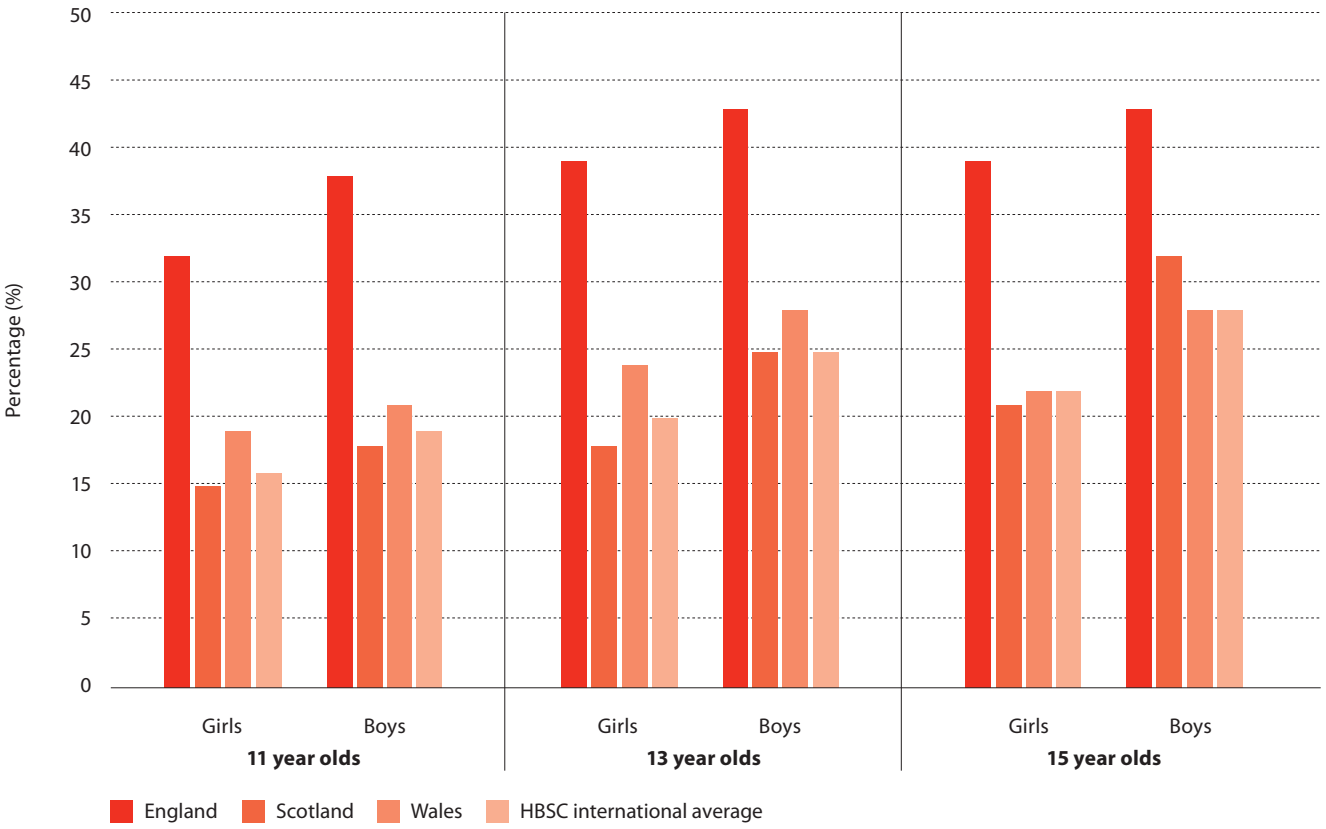


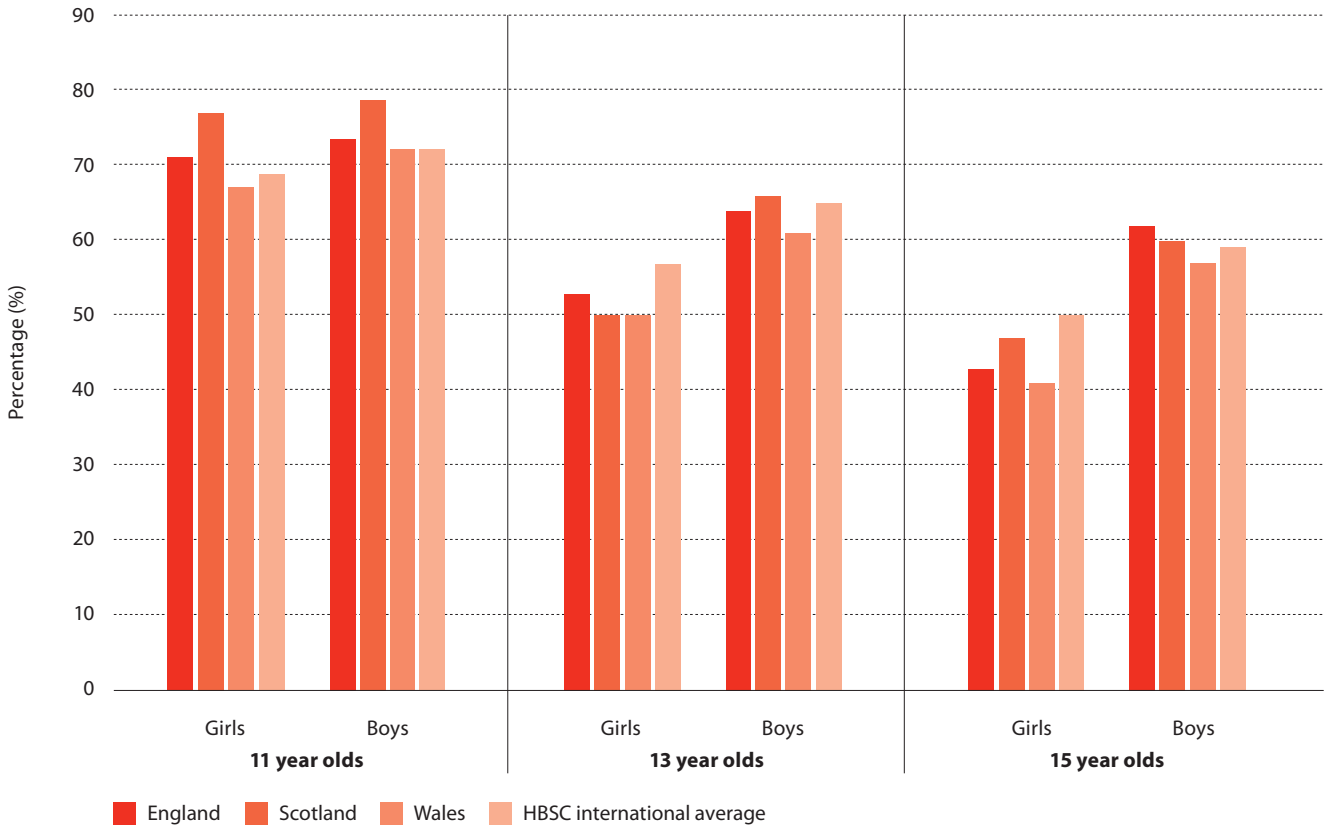
Table 3.13
Daily breakfast consumption, by gender, age and country, HBSC 2009/10

	11 years		13 years		15 years	
	Girls	Boys	Girls	Boys	Girls	Boys
	%	%	%	%	%	%
Armenia	60	65	46	55	34	49
Austria	63	65	45	59	40	48
Belgium (Flemish)	82	83	71	77	62	71
Belgium (French)	70	71	58	63	51	62
Canada	69	75	53	67	46	59
Croatia	62	64	53	58	48	55
Czech Republic	61	69	47	58	42	46
Denmark	81	82	66	75	65	72
England	**71**	**74**	**53**	**64**	**43**	**62**
Estonia	68	69	60	64	58	68
Finland	79	79	62	69	58	60
France	73	78	58	72	52	65
Germany	75	77	59	65	58	59
Greece	57	63	46	54	40	46
Greenland	65	55	61	63	53	63
Hungary	60	63	44	54	39	49
Iceland	80	82	66	74	60	69
Ireland	77	80	65	76	59	71
Italy	68	72	58	68	45	60
Latvia	70	68	59	65	53	61
Lithuania	64	65	50	61	46	56
Luxembourg	71	72	56	56	43	52
FYRO Macedonia	67	66	70	68	69	65
Netherlands	93	95	82	87	75	79
Norway	76	79	66	74	57	65
Portugal	91	91	78	88	69	82
Poland	64	63	56	63	53	61
Romania	52	54	40	48	35	42
Russian Federation	64	71	60	68	50	57
Scotland	**77**	**79**	**50**	**66**	**47**	**60**
Slovakia	60	62	47	58	43	51
Slovenia	51	55	39	44	36	37
Spain	73	77	58	67	51	65
Sweden	84	87	68	76	59	70
Switzerland	63	67	52	59	44	50
Turkey	65	69	54	60	48	59
Ukraine	71	74	65	68	56	68
United States	61	62	42	55	36	48
Wales	**67**	**72**	**50**	**61**	**41**	**57**
HBSC average (gender)	69	72	57	65	50	59
HBSC average (total)	**71**		**61**		**55**	

Notes:
Measure: Young people were asked how often they eat breakfast, defined as "more than a glass of milk or fruit juice", on school days and weekends.

Source:
Currie C et al. eds. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents, No. 6).

Figure 3.13
Daily breakfast consumption, by gender, age and country, HBSC 2009/10



CHAPTER FOUR —

PHYSICAL INACTIVITY

Physical activity enhances the health of children and young people. A growing body of literature has described its short- and long-term health benefits. A 2011 report from the four home countries' Chief Medical Officers (CMOs) cited positive associations between physical activity and numerous factors: the development of early motor skills, good bone strength, a healthy body weight, reduced incidence of metabolic risk factors, and better mental health[1]. Similarly, a sedentary lifestyle has been associated with significant health risks, including: obesity, all-cause mortality, type 2 diabetes, some types of cancer, and metabolic dysfunction[2]. The World Health Organization identifies physical inactivity as a leading risk factor for global mortality[3].

Recommended levels of physical activity

To produce the maximum benefit, physical activity needs to be regular and aerobic. This should involve the use of the major large muscle groups in a steady and rhythmic fashion so that heart rate and breathing can increase significantly. Guidelines from the CMOs emphasise for the first time the importance of physical activity for people of all ages. Those guidelines bring together different aspects of physical activity in a life course approach, which provides the flexibility to combine moderate and vigorous intensity activities and reduce sedentary behaviour. For children, the CMOs make the following recommendations:

- All children and young people should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day.
- Vigorous intensity activities, including those that strengthen muscle and bone, should be incorporated at least three days a week.
- All children and young people should minimise the amount of time spent being sedentary (sitting) for extended periods.

Prevalence

It is difficult to draw comparisons between the four home countries, due to significant methodological differences between surveys. The Health Survey for England[4] (HSE) reported on children 2 to 15 years of age, the Scottish Health Survey[5] (SHeS) and the Welsh Health Survey[6] (WHS) reported on children 4 to 15 years and the Northern Ireland Young Persons' Behaviour and Attitudes Survey (YPBAS) reported on children 11 to 16 years. The Welsh Health Survey (WHS) reported on children's physical activity inside and outside of school, while the HSE and SHeS reported physical activity outside of school only.

There is a clear difference in the levels of activity achieved by boys and girls. In Wales, 39% of boys and 30% of girls met the recommended levels of physical activity (Table 4.1). In the 2008 HSE, the percentage of boys meeting recommendations surpassed girls in almost every age group, a gap that widened at age 14 years when recommendations were met by 32% of boys and 12% of girls. Among girls in the 2008 HSE, physical activity levels generally decreased with age, with 31% of girls meeting recommendations at age five years but only 15% meeting recommendations at 15 years. There was a less consistent age pattern with boys, for whom the percentage meeting recommendations ranged from 27% (13 years of age) to 43% (2 years of age) (Figure 4.1a). In Scotland, the difference between the proportions of boys and girls meeting recommendations increased with age, with 68% of boys and 72% of girls meeting recommendations at age 2 to 4 years, and 59% of boys and 41% of girls meeting recommendations at age 13 to 15 years (Figure 4.1b). Among 11 to 16 year olds in Northern Ireland 24% of boys and 12% of girls met recommendations (Figure 4.1c)[7]. Data from Northern Ireland also show a decline in physical activity with age; participation in seven or more hours of physical activity dropped from 20% among children 12 and under to 15% among those 16 and over (Table 4.2).

International comparisons

The Health Behaviour in School-aged Children (HBSC) study[8] presented the percentage of children in 43 different countries including England, Scotland and Wales who reported at least one hour of moderate to vigorous physical activity (MVPA). The proportion meeting recommendations ranged from 5% (among 13 and 15 year old girls in Italy and 15 year old girls in France) to 43% (among 11 year old boys in Ireland) (Table 4.3). Among the home countries, England had the highest percentage of children meeting recommendations (Figure 4.3). Generally, the proportion meeting recommendations declined with age and was larger for boys than girls.

Trends in physical activity

In England, the percentage of children meeting recommendations between 2002 and 2007 has been fairly consistent, ranging from 70% to 72% for boys and from 59% to 63% for girls (Table 4.4, Figure 4.4). In Northern Ireland, the percentage meeting recommendations was 20% in 2007 and 18% in 2010 (Table 4.5). In Wales, the percentage of boys meeting recommendations reached 47% in 2009 before dropping to 39% in 2011. For girls, the proportion meeting recommendations has remained fairly consistent, ranging from 29 to 31% (Table 4.6, Figure 4.6). In Scotland, the proportion of children meeting recommendations between 2003 and 2011 ranged from 68% to 74% for boys and 56% to 63% for girls (Table 4.7, Figure 4.7). These statistics are not directly comparable between countries, due to significant differences between surveys and data collections.

School activity

Schools play an important role in the physical activity of children and young people by offering organised opportunities for physical activity and in encouraging children to be active in travelling to and from school. In England, the percentage of pupils participating in at least two hours of school sport in a typical week increased among all age groups between 2004/2005 and 2007/2008 (Table 4.8, Figure 4.8). Single sex boys' schools had a higher percentage of participation than girls' schools (Table 4.9). The percentage of children participating in at least three hours of high quality physical education (PE) and out of hours school sport increased from year 1 (5 to 6 year olds) to year 6 (10 to 11 year olds) before starting to decline at year 7 (Table 4.10, Figure 4.10). In Northern Ireland, a higher proportion of boys reported participating in more than three hours of physical education than girls (16% boys and 9% girls) (Table 4.11).

According to the HSE 2008, the number of days children walked or cycled to school increased with age and boys were more likely than girls to cycle to school (Table 4.12). Among state-funded schools in England in 2008, walking was the most popular mode of transport, particularly among primary school students (59.5%) for whom it was more common than for secondary school students (42%) (Table 4.13).

Income

In England, levels of activity varied with household income, with children in the lowest quintile reporting higher levels of physical activity than those in higher income quintiles. Boys and girls in the lowest income quintile reported a weekly average of 11.4 and 10 hours of activity respectively, while their peers in the highest income quintile reported 8.2 and 8.6 hours respectively (Table 4.14, Figure 4.14). In Scotland, however, children in the highest quintile were generally more likely to meet recommendations, with 80% of boys and 71% of girls in the highest income quintile and 76% of boys and 64% of girls in the lowest income quintile reaching the recommended amount of physical activity (Table 4.15).

Sedentary time

A growing body of research has highlighted the health consequences associated with a sedentary lifestyle and the CMOs' 2011 report 'Start active, Stay active' recommends minimising sedentary time as much as possible. In the HSE 2008, children's total daily sedentary time generally increased with age and girls were more likely to be sedentary than boys. The survey reported that 7% of boys and girls aged 5 had six or more hours of sedentary time on weekdays, compared to 30% of boys and 33% of girls at age 15 (Table 4.16, Figure 4.16).

In the HBSC 2009/10 survey, the percentage of children watching television for two or more hours on weekdays ranged from 24% (among 11 year old girls in Switzerland) to 82% (among 15 year old girls in Armenia). Children in Scotland, England and Wales were generally above the HBSC international average, with the highest proportions in the UK among boys aged 13 in England (74%) (Table 4.17, Figure 4.17).

1. UK Department of Health (2011). Start Active, Stay Active – A report on physical activity for health from the four home countries' Chief Medical Officers: London. https://www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers (accessed January 2013).
2. Sedentary Behaviour and Obesity Expert Working Group (2010). Sedentary Behaviour and Obesity: Review of the Current Scientific Evidence. Department of Health: London.
3. World Health Organization (2010). Global Recommendations on Physical Activity for Health.
4. Joint Health Surveys Unit (2010). Health Survey for England 2008: Physical activity and fitness. The Information Centre: Leeds.
5. Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh.
6. Welsh Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff.
7. Northern Ireland Statistics and Research Agency (2011). Young Persons' Behaviour & Attitudes Survey 2010. Northern Ireland Statistics Research Agency (NISRA): Belfast.
8. Currie C et al. eds. (2012). Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, (Health Policy for Children and Adolescents, No. 6).

Table 4.1
Physical activity levels in children, by gender, age and country, UK latest year

	All 2-15	2 years	3	4	5	6	7	8	9	10	11	12	13	14	15
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
ENGLAND 2008															
Boys															
Meeting recommendations	32	43	32	28	32	34	36	32	33	31	29	29	27	32	32
Some activity	44	30	39	41	43	41	47	45	46	49	50	46	52	43	42
Low activity	24	27	25	30	25	25	18	23	22	20	21	25	21	24	26
Base	*3,493*	*253*	*240*	*247*	*239*	*249*	*235*	*236*	*243*	*255*	*254*	*260*	*286*	*267*	*229*
Girls															
Meeting recommendations	24	35	33	28	31	28	28	23	25	27	16	19	20	12	15
Some activity	47	38	42	49	43	44	50	55	49	44	55	50	46	47	40
Low activity	29	27	24	23	26	27	22	23	26	29	29	31	34	41	45
Base	*3,545*	*246*	*268*	*229*	*225*	*236*	*254*	*231*	*248*	*296*	*291*	*240*	*259*	*278*	*244*

	All 11-18	11-12 years	13	14	15	16-18
	%	%	%	%	%	%
NORTHERN IRELAND 2010						
All children						
Meeting recommendations	18	20	19	19	17	15
Some activity	33	29	35	34	32	35
Low activity	49	50	47	47	50	50
Base	*6,537*	*1,589*	*1,391*	*1,266*	*1,239*	*1,052*
Boys						
Meeting recommendations	24					
Some activity	36					
Low activity	41					
Base	*3,250*					
Girls						
Meeting recommendations	12					
Some activity	30					
Low activity	59					
Base	*3,285*					

	All 2-15	2-4 years	5-7	8-10	11-12	13-15
	%	%	%	%	%	%
SCOTLAND 2011						
Boys						
Meeting recommendations	69	68	74	73	71	59
Base	*841*	*201*	*208*	*154*	*112*	*166*
Girls						
Meeting recommendations	62	72	67	72	56	41
Base	*826*	*213*	*160*	*175*	*110*	*168*

	4-15 years
	%
WALES 2011	
Boys	
Meeting recommendations	39
Base	*1,247*
Girls	
Meeting recommendations	30
Base	*1,142*

Notes:
Meets recommendations: 60 minutes or more on all 7 days of the week; Some activity: 30 to 59 minutes on all 7 days of the week; All data are self-reported. ¶ The Health Survey for England and Scottish Health Survey did not include physical activity within school. ¶ The Welsh Health Survey and Northern Ireland's Young Persons' Behaviour and Attitudes Survey included physical activity within school. ¶ Northern Ireland's Young People and Sport survey asked young people if, and for how many hours in total they had exercised or played actively to the extent that made them out of breath or hot and sweaty during the 7 days prior to the survey. Those reporting 'more than or about 7 hours' were classified as 'meeting recommendations.' Those reporting 'about 4, 5, or 6 hours' were classified as getting 'some activity.' Those reporting 'about 1/2, 1, 2 or 3 hours were classified as 'low activity.'

Source:
Joint Health Surveys Unit (2010). Health Survey for England 2008: Physical activity and fitness. The Information Centre: Leeds. ¶ Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh. ¶ Welsh Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff. ¶ Northern Ireland Department of Culture, Arts and Leisure (2012). Young People and Sport 2010. Findings from the 2010 Young Persons' Behaviour and Attitudes Survey: Belfast.

Figure 4.1a
Meeting physical activity recommendations, children, by gender and age, England 2008

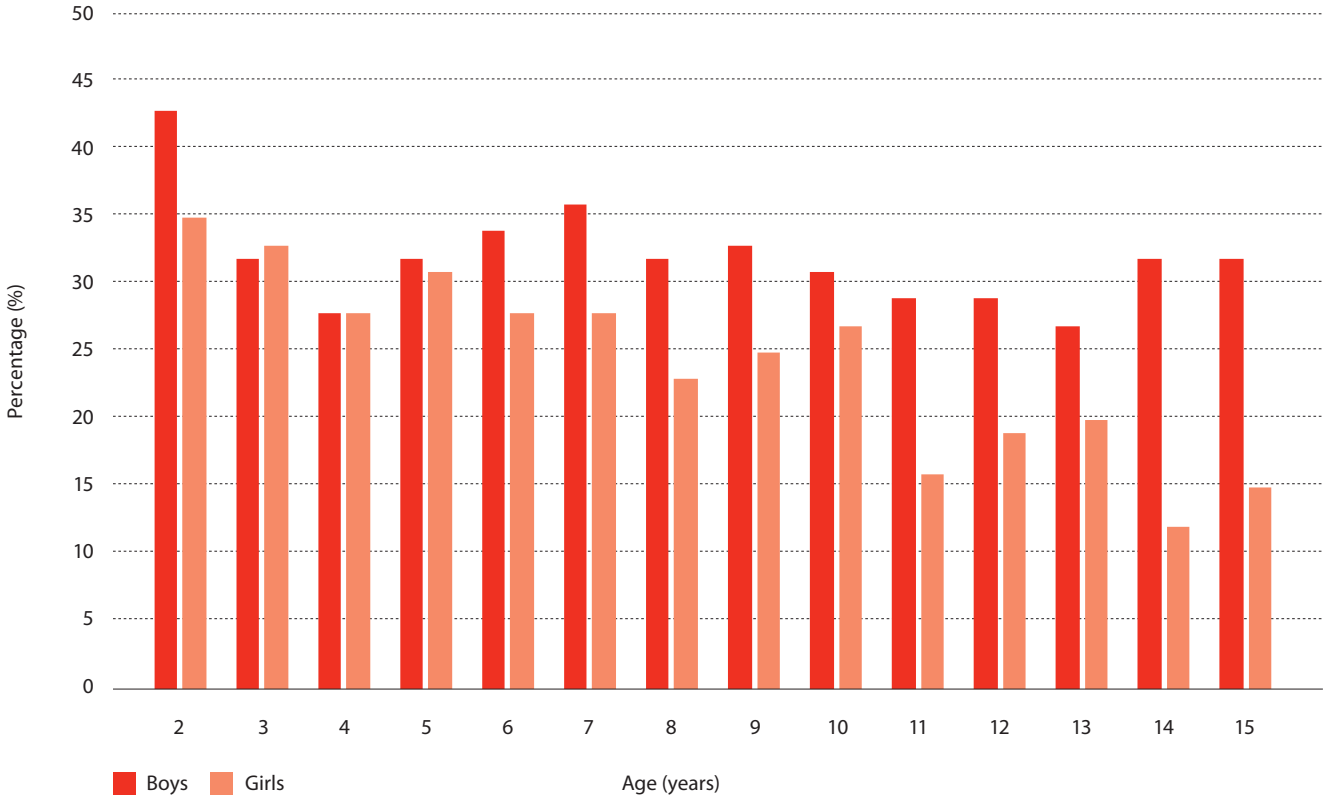


Figure 4.1b
Meeting physical activity recommendations, children, by gender and age, Scotland 2011

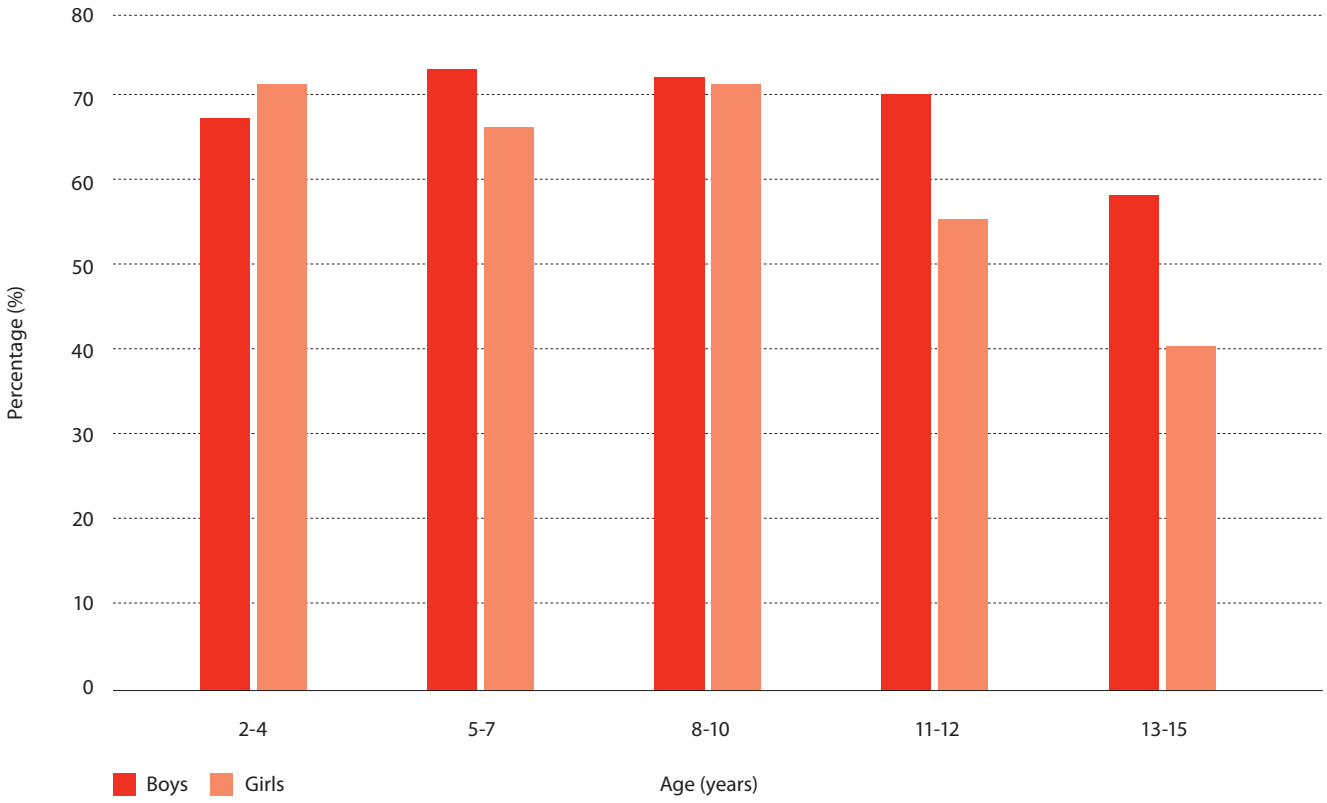


Figure 4.1c

Meeting physical activity recommendations, children, by gender and age, Northern Ireland 2010

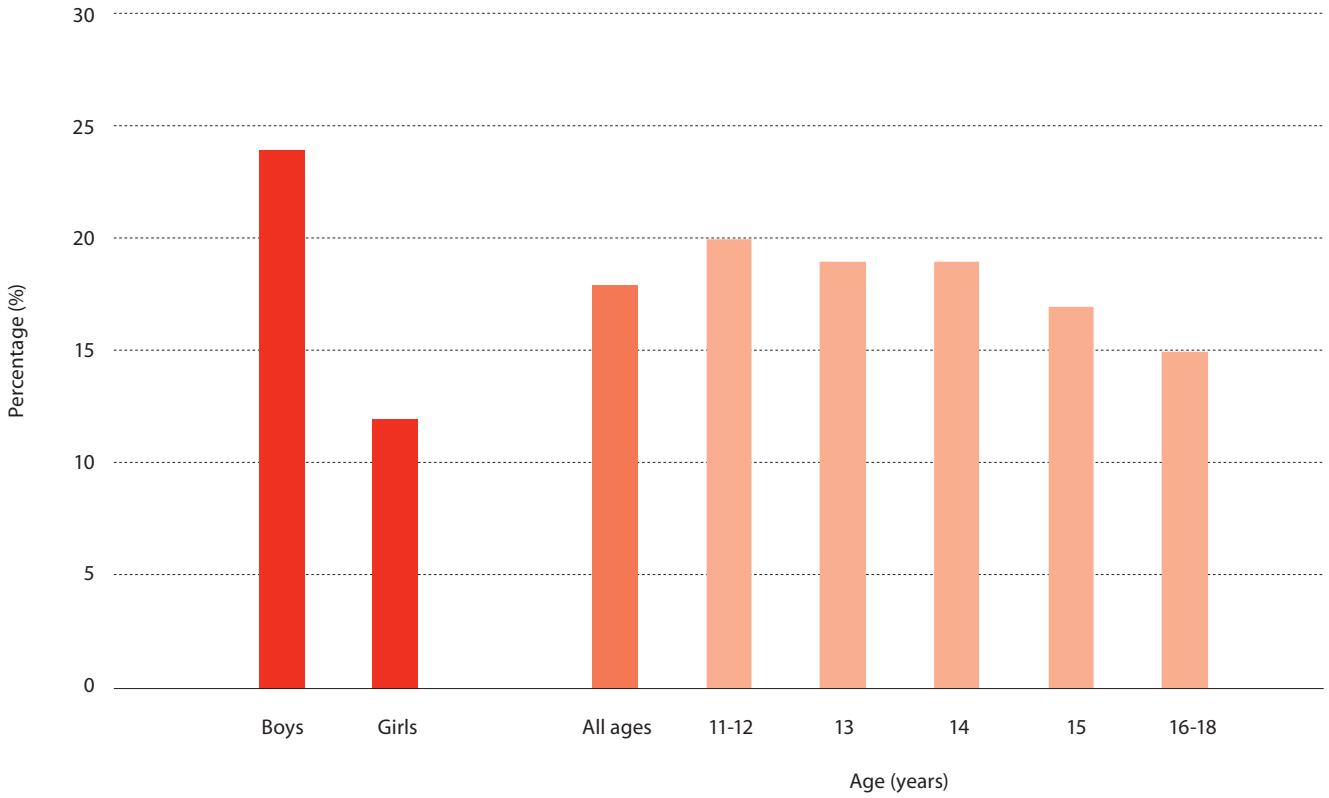


Table 4.2
Weekly exercise in children, Northern Ireland 2010

	Hours										Base
	> 7	7	6	5	4	3	2	1	1/2	None	
	%	%	%	%	%	%	%	%	%	%	
All	**12**	**6**	**9**	**11**	**13**	**15**	**16**	**12**	**5**	**1**	***6,537***
Boys	17	7	11	12	13	13	14	9	4	1	*3,250*
Girls	8	4	7	10	13	17	19	16	6	1	*3,285*
12 years and under	14	6	7	10	12	14	17	13	5	1	*1,589*
13	12	7	10	13	12	14	16	11	5	1	*1,391*
14	13	6	9	12	13	15	14	13	4	1	*1,266*
15	12	5	7	11	14	16	17	11	5	1	*1,239*
16 to 18	11	4	10	11	14	15	17	12	5	1	*1,052*
Free school meals	13	4	7	9	10	14	19	14	8	2	*1,183*
No free school meals	12	6	9	12	14	15	16	12	4	1	*5,341*
Long-standing illness or disability	12	6	8	11	13	14	18	12	6	0	*706*
No long-standing illness or disability	12	6	9	11	13	15	16	12	5	1	*5,728*

Notes:
Among children 11 to 16 years old. ¶ Children were asked to identify 'hours in total spent exercising so much that you got out of breath or hot and sweaty in the previous 7 days.' ¶ Results presented in the report are based on data weighted by year group, gender and religion to reflect the composition of the Northern Ireland post-primary population.

Source:
Northern Ireland Department of Culture, Arts and Leisure (2012). Young People and Sport 2010. Findings from the 2010 Young Persons' Behaviour and Attitudes Survey: Belfast.

Table 4.3
At least one hour of moderate-to-vigorous physical activity (MVPA) daily, children, by gender, age and country, HBSC 2009/10

	11 years		13 years		15 years	
	Girls	Boys	Girls	Boys	Girls	Boys
	%	%	%	%	%	%
Armenia	21	34	17	27	14	29
Austria	30	40	17	34	9	20
Belgium (Flemish)	15	25	11	18	10	17
Belgium (French)	18	30	12	20	9	15
Canada	21	31	16	30	14	25
Croatia	19	31	15	31	8	22
Czech Republic	23	28	19	30	14	25
Denmark	10	16	10	12	8	14
England	**20**	**33**	**15**	**27**	**12**	**25**
Estonia	16	19	11	17	9	13
Finland	25	38	17	32	10	17
France	9	21	6	17	5	14
Germany	20	25	14	21	9	13
Greece	12	21	8	21	5	18
Greenland	27	30	20	31	20	25
Hungary	22	30	11	25	9	21
Iceland	17	25	11	20	9	15
Ireland	31	43	20	36	12	28
Italy	7	10	5	10	5	12
Latvia	18	26	18	25	13	22
Lithuania	17	23	12	18	11	18
Luxembourg	18	32	16	32	13	24
FYRO Macedonia	28	32	15	28	13	22
Netherlands	19	24	15	24	13	19
Norway	17	27	6	18	9	12
Poland	23	31	14	22	10	23
Portugal	14	23	7	19	6	14
Romania	20	32	13	28	7	16
Russian Federation	11	17	9	18	7	13
Scotland	**16**	**24**	**10**	**19**	**8**	**13**
Slovakia	22	30	15	30	12	27
Slovenia	20	31	15	25	10	20
Spain	26	41	15	27	8	25
Sweden	17	19	11	14	9	13
Switzerland	11	20	8	16	6	12
Turkey	19	27	12	23	9	18
Ukraine	25	34	17	29	9	24
United States	24	30	19	34	17	33
Wales	**19**	**29**	**13**	**23**	**9**	**21**
HBSC average (gender)	19	28	13	24	10	19
HBSC average (total)	**23**		**19**		**15**	

Source:
Currie C et al. eds. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents, No. 6)

Figure 4.3

At least one hour of moderate-to-vigorous physical activity (MVPA) daily, children, by gender, age and country, HBSC 2009/10

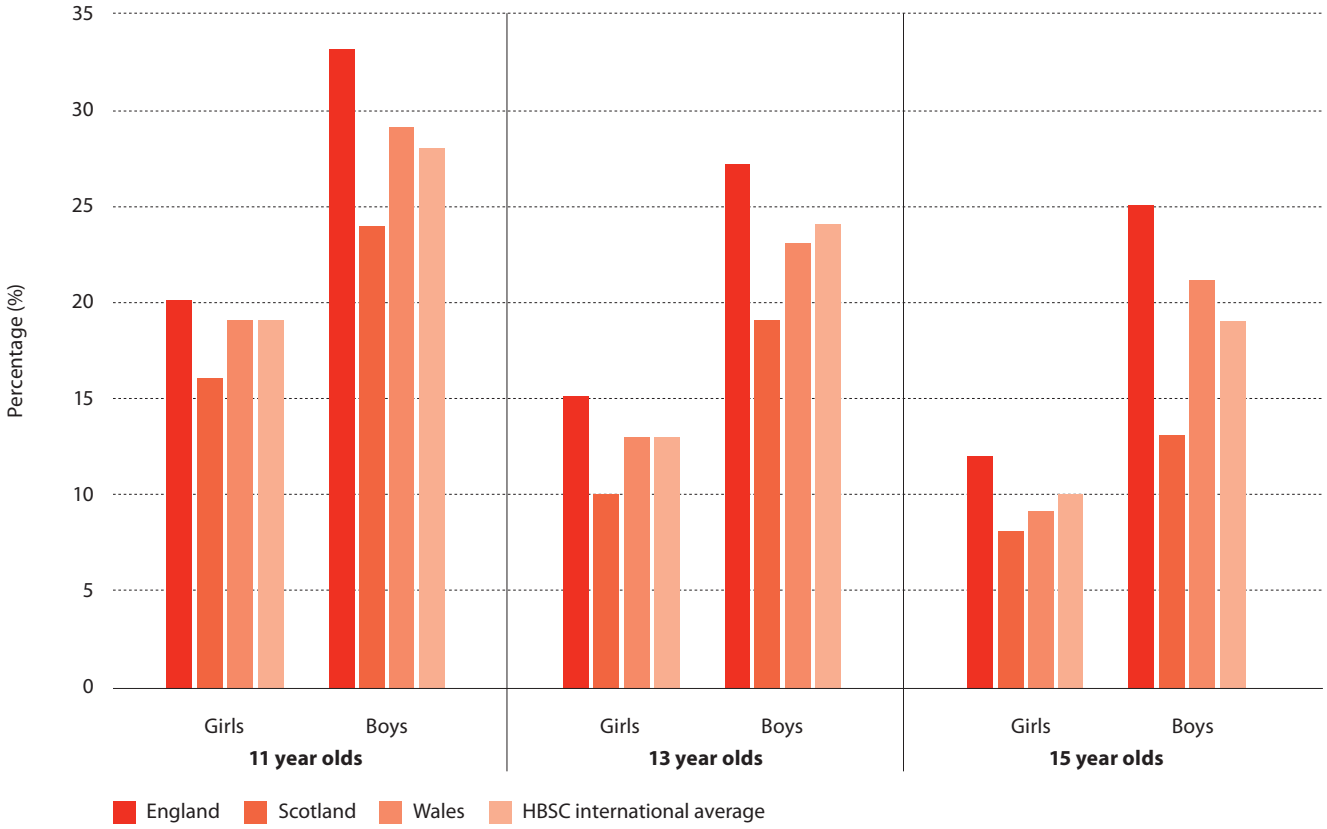


Table 4.4
At least one hour of moderate physical activity daily, children, by gender and age, England 2002 to 2007

Age (years)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	2-15
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Boys															
2002	67	76	73	68	70	71	68	69	72	77	72	69	62	69	70
2006	69	69	70	69	64	72	71	76	69	73	70	72	72	68	70
2007	74	75	67	67	75	70	74	73	70	77	71	71	75	66	72
Girls															
2002	65	79	65	66	69	65	62	62	66	64	51	50	44	50	61
2006	69	68	68	71	60	53	67	61	60	56	58	57	45	45	59
2007	68	70	71	66	62	70	73	72	64	65	58	53	52	47	63
Bases (Boys)															
2002	*276*	*260*	*281*	*281*	*298*	*330*	*317*	*291*	*329*	*319*	*296*	*286*	*303*	*273*	*4,139*
2006	*206*	*218*	*191*	*233*	*206*	*244*	*191*	*271*	*244*	*227*	*246*	*244*	*263*	*237*	*3,219*
2007	*169*	*183*	*162*	*173*	*181*	*170*	*205*	*172*	*186*	*179*	*192*	*204*	*215*	*197*	*2,912*
Bases (Girls)															
2002	*276*	*272*	*256*	*296*	*292*	*296*	*300*	*297*	*279*	*306*	*298*	*293*	*276*	*260*	*3,996*
2006	*171*	*224*	*199*	*203*	*198*	*229*	*222*	*215*	*212*	*232*	*224*	*237*	*234*	*237*	*3,040*
2007	*178*	*181*	*146*	*160*	*178*	*165*	*181*	*183*	*194*	*170*	*175*	*202*	*207*	*176*	*2,767*

Notes:
Physical activity was also covered in the HSE 2008, but using a completely revised module of questions. The data are therefore not comparable with the data shown in this table. ¶ Data for 2002 were weighted to adjust for the probability of selection, and from 2003 non-response weighting was also applied. ¶ Data for 2007 are based only on the survey's physical activity boost sample, since children in the core sample were not asked physical activity questions. ¶ The survey does not include physical activity within school.

Source:
Joint Health Surveys Unit (2010). Health Survey for England 2008: Physical activity and fitness. The Information Centre: Leeds.

Figure 4.4
At least one hour of moderate physical activity daily in children aged 2 to 15 years, by gender, England 2002 to 2007

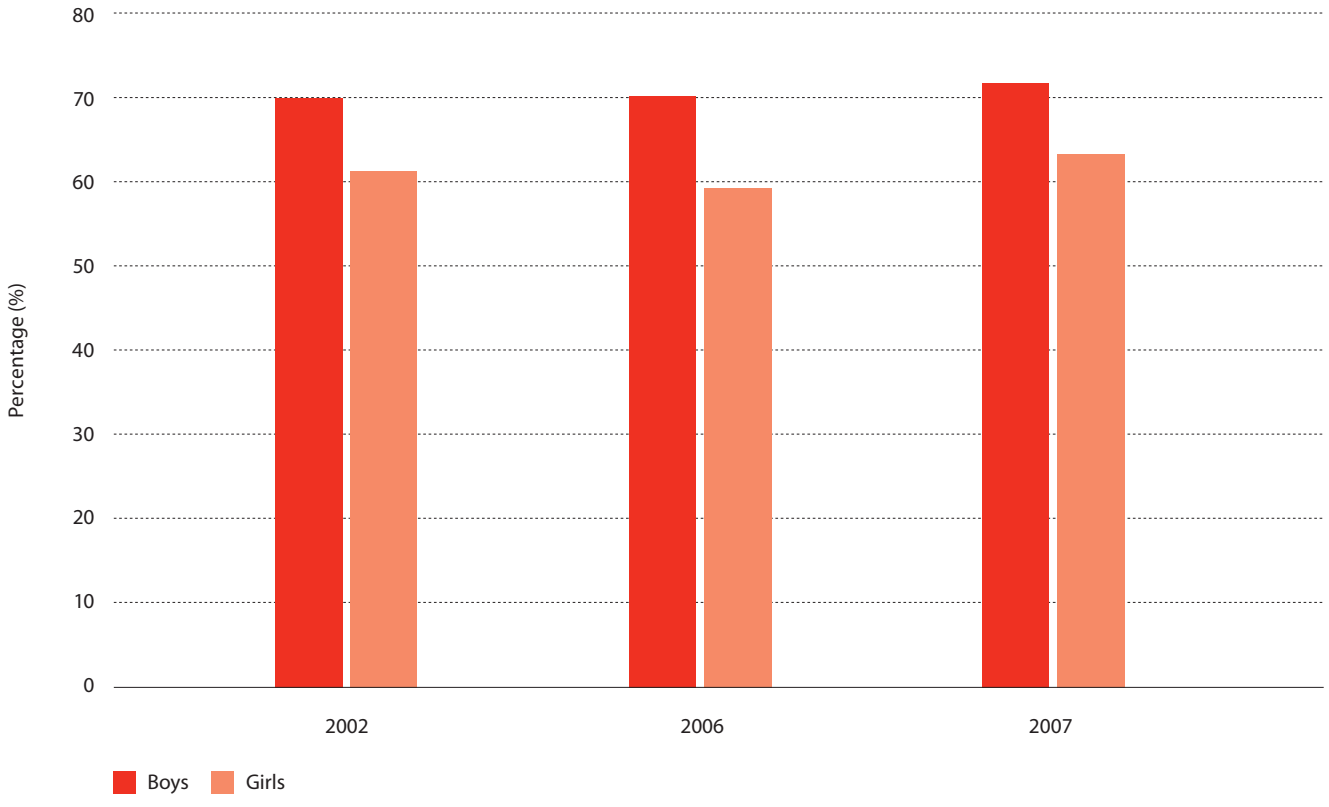


Table 4.5
Meeting physical activity recommendations, children, time trends by gender and country, UK

	2002	2003	2006	2007	2008	2009	2010	2011
	%	%	%	%	%	%	%	%
ENGLAND								
Boys	70		70	72				
Girls	61		59	63				
All	**66**		**65**	**68**				
NORTHERN IRELAND								
All				**20**			**18**	
SCOTLAND								
Boys		74			72	69	68	69
Girls		63			56	58	62	62
All		**69**			**64**	**64**	**65**	**65**
WALES								
Boys				42	41	47	40	39
Girls				30	30	29	31	30
All				**37**	**35**	**38**	**36**	**35**
Bases								
England								
Boys	*4,139*		*3,219*	*2,912*				
Girls	*3,996*		*3,040*	*2,767*				
All	*8,136*		*6,258*	*5,679*				
Northern Ireland								
				566			*1,182*	
Scotland								
Boys		*1,428*			*750*	*1,142*	*811*	*841*
Girls		*1,444*			*737*	*1,085*	*694*	*826*
All		*2,872*			*1,487*	*2,227*	*1,505*	*1,667*
Wales								
Boys				*1,012*	*1,071*	*1,212*	*1,170*	*1,247*
Girls				*991*	*949*	*1,198*	*1,150*	*1,142*
All				*2,003*	*2,020*	*2,410*	*2,320*	*2,389*

Notes:
Age ranges are as follows: England (2 to 15 years), Scotland (2 to 15 years), Wales (4 to 15 years), Northern Ireland (11 to 16 years). ¶ Physical activity was also covered in the Health Survey England 2008, but using a completely revised module of questions. The data are therefore not comparable with the data shown in this table. ¶ Due to methodological differences in the surveys, comparisons between countries should be made with caution. ¶ Bases for Scotland and Wales are unweighted. HSE data for 2002 and 2007 were weighted. Data for 2002 were weighted to adjust for the probability of selection, and from 2003 non-response weighting was also applied. ¶ Data for 2007 are based only on the boost sample, since children in the core sample were not asked physical activity questions. ¶ Health Survey for England and Scottish Health Survey do not include physical activity within school. Welsh Health Survey includes physical activity within school.

Source:
Joint Health Surveys Unit (2010). Health Survey for England 2008: Physical activity and fitness. The Information Centre: Leeds. ¶ Northern Ireland's Central Survey Unit. Young Persons' Behaviour and Attitudes Survey, 2007 and 2010: Belfast. ¶ Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh. ¶ Welsh Assembly Government (2012). Welsh Health Surveys 2007-2011. Welsh Assembly: Cardiff.

Table 4.6
At least one hour of moderate physical activity daily, children, by gender, Wales 2007 to 2011

	2007	2008	2009	2010	2011
	%	%	%	%	%
Boys	42	41	47	40	39
Girls	30	30	29	31	30
Bases					
Boys	*1,012*	*1,071*	*1,212*	*1,170*	*1,247*
Girls	*991*	*949*	*1,198*	*1,150*	*1,142*

Notes:
Children aged 4 to 15 years. ¶ The survey asked how much exercise children had undertaken on each day in the last week. In the question, exercise referred to physical activity that left the child feeling warm or slightly out of breath. ¶ Respondents were asked to include exercise done at school and outside of school.

Source:
Welsh Government (2012). Welsh Health Survey 2011. Welsh Assembly: Cardiff.

Figure 4.6
At least one hour of moderate physical activity daily in children aged 4 to 15 years, by gender, Wales 2007 to 2011

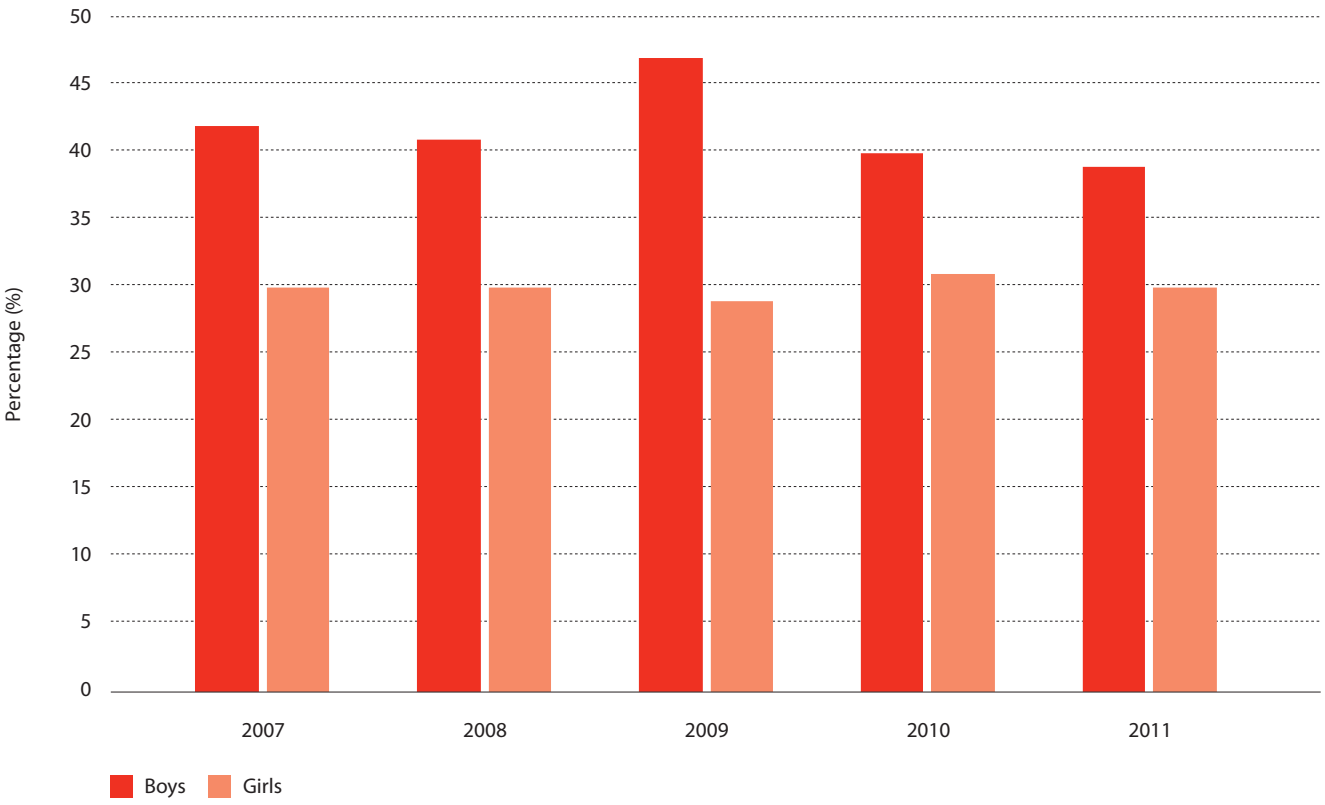


Table 4.7
At least one hour of moderate physical activity daily, children, by gender and age, Scotland 1998 to 2011

	1998	2003	2008	2009	2010	2011
	%	%	%	%	%	%
Boys						
2-4 years	66	77	76	67	70	68
5-7	77	75	74	67	65	74
8-10	77	77	76	77	76	73
11-12	70	78	73	74	60	71
13-15	67	68	62	61	65	59
2-15	**72**	**74**	**72**	**69**	**68**	**69**
Girls						
2-4 years	69	70	64	68	68	72
5-7	68	75	67	66	63	67
8-10	64	75	60	72	75	72
11-12	57	57	57	53	70	56
13-15	36	41	33	31	36	41
2-15	**59**	**63**	**56**	**58**	**62**	**62**
Base (Boys)						
2-4 years	*419*	*298*	*170*	*227*	*188*	*201*
5-7	*422*	*308*	*148*	*251*	*190*	*208*
8-10	*420*	*289*	*159*	*241*	*170*	*154*
11-12	*286*	*220*	*114*	*178*	*104*	*112*
13-15	*425*	*313*	*159*	*245*	*159*	*166*
2-15	*1,972*	*1,428*	*750*	*1,142*	*811*	*841*
Base (Girls)						
2-4 years	*395*	*289*	*151*	*258*	*174*	*213*
5-7	*390*	*321*	*135*	*210*	*143*	*160*
8-10	*410*	*297*	*147*	*233*	*132*	*175*
11-12	*261*	*233*	*133*	*155*	*100*	*110*
13-15	*425*	*304*	*171*	*229*	*145*	*168*
2-15	*1,881*	*1,444*	*737*	*1,085*	*694*	*826*

Notes:
Does not include in-school activities.

Source:
Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh.

Figure 4.7

At least one hour of moderate physical activity daily in children aged 2 to 15 years, by gender, Scotland 1998 to 2011

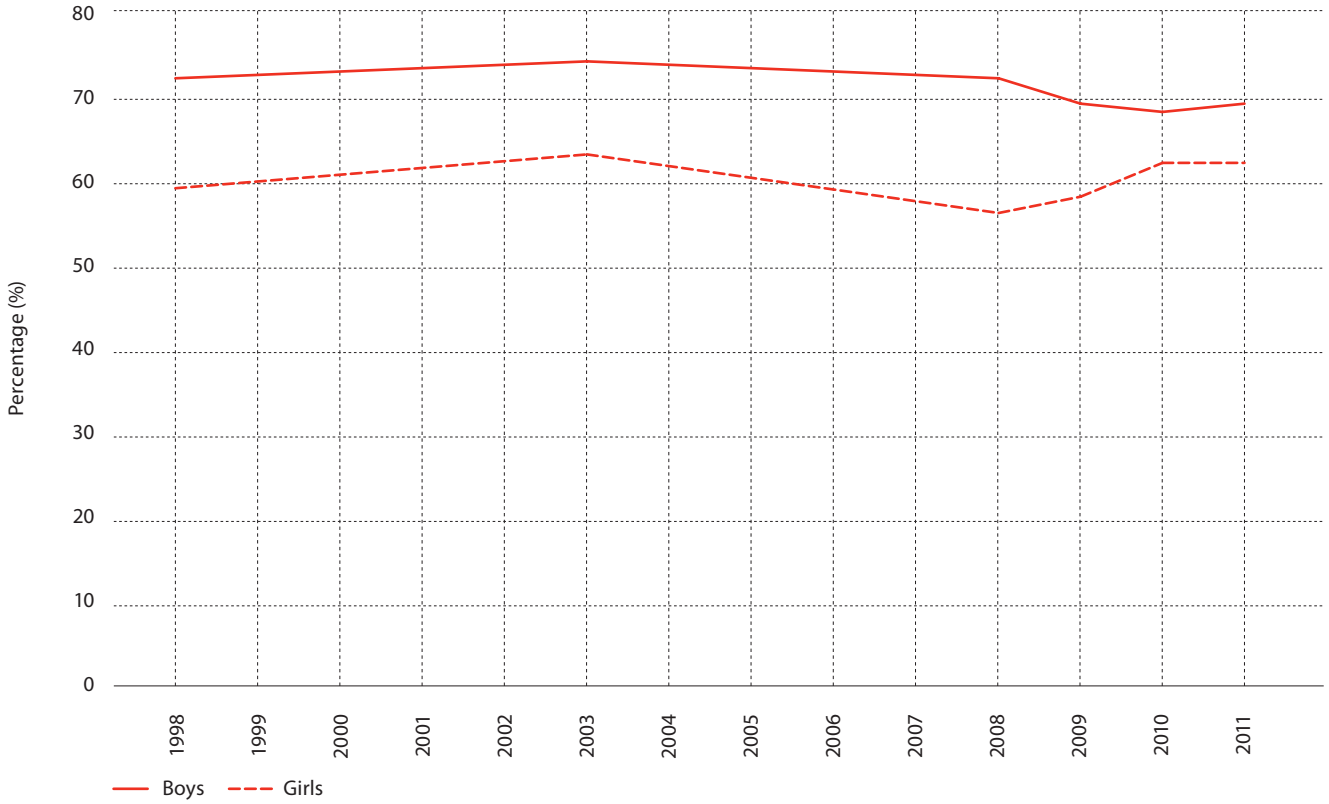


Table 4.8

At least two hours of high quality physical education and out of hours school sport per week, time trends by school year, England

	2004/05	2005/06	2006/07	2007/08
	%	%	%	%
Year 1	51	74	87	95
Year 2	54	77	89	96
Year 3	64	83	91	97
Year 4	68	84	92	97
Year 5	72	87	93	97
Year 6	74	88	94	97
Year 7	87	90	92	95
Year 8	86	89	91	93
Year 9	81	84	86	89
Year 10	63	65	67	71
Year 11	58	60	63	66
All years	**69**	**80**	**86**	**90**
Base	*3,555,533*	*5,056,155*	*6,300,142*	*6,231,747*

Notes:
Physical education (PE) is the planned teaching and learning programme in curriculum time that meets the requirements of the national curriculum. ¶ High quality is defined as 'producing young people with the skills, understanding, desire and commitment to continue to improve and achieve in a range of PE, sport and health-enhancing physical activities, in line with their abilities'. ¶ School sport includes any activity that requires physical skilfulness and is part of the school's planned formal, semi-formal, supervised or led provision. School sport typically takes place out of school hours. ¶ Data collected from school sport partnerships.

Source:
TNS UK Limited (2008). Schools sports survey 2007/08. Department for children, schools and families: London.

Table 4.9

At least two hours of high quality physical education and out of hours school sport per week, time trends by school type, England

	2004/05	2005/06	2006/07	2007/08
	%	%	%	%
Boys only	80	83	86	90
Girls only	57	62	65	69
Mixed	70	81	86	91
All Schools	**69**	**80**	**86**	**90**
Base:	*3,555,533*	*5,056,155*	*6,300,142*	*6,231,747*

Notes:
Among children in school years 1 to 13. ¶ Physical Education is the planned teaching and learning programme in curriculum time that meets the requirements of the national curriculum. ¶ High quality is defined as 'producing young people with the skills, understanding, desire and commitment to continue to improve and achieve in a range of PE, sport and health-enhancing physical activities, in line with their abilities'. ¶ School sport includes any activity that requires physical skilfulness and is part of the school's planned formal, semi-formal, supervised or led provision. School sport typically takes place out of school hours. ¶ Data collected from school sport partnerships.

Source:
TNS UK Limited (2008). Schools sports survey 2007/08. Department for children, schools and families: London.

Table 4.10
At least three hours of high quality physical education and out of hours school sport per week, time trends by school year, England

	2008/09	2009/10
	%	%
Year 1	47	57
Year 2	52	61
Year 3	55	63
Year 4	59	66
Year 5	63	69
Year 6	65	70
Year 7	53	59
Year 8	50	54
Year 9	44	49
Year 10	42	45
Year 11	37	40
Year 12	21	23
Year 13	19	21
All years	**50**	**55**
Base:	*6,557,890*	*6,565,106*

Notes:
Physical Education is the planned teaching and learning programme in curriculum time that meets the requirements of the national curriculum for physical education. ¶ High quality is defined as 'producing young people with the skills, understanding, desire and commitment to continue to improve and achieve in a range of PE, sport and health-enhancing physical activities, in line with their abilities'. ¶ School sport includes any activity that requires physical skilfulness and is part of the school's planned formal, semi-formal, supervised or led provision. School sport typically takes place out of school hours. ¶ Data collected from school sport partnerships.

Source:
TNS BMRB (2010). Schools sports survey 2009/10. Department for Education: London.

Figure 4.10

At least three hours of high quality physical education and out of hours school sport per week, by school year, England 2008/09 & 2009/10

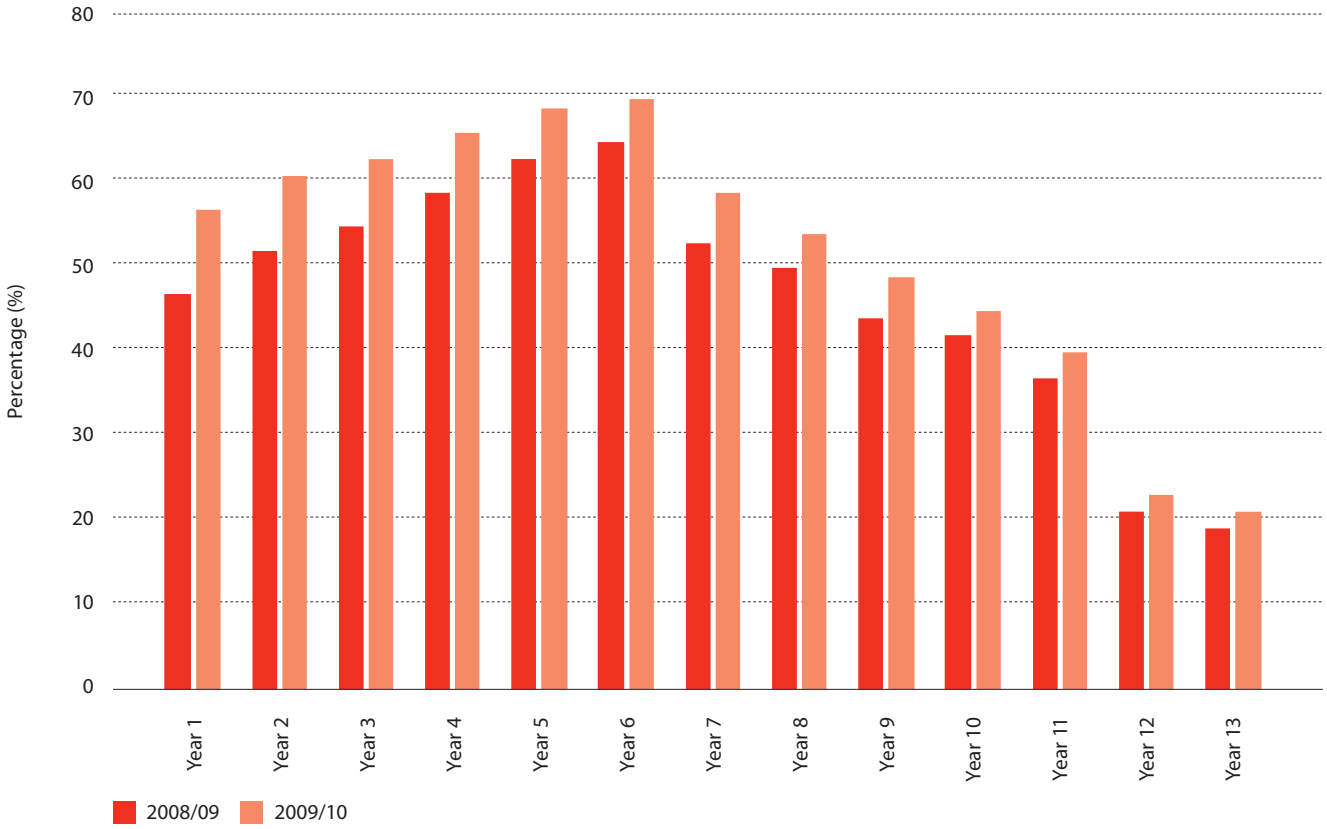


Table 4.11
Hours of physical education (PE), by gender and age, Northern Ireland 2010

	Hours per week						
	>3	3	2	1	1/2	None	*Base*
	%	%	%	%	%	%	
All	**12**	**12**	**25**	**34**	**9**	**8**	***3,972***
Boys	16	15	29	26	7	8	*1,744*
Girls	9	9	20	43	12	8	*2,227*
11-12 years	13	12	26	34	10	5	*965*
13	13	11	27	33	8	7	*808*
14	12	14	26	31	9	9	*783*
15	11	10	23	39	8	9	*771*
16-18	14	11	20	34	11	9	*645*
Free school meals	8	9	20	40	12	12	*756*
No free school meals	13	12	26	33	8	7	*3,208*

Notes:
Totals correspond to children 11 to 18 years old. ¶ Results presented in the report are based on data weighted by year group, sex and religion to reflect the composition of the Northern Ireland post-primary population.

Source:
Northern Ireland Department of Culture, Arts and Leisure (2012). Young People and Sport 2010. Findings from the 2010 Young Persons' Behaviour and Attitudes Survey: Belfast.

Table 4.12
Number of days walking or cycling to school per week, by gender and age, England 2008

	Age (years)			
	2 - 4	5 - 10	11 - 15	2-15
BOYS				
Walking to/from school				
None	48	34	35	37
1 day	8	4	3	4
2 days	10	6	4	6
3-4 days	17	14	15	15
5-6 days	18	43	44	38
Mean number of days	*1.7*	*2.8*	*2.8*	*2.6*
Cycling to/from school				
None	97	96	93	95
1 day	1	1	0	1
2 days	1	0	1	1
3-4 days	0	1	2	1
5-6 days	0	2	3	1
Mean number of days	*0.1*	*0.1*	*0.3*	*0.2*
Base	*536*	*1,243*	*1,068*	*2,847*
GIRLS				
Walking to/from school				
None	44	36	31	35
1 day	9	4	5	5
2 days	8	6	5	6
3-4 days	15	13	14	14
5-6 days	24	42	45	40
Mean number of days	*2.0*	*2.7*	*2.9*	*2.6*
Cycling to/from school				
None	99	99	99	99
1 day	0	0	0	0
2 days	0	0	0	0
3-4 days	1	0	1	0
5-6 days	0	1	0	1
Mean number of days	*0.0*	*0.1*	*0.0*	*0.0*
Base	*526*	*1,244*	*1,078*	*2,848*

Notes:
Number of days walking or cycling to/from school in the last week among children aged 2-15 who attended school on at least one day in the last week.

Source:
Department of Health (2010). Health Survey for England 2008: Physical activity and fitness. The Stationery Office: London.

Table 4.13
Travel to school, by mode and school type, England 2011

	All schools	State-funded primary schools	State-funded secondary schools	Special schools
	%	%	%	%
Walk	51.2	59.5	42.0	3.2
Cycle	1.8	1.0	2.9	0.3
Car/Van	28.3	35.7	18.8	37.1
Bus	16.2	3.1	31.7	57.2
Train	0.7	0.1	1.5	0.1
Other	0.6	0.2	1.2	1.0
Unclassified	*1.1*			
Base	*7,487,915*	*4,137,755*	*3,258,920*	*91,240*

Notes:
Among students 2 to 19 years old. ¶ Students identified their most frequently used mode of travel. ¶ 'Unclassified' refers to data that was invalid, missing or not applicable.

Source:
Department for Education (2011). Schools, pupils and their characteristics 2011. Department for Education: London.

Table 4.14
Physical activity in children, by gender and household income, England 2008

Equivalised household income quintile	Highest	2nd	3rd	4th	Lowest
	Mean hours of physical activity in previous week				
Boys	8.2	9.7	9.9	11.0	11.4
Girls	8.6	8.6	8.6	9.2	10.0
Bases					
Boys	*419*	*561*	*692*	*641*	*645*
Girls	*455*	*608*	*610*	*671*	*661*

Notes:
Formal and informal sports, exercise and active play among children 2 to 15 years old. ¶ Activity does not include walking/cycling to or from school.

Source:
Joint Health Surveys Unit (2010). Health Survey for England 2008: Physical activity and fitness. The information Centre: Leeds.

Figure 4.14
Physical activity in children aged 2 to 15 years, by gender and household income, England 2008

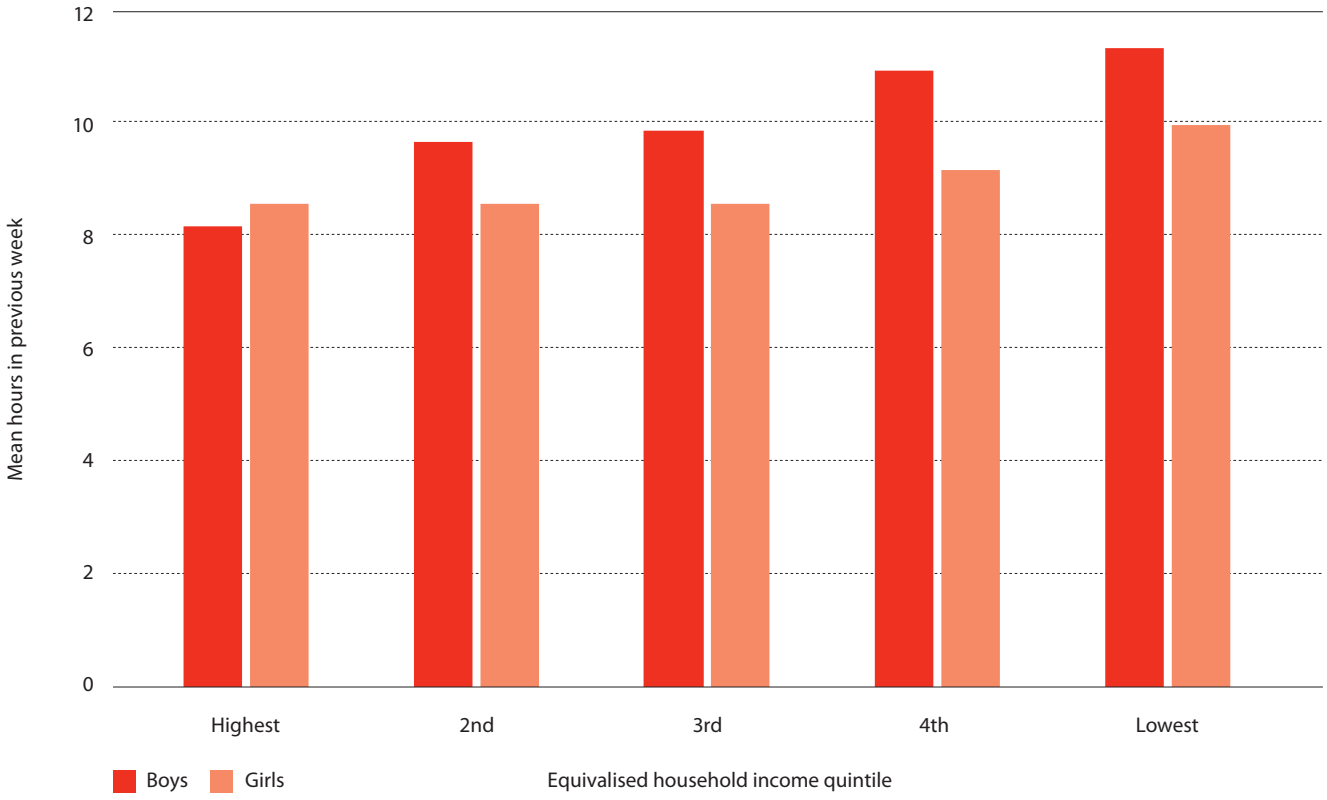


Table 4.15
Physical activity in children, by gender and household income, Scotland 2008-11

Equivalised household income quintile	Highest	2nd	3rd	4th	Lowest
	%	%	%	%	%
Boys					
Meets recommendations	80	76	73	78	76
Some activity	14	14	15	15	15
Low activity	6	10	11	7	9
Base	*562*	*710*	*618*	*654*	*634*
Girls					
Meets recommendations	71	72	71	67	64
Some activity	18	15	17	21	19
Low activity	11	13	13	12	17
Base	*537*	*680*	*615*	*590*	*584*

Notes:
Among children 4-15 years old. ¶ Meets recommendations refers to children active for 60 minutes a day on 7 days in the last week; some activity refers to children active for 30 - 59 minutes a day on 7 days in the last week; low activity refers to children active on fewer than 7 days in the last week or for less than 30 minutes a day. ¶ Figures include activity occurring both inside and outside of school.

Source:
Scottish Health Executive (2012). The Scottish Health Survey 2011, volume 2. The Scottish Executive: Edinburgh.

Table 4.16
Daily sedentary time in children, by gender and age, England 2008

Age (years)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	2-15
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
BOYS															
Weekday															
Less than 2 hours	40	26	24	32	24	17	17	15	14	10	8	6	7	7	18
2 to 4 hours	37	50	53	42	46	57	53	50	44	46	38	40	37	31	44
4 to 6 hours	16	19	17	19	22	20	22	28	30	35	38	39	35	33	27
6 hours or more	6	5	6	7	8	6	8	7	11	8	15	15	21	30	11
Weekend day															
Less than 2 hours	39	24	18	13	14	9	10	9	8	10	11	9	11	8	14
2 to 4 hours	38	46	42	44	33	33	42	35	34	30	25	24	26	24	34
4 to 6 hours	15	23	29	29	33	37	31	30	29	36	30	31	29	28	29
6 hours or more	8	7	10	14	20	21	16	26	28	24	33	36	34	40	23
Base	*255*	*239*	*249*	*240*	*252*	*235*	*236*	*244*	*255*	*255*	*260*	*286*	*266*	*231*	*3,503*
GIRLS															
Weekday															
Less than 2 hours	37	22	24	26	23	25	22	15	15	9	10	7	6	5	17
2 to 4 hours	41	42	48	49	58	49	55	53	49	44	37	38	27	24	43
4 to 6 hours	13	26	24	19	15	18	18	26	25	35	38	38	46	39	27
6 hours or more	9	9	4	7	5	8	5	6	11	12	15	17	20	33	12
Weekend day															
Less than 2 hours	34	19	13	12	13	13	17	10	10	11	8	10	10	7	13
2 to 4 hours	36	40	34	36	37	35	26	37	33	29	27	26	18	26	31
4 to 6 hours	21	27	37	34	29	31	36	35	34	33	34	29	31	26	31
6 hours or more	8	14	16	19	21	22	22	19	23	27	31	36	41	41	25
Base	*248*	*268*	*230*	*226*	*237*	*255*	*233*	*252*	*297*	*291*	*241*	*257*	*281*	*246*	*3,562*

Notes:
Data come from a short set of questions asking about time spent sitting down in a number of leisure time activities. ¶ Bases vary but are of similar sizes; those shown are for watching TV, weekday. ¶ Personal reports of physical activity among children aged 13-15 and parental proxy reports for children aged 2-12. ¶ Participants were asked about sedentary time after school, and therefore any sedentary time during the school day is not included.

Source:
Joint Health Surveys Unit (2010). Health Survey for England 2008: Physical activity and fitness. The Information Centre: Leeds.

Figure 4.16
At least six hours of daily sedentary time, children, by gender, age and day, England 2008

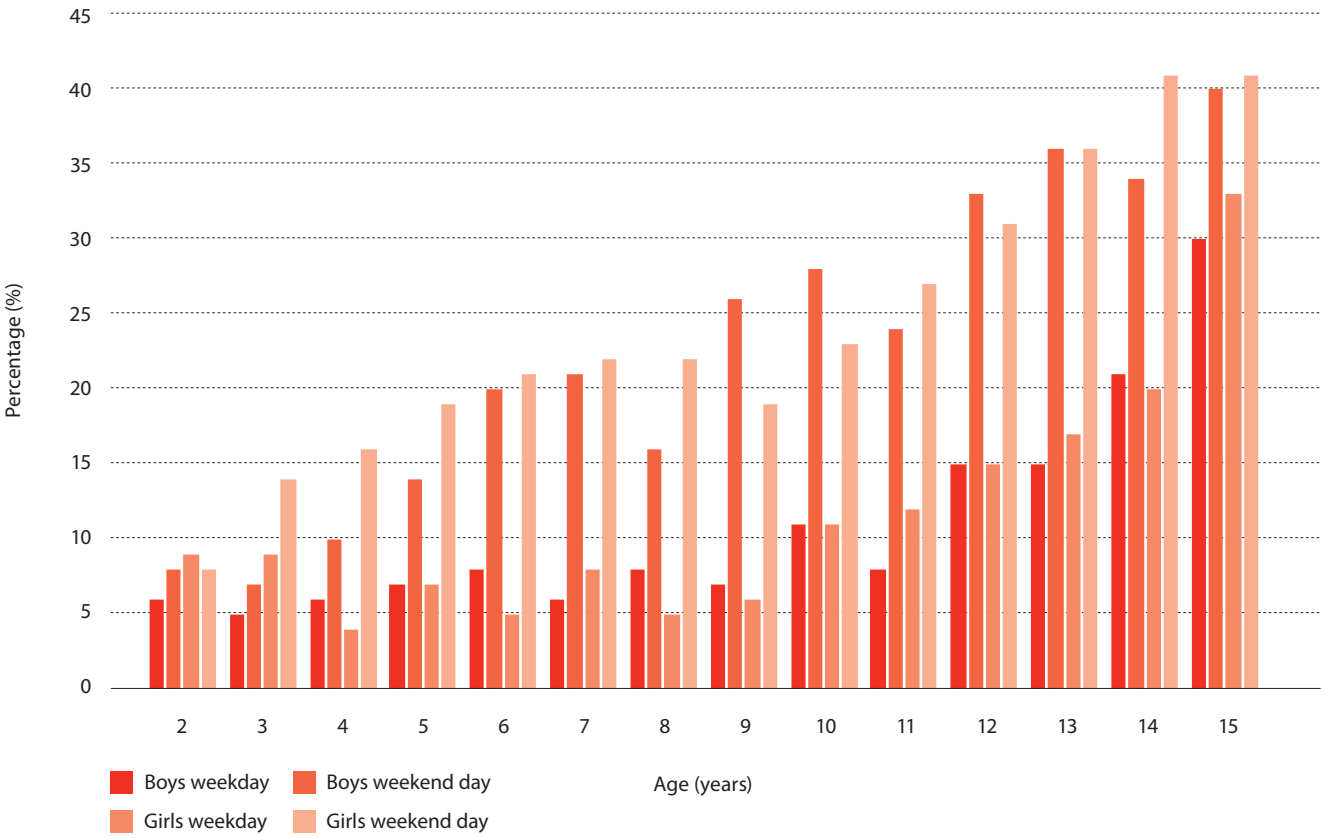


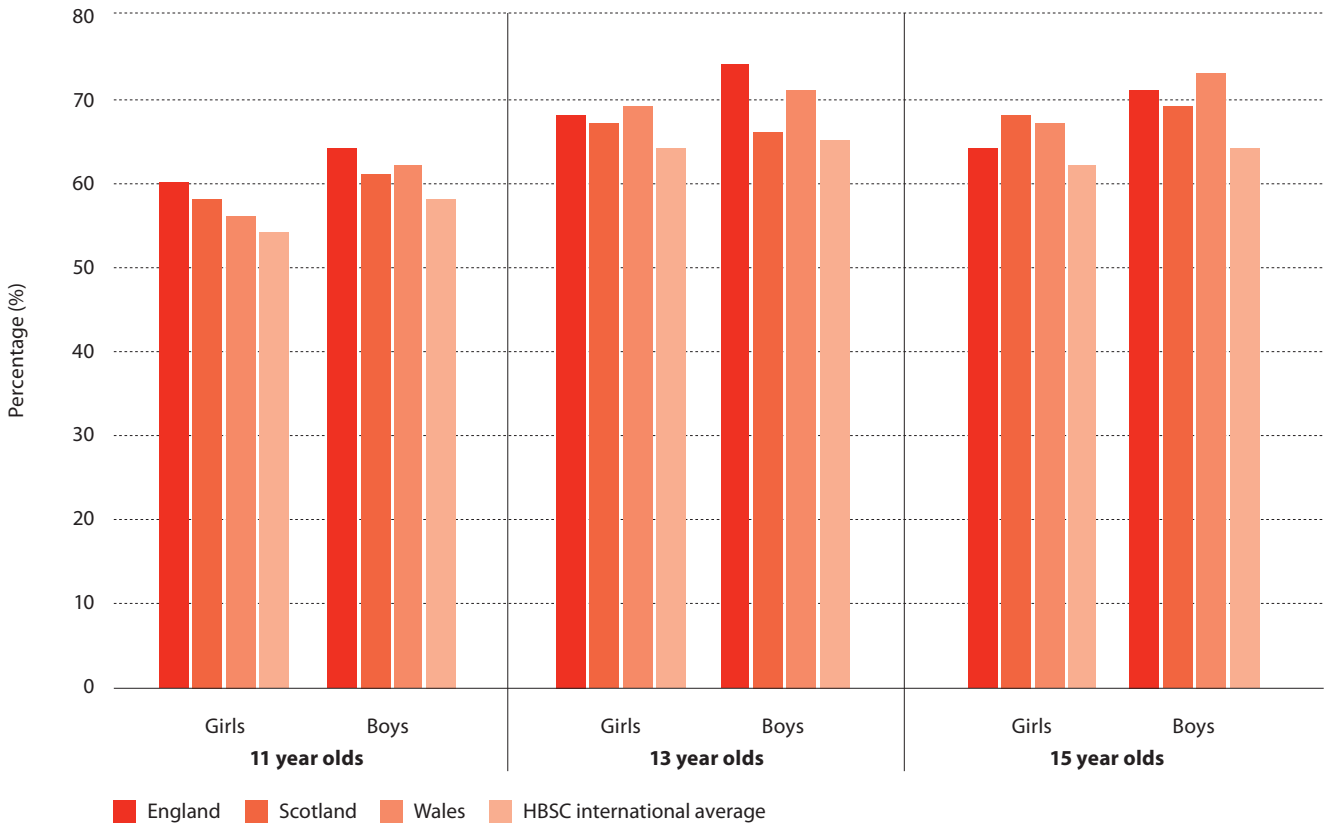
Table 4.17
At least two hours of television on weekdays, children, by gender, age and country, HBSC 2009/10

	11 years		13 years		15 years	
	Girls	Boys	Girls	Boys	Girls	Boys
	%	%	%	%	%	%
Armenia	61	66	75	74	82	79
Austria	37	46	55	61	60	63
Belgium (Flemish)	55	58	64	61	65	65
Belgium (French)	40	43	49	55	54	58
Canada	56	64	60	65	62	64
Croatia	69	69	77	76	67	71
Czech Republic	56	61	69	72	59	63
Denmark	58	64	68	65	67	69
England	**60**	**64**	**68**	**74**	**64**	**71**
Estonia	68	69	75	74	63	66
Finland	58	61	59	60	50	55
France	42	49	55	59	48	54
Germany	43	44	59	65	64	68
Greece	64	69	74	73	70	71
Greenland	39	52	57	55	68	61
Hungary	48	50	65	64	57	64
Iceland	41	49	52	60	46	52
Ireland	48	55	52	56	56	60
Italy	42	48	60	59	61	62
Latvia	65	70	73	74	68	68
Lithuania	69	69	75	72	70	72
Luxembourg	40	42	52	56	58	63
FYRO Macedonia	47	52	70	63	65	61
Netherlands	64	69	69	71	69	71
Norway	42	47	61	59	66	64
Poland	61	64	67	68	65	67
Portugal	60	61	75	72	64	67
Romania	64	65	75	77	68	69
Russian Federation	69	67	71	67	65	63
Scotland	**58**	**61**	**67**	**66**	**68**	**69**
Slovakia	66	71	78	75	72	73
Slovenia	55	63	64	67	46	54
Spain	45	48	54	60	63	65
Sweden	56	60	67	66	60	63
Switzerland	24	29	34	35	38	45
Turkey	53	60	65	67	67	68
Ukraine	71	69	76	76	69	69
United States	50	56	55	57	53	54
Wales	**56**	**62**	**69**	**71**	**67**	**73**
HBSC average (gender)	54	58	64	65	62	64
HBSC average (total)	***56***		***65***		***63***	

Source:
Currie C et al. eds. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Copenhagen, WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents, No. 6).

Figure 4.17

At least two hours of television on weekdays, children, by gender, age and country, HBSC 2009/10



CHAPTER FIVE —

ALCOHOL

Current Government guidelines state that regular consumption of three to four alcoholic units per day for men and two to three alcohol units per day for women is unlikely to result in significant health risks[1]. Although no safe limits are described for children, the guidelines express concern about children who drink at or above the recommended adult limits. Studies suggest that heavy alcohol consumption increases the risk of cardiovascular mortality[2]. Occasional excessive (or 'binge') alcohol consumption also increases the risk of selected cardiovascular diseases, even among otherwise moderate drinkers[3]. Regular recreational alcohol consumption in teenage years is a predictor of adult alcohol dependence[4], and heavy teenage drinking increases the risk of repeated adult binge drinking[5].

Levels of drinking

In Northern Ireland, 20% of young people who had ever consumed alcohol reported having their first alcoholic drink when they were 11 years old or younger (Table 5.1, Figure 5.1). Forty two percent of boys and 40% of girls in England, and 45% of boys and 44% of girls in Scotland had consumed alcohol by 13 years of age (Table 5.2, Figure 5.2). By the age of 15, 75% of girls in England and 79% of girls in Scotland had consumed alcohol; the prevalence of alcohol consumption among 15 year old boys was 3% lower than the girls' prevalence in both countries (Table 5.2, Figure 5.2).

The percentage of 11 to 15 year olds who reported having consumed alcohol in the previous week has decreased over time in England from 20% in 1988 to 12% in 2011; the downward trend is consistent across all age groups (Table 5.3, Figure 5.3). Similarly in Wales, the percentage of 11 to 16 year olds drinking alcohol weekly decreased between 1986 and 2009; during that time weekly drinking among 15 to 16 year olds fell from 44% to 32% (Table 5.4, Figure 5.4). In Scotland, by contrast, self-reported incidents of 15 year olds having consumed alcohol in the previous week increased from 28% in 1990 to 34% in 2010; the percentage of 13 year olds who reported drinking in the previous week also increased by 4% over that period to 14% (Table 5.5, Figure 5.5).

Drinking frequency

Frequency of alcohol consumption among young people generally increases with age (Tables 5.6 and 5.7). Eight percent of boys and 6% of girls in England aged 11 to 15 years reported drinking at least once a week. Whilst in Scotland 12% of 13 year olds and 27% of 15 year olds who had ever drunk alcohol also reported doing so at least once a week (Tables 5.6 and 5.7, Figures 5.6 and 5.7). In Northern Ireland, 4% of 11 to 16 year olds who had ever consumed alcohol reported drinking on a daily basis (Table 5.8).

Drinking volumes

In England, the mean weekly unit consumption of alcohol among 11 to 15 year olds in 2011 shows a decrease from previous years for both genders and across all age categories (Table 5.9, Figure 5.9). A unit of alcohol is defined as 10 millilitres of pure alcohol. Among those who reported drinking alcohol in the previous week, boys consumed a weekly average of 11.3 units and girls consumed an average of 9.4 units (Table 5.9). Mean weekly alcohol unit consumption of all types of alcoholic drinks did not increase between 2008 and 2011, except for shandy consumption among boys aged 13 to 15 years for which there was a decrease of 0.1 mean units per week (Table 5.10, Figures 5.10a and 5.10b).

Between 2008 and 2010 in Scotland, there were decreases in mean unit alcohol consumption of normal beer, lager or cider, fortified wine, spirits and liqueurs for both boys and girls (Table 5.11, Figure 5.11). However, mean unit consumption of shandy and alcopops increased; most notably, there was a 57% rise over two years in the mean unit volume of alcopops reported to have been consumed by 15 year old girls (Table 5.11).

Among Scottish 15 year olds who reported drinking in the previous week, boys consumed a mean of 22 units and girls consumed a mean of 18 units of alcohol; this signifies an increase from the 2008 mean of 1 unit for boys and 3 units for girls. Of those aged 15 years, 25% of boys reported drinking at least 28 units of alcohol in the previous week (the upper-limit of the UK male adult drinking guidelines) and 26% of girls reported drinking at least 21 units of alcohol (the upper-limit of the UK female adult drinking guidelines) (Table 5.12).

A majority (59%) of 11 to 16 year olds in Northern Ireland reported having been drunk at least once in the previous month, and 12% reported having been drunk more than ten times in their lives (Tables 5.13 and 5.14, Figures 5.13 and 5.14). In Scotland, 34% of 13 year olds and 56% of 15 year olds who reported drinking alcohol in the previous week also reported being drunk (Table 5.15).

Drinking across groups

Students eligible for free school meals in Scotland were more likely to have consumed alcohol in the previous week, than those students not eligible (Table 5.16, Figure 5.16). They were also more likely to have been drunk at some point (Table 5.17, Figure 5.17). Similarly students living in more deprived areas were more likely to consume alcohol (Table 5.18, Figure 5.18) and to have been drunk (Table 5.19, Figure 5.19) than their less deprived counterparts. With these differences more apparent amongst 13 year olds than 15 year olds.

1. Department of Health (1995). Sensible drinking. The report of an inter-departmental working group. Department of Health: London.
2. Ronksley P, Brien S. Turner B, Mukamal K, Ghali W (2011). Association of alcohol consumption with selected cardiovascular disease outcomes: a systematic review and meta-analysis. BMJ; 342; d671.
3. Roerecke M, Rehm J (2010). Irregular heavy drinking occasions and risk of ischaemic heart disease: a systematic review and meta-analysis. American Journal of Epidemiology; 171(6): 633-644.
4. Bonomo Y, Bowes G, Coffey C, Carlin J, Patton G (2004). Teenage drinking and the onset of alcohol dependence: a cohort study over seven years. Addiction; 99: 1520-1528.
5. Jefferis B, Power C, Manor O (2005). Adolescent drinking level and adult binge drinking in a national birth cohort. Addiction; 100: 543-549.

Table 5.1
Age for first alcoholic drink in children, Northern Ireland 2010

Age (years)	Frequency	%
≤7	54	3.4
8	21	1.3
9	31	1.9
10	98	6.2
11	118	7.4
12	198	12.4
13	259	16.2
14	225	14.1
15	118	7.4
16	15	0.9
17	1	0.1
Unable to recall	*419*	*26.2*
Unanswered	*39*	*2.4*
Total	**1,596**	

Notes:
Sample is drawn from children in years 8 to 12 in secondary schools in Northern Ireland. ¶ For 2010, the sample was drawn from 175 secondary schools.

Source:
Central Survey Unit (2011) Young persons' behaviour and attitudes survey 2010. Belfast: Northern Ireland Statistics Research Agency.

Figure 5.1
Age for first alcoholic drink in children, Northern Ireland 2010

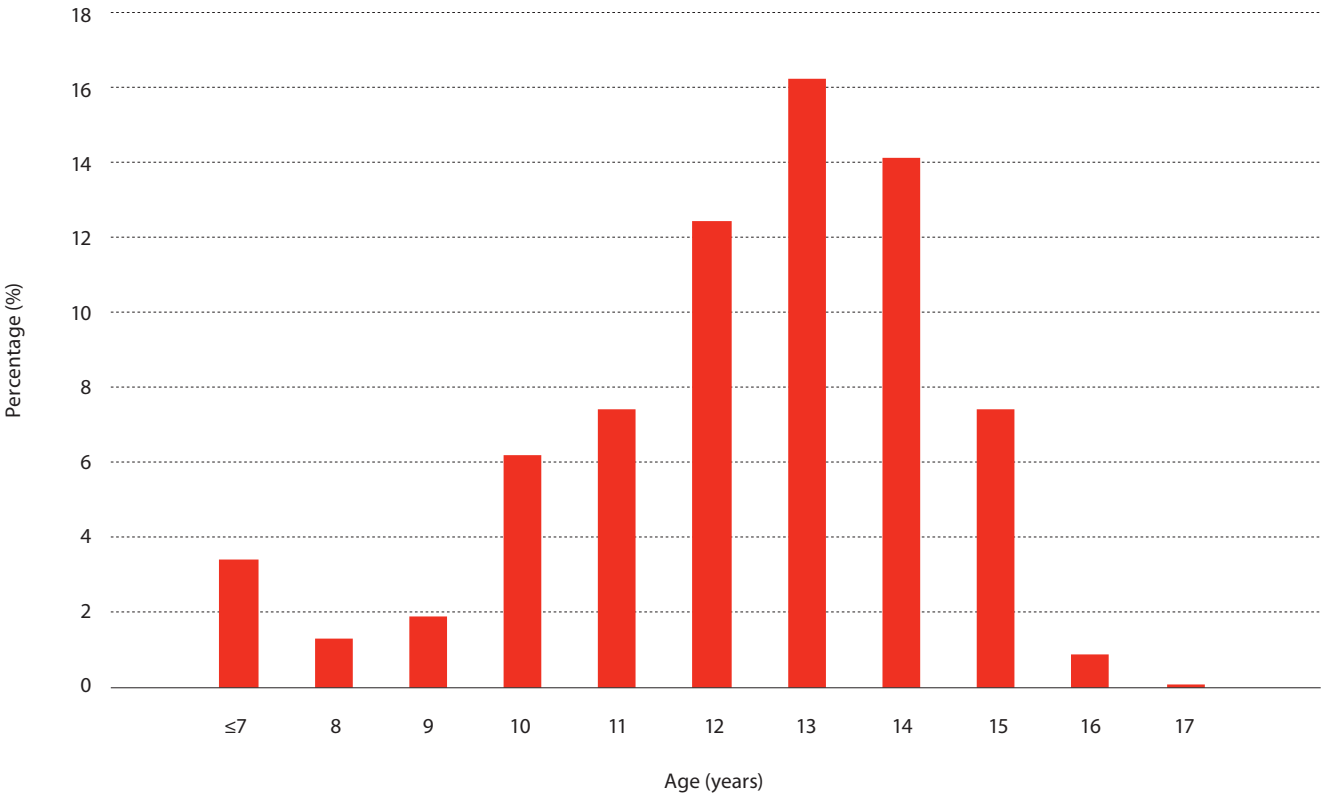


Table 5.2
Tried alcohol, children, by gender and age, England 2011 & Scotland 2010

	Age (years)					
	11	12	13	14	15	Total 11-15
	%	%	%	%	%	%
Boys						
England	14	27	42	61	72	46
Scotland			45		76	61
Girls						
England	8	18	40	62	75	44
Scotland			44		79	61
Bases						
Boys						
England	*502*	*672*	*605*	*623*	*764*	*3,166*
Scotland			*9,788*		*9,118*	*18,906*
Girls						
England	*528*	*652*	*693*	*636*	*786*	*3,295*
Scotland			*9,532*		*8,746*	*18,278*

Notes:
Percentages refer to children who have ever tried alcohol. ¶ English sample is drawn from pupils in Years 7 to 11 in secondary schools, or at an equivalent level in middle and upper schools in England. ¶ For 2011 , the sample was drawn from 219 schools including schools from both the maintained and non-maintained education sectors. ¶ Scottish sample is drawn from children in years S2 and S4 in secondary schools in Scotland. ¶ For 2010, the sample was drawn from 429 secondary schools from both the maintained and non-maintained education sectors.

Source:
E. Fuller (ed.) (2012) Smoking, drinking and drug use among young people in England in 2011. London: NatCen Social Research. ¶ The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Figure 5.2
Tried alcohol, children, by gender and age, England 2011 & Scotland 2010

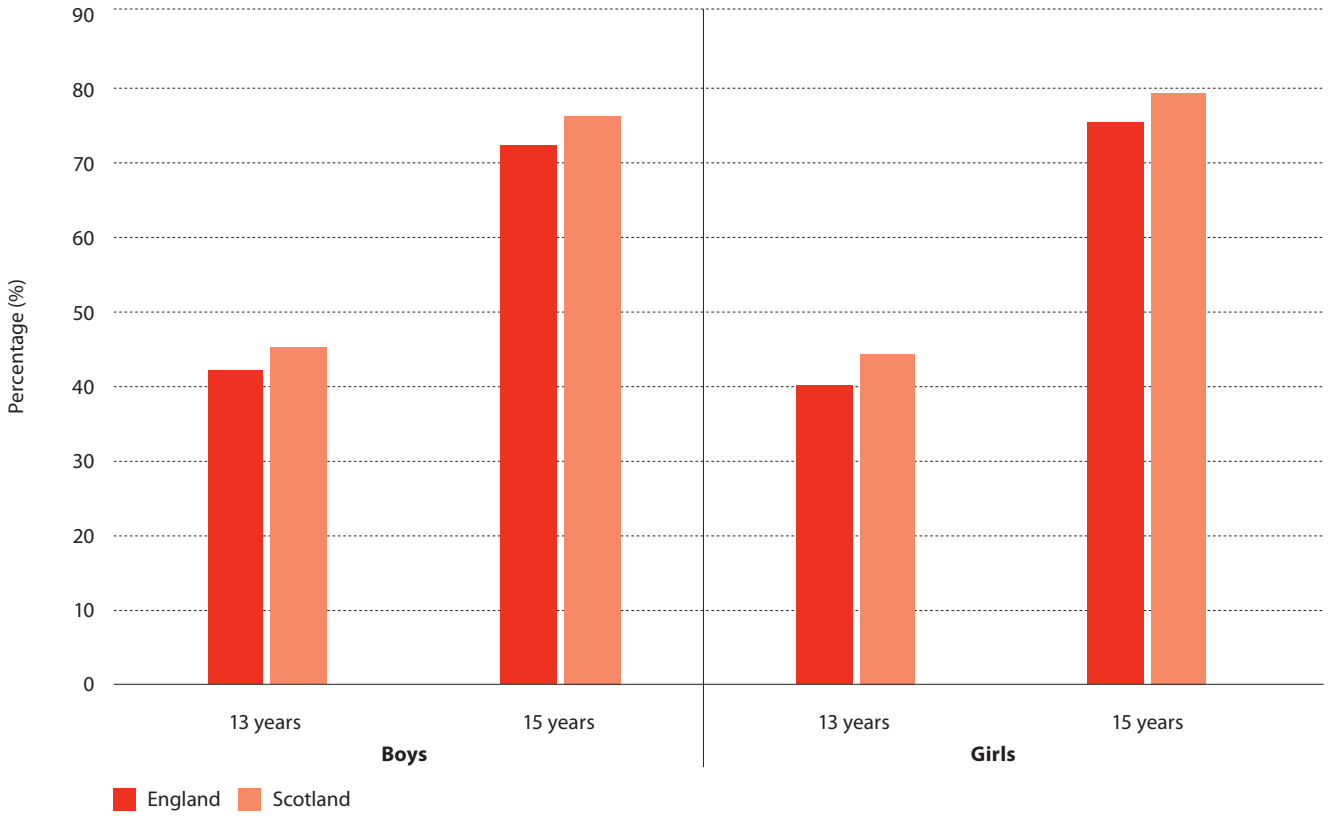


Table 5.3
Consumed alcohol in the last week, children, by gender and age, England 1988 to 2011

	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2011
	%	%	%	%	%	%	%	%	%	%	%	%	%
Boys													
11 years	7	8	8	8	7	4	5	7	5	5	3	2	2
12	12	9	13	10	12	14	11	12	11	8	6	3	3
13	20	17	15	22	27	16	18	20	17	16	15	9	7
14	25	32	32	34	37	28	34	34	32	29	24	15	15
15	45	42	49	52	50	48	51	49	44	40	38	29	29
11-15	**24**	**22**	**24**	**26**	**27**	**23**	**25**	**25**	**23**	**21**	**18**	**13**	**12**
Girls													
11 years	4	4	5	4	6	2	5	4	3	2	2	1	0
12	7	6	7	9	9	6	9	9	9	7	4	3	2
13	11	19	11	16	22	14	19	21	19	15	13	9	7
14	19	32	25	26	35	29	31	34	33	30	25	16	15
15	36	39	40	48	55	40	45	45	46	41	37	30	27
11-15	**17**	**20**	**17**	**22**	**26**	**18**	**23**	**23**	**23**	**20**	**17**	**13**	**12**
Total													
11 years	5	6	6	6	7	3	5	5	4	3	3	1	1
12	9	8	10	9	11	10	10	11	10	8	5	3	2
13	16	18	13	19	24	15	19	20	18	16	14	9	7
14	22	32	29	30	36	29	32	34	33	29	24	15	15
15	40	40	45	50	53	44	48	47	45	41	38	30	28
11-15	**20**	**21**	**21**	**24**	**27**	**21**	**24**	**24**	**23**	**21**	**18**	**13**	**12**
Bases													
Boys													
11 years	*227*	*309*	*284*	*266*	*269*	*285*	*612*	*866*	*861*	*600*	*621*	*549*	*502*
12	*279*	*340*	*335*	*307*	*296*	*336*	*740*	*1,003*	*1,024*	*818*	*769*	*743*	*667*
13	*312*	*312*	*351*	*304*	*275*	*293*	*737*	*1,035*	*1,007*	*765*	*756*	*718*	*605*
14	*306*	*300*	*310*	*306*	*297*	*597*	*750*	*950*	*977*	*805*	*756*	*686*	*620*
15	*348*	*358*	*366*	*326*	*295*	*745*	*796*	*1,107*	*1,078*	*869*	*896*	*835*	*761*
11-15	*1,473*	*1,623*	*1,652*	*1,509*	*1,432*	*2,256*	*3,635*	*4,961*	*4,947*	*3,857*	*3,798*	*3,531*	*3,155*
Girls													
11 years	*225*	*289*	*304*	*231*	*266*	*291*	*564*	*798*	*820*	*636*	*612*	*564*	*528*
12	*312*	*277*	*354*	*304*	*272*	*365*	*681*	*978*	*923*	*829*	*759*	*703*	*647*
13	*296*	*290*	*333*	*326*	*277*	*383*	*696*	*935*	*941*	*826*	*718*	*713*	*693*
14	*311*	*298*	*298*	*309*	*285*	*657*	*691*	*946*	*917*	*767*	*746*	*721*	*632*
15	*374*	*302*	*317*	*341*	*291*	*666*	*764*	*1,012*	*1,024*	*978*	*845*	*785*	*780*
11-15	*1,518*	*1,459*	*1,614*	*1,511*	*1,391*	*2,362*	*3,396*	*4,669*	*4,625*	*4,036*	*3,680*	*3,486*	*3,280*

Notes:
Sample is drawn from children in years 7-11 in secondary schools in England. ¶ For 2011 , the sample was drawn from 219 schools including schools from both the maintained and non-maintained education sectors. ¶ The data in 2010 and 2011 were weighted. All bases shown in this table are unweighted.

Source:
E. Fuller (ed.) (2012) Smoking, drinking and drug use among young people in England in 2011. London: NatCen Social Research.

Figure 5.3
Consumed alcohol in the last week, children, by age, England 1988 to 2011

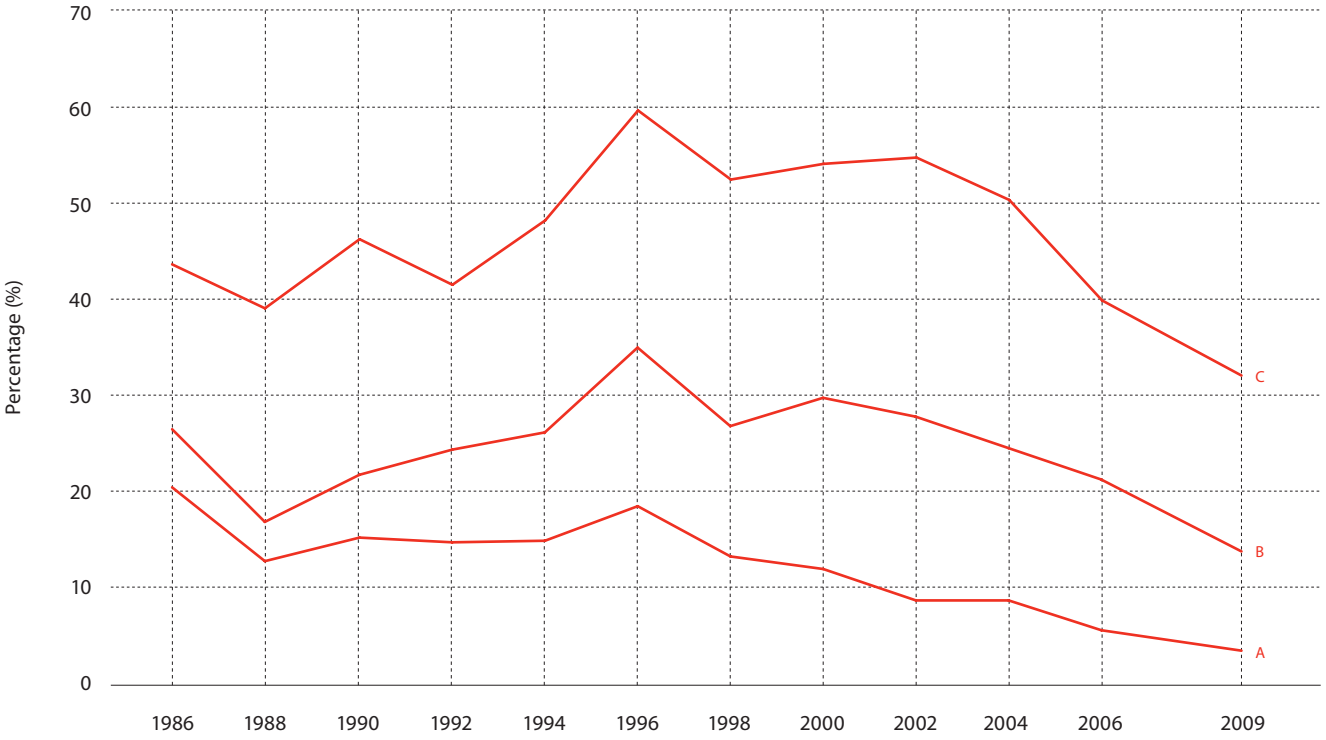
A. 11 years B. 12 years C. 13 years D. 14 years E. 15 years

Table 5.4
Drinking weekly, children, by gender and age, Wales 1986 to 2009

	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006	2009
	%	%	%	%	%	%	%	%	%	%	%	%
Boys												
11-12 years	26.7	16.2	20.9	18.1	19.0	23.1	16.2	14.6	10.3	12.3	7.1	5.1
13-14	29.3	20.5	24.2	27.0	30.2	37.2	29.9	30.4	31.1	25.0	22.9	13.7
15-16	49.3	45.7	51.8	46.3	50.8	65.2	59.2	58.1	56.9	53.1	41.9	35.1
Girls												
11-12 years	13.7	9.2	9.1	11.2	10.5	13.7	10.0	8.9	7.0	5.0	4.2	1.8
13-14	23.5	12.9	19.2	21.6	22.0	32.7	23.7	29.2	24.3	24.1	19.6	13.9
15-16	37.7	32.1	40.5	36.5	45.5	53.6	45.6	50.2	52.4	47.7	37.8	28.8
Total												
11-12 years	20.4	12.8	15.3	14.8	14.9	18.5	13.2	11.9	8.7	8.7	5.6	3.4
13-14	26.5	16.8	21.7	24.4	26.2	35.0	26.9	29.8	27.8	24.5	21.3	13.8
15-16	43.7	39.1	46.3	41.6	48.2	59.6	52.5	54.2	54.7	50.3	39.9	32.1

Source:
Statistics for Wales (2012). Health Statistics Wales 2012. Cardiff: Statistical Publication Unit.

Figure 5.4
Drinking weekly, children, by age, Wales 1986 to 2009



A. 11-12 years B. 13-14 years C. 15-16 years

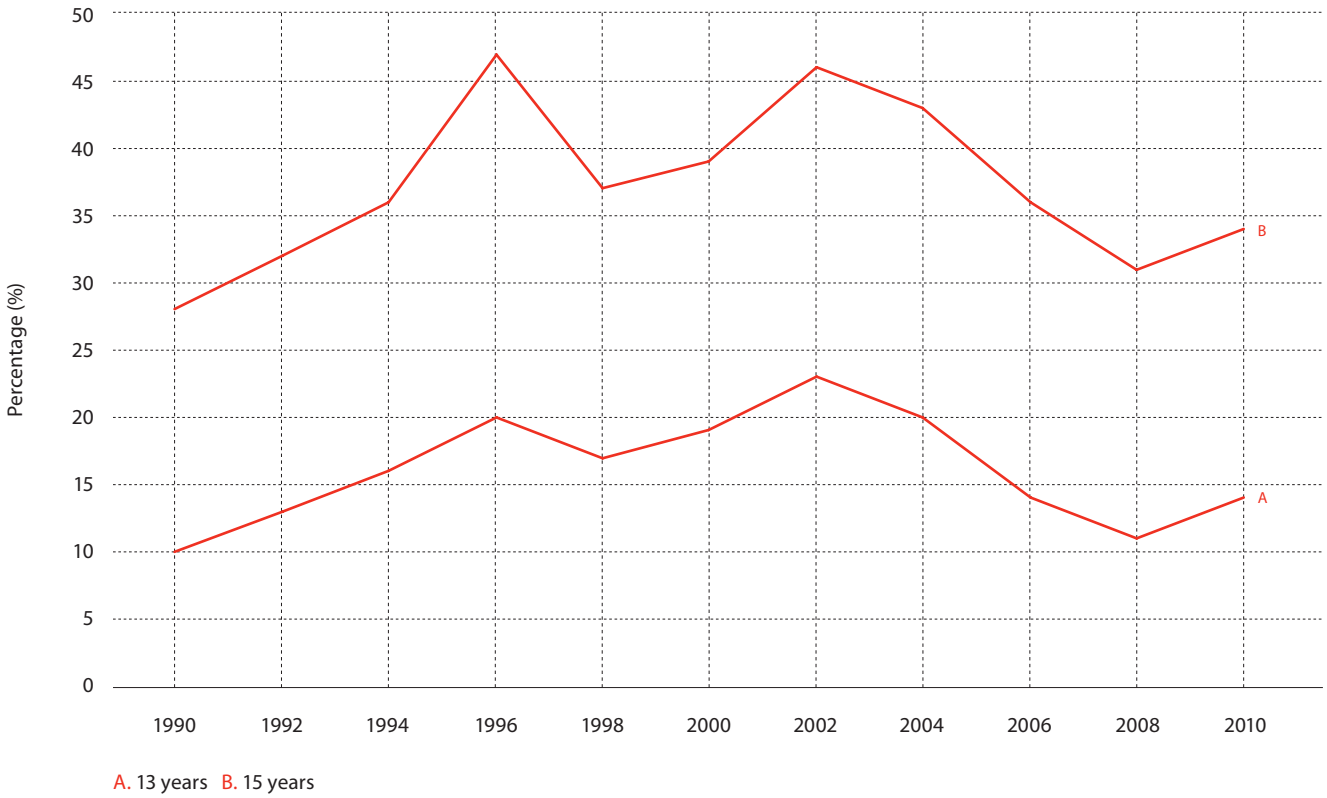
Table 5.5
Consumed alcohol in the last week, children, by gender and age, Scotland 1990 to 2010

	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	*Bases*
	%	%	%	%	%	%	%	%	%	%	%	
Boys												
13 years	10	14	18	21	19	19	23	20	13	11	15	*9,715*
15 years	30	35	37	48	39	42	47	40	35	31	35	*9,469*
Girls												
13 years	10	12	13	18	15	20	23	20	15	12	14	*9,085*
15 years	25	28	35	46	35	37	46	46	37	31	34	*8,718*
Total												
13 years	10	13	16	20	17	19	23	20	14	11	14	*19,235*
15 years	28	32	36	47	37	39	46	43	36	31	34	*17,874*

Notes:
Sample is drawn from children in years S2 and S4 in secondary schools in Scotland. ¶ For 2010, the sample was drawn from 429 secondary schools from both the maintained and non-maintained education sectors. ¶ A small number of pupils did not report their sex thus the sum of the bases for boys and girls do not necessarily correspond to the bases for all pupils in the same age group. ¶ The base numbers involved do not affect the percentages reported.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Figure 5.5
Consumed alcohol in the last week, children, by age, Scotland 1990 to 2010



A. 13 years B. 15 years

Table 5.6
Frequency of alcohol consumption in children, by gender and age, England 2011

	Age (years)					Total 11-15
	11	12	13	14	15	
	%	%	%	%	%	%
Boys						
Almost every day			0	1	1	1
About twice a week		0	1	4	5	2
About once a week	1	2	2	4	12	5
At least once a week	1	2	4	9	19	8
About once a fortnight	1	1	4	8	14	6
About once a month	1	2	6	9	11	6
Only a few times a year	9	17	24	32	26	22
Never drink alcohol	*89*	*78*	*62*	*43*	*30*	*57*
Girls						
Almost every day					1	0
About twice a week		0	1	3	5	2
About once a week	0	1	2	5	10	4
At least once a week	0	1	3	9	15	6
About once a fortnight	0	1	4	9	17	7
About once a month	1	1	5	12	15	8
Only a few times a year	5	11	23	29	24	19
Never drink alcohol	*94*	*86*	*66*	*41*	*29*	*60*
Total						
Almost every day			0	0	1	0
About twice a week		0	1	4	5	2
About once a week	0	1	2	5	11	4
At least once a week	0	1	3	9	17	7
About once a fortnight	1	1	4	9	15	7
About once a month	1	2	5	10	13	7
Only a few times a year	7	14	23	30	25	21
Never drink alcohol	*91*	*82*	*64*	*42*	*29*	*59*
Bases						
Boys	*501*	*670*	*603*	*621*	*762*	*3,157*
Girls	*526*	*651*	*685*	*632*	*776*	*3,270*
Total	*1,027*	*1,321*	*1,288*	*1,253*	*1,538*	*6,427*

Notes:
Sample is drawn from pupils in Years 7 to 11 in secondary schools, or at an equivalent level in middle and upper schools in England. ¶ For 2011, the sample was drawn from 219 schools including schools from both the maintained and non-maintained education sectors. ¶ 'At least once a week' is the sum of 'Almost every day', 'About twice a week' and 'About once a week'. Individual categories may not add up to this total due to rounding. ¶ 'Never drink alcohol' includes pupils who say they don't drink now and those who have never drunk alcohol. ¶ Blank cells indicate missing data.

Source:
E. Fuller (ed.) (2012) Smoking, drinking and drug use among young people in England in 2011. London: NatCen Social Research.

Table 5.7
Frequency of alcohol consumption in children, by gender and age, Scotland 2010

	13 years	15 years
	%	%
Boys		
Almost every day	2	2
About twice a week	4	11
About once a week	7	14
About once a fortnight	7	15
About once a month	11	16
Only a few times a year	58	36
Never drink alcohol	*11*	*5*
Girls		
Almost every day	1	1
About twice a week	5	11
About once a week	6	14
About once a fortnight	8	16
About once a month	11	18
Only a few times a year	59	35
Never drink alcohol	*10*	*5*
Total		
Almost every day	1	2
About twice a week	4	11
About once a week	7	14
About once a fortnight	8	16
About once a month	11	17
Only a few times a year	58	35
Never drink alcohol	*11*	*5*
Bases		
Boys	*4,321*	*6,853*
Girls	*4,057*	*6,873*
Total	*8,398*	*13,782*

Notes:
Sample is drawn from children in years S2 and S4 in secondary schools in Scotland who have ever consumed alcohol. ¶ For 2010, the sample was drawn from 429 secondary schools from both the maintained and non-maintained education sectors. ¶ A small number of pupils did not report their gender thus the sum of the bases for boys and girls do not necessarily correspond to the bases for all pupils in the same age group. The base numbers involved do not affect the percentages reported.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Table 5.8
Frequency of alcohol consumption in children, Northern Ireland 2010

Frequency	Number	%
Daily	55	4
A few times a month	459	29
A few times a year	254	16
Rarely	472	30
Not any more	339	21
Total	**1,579**	
Unanswered	*17*	

Notes:
Sample is drawn from children in years 8 to 12 in secondary schools in Northern Ireland who have ever consumed alcohol. ¶ Corresponds to ages 11 to 16 years. ¶ For 2010, the sample was drawn from 175 secondary schools.

Source:
Central Survey Unit (2011) Young persons' behaviour and attitudes survey 2010. Belfast: Northern Ireland Statistics Research Agency.

Table 5.9
Alcohol consumption in the last week, children, by gender and age, England 2007 to 2011

	Mean unit consumption				
	2007	2008	2009	2010	2011
Boys					
11-13 years	8.3	10.9	9.4	11.0	7.3
14	13.7	18.0	10.8	11.3	10.8
15	15.0	17.4	13.5	13.7	12.5
11-15	**13.1**	**16.0**	**11.9**	**12.6**	**11.3**
Girls					
11-13 years	8.1	13.4	9.2	13.2	[6.2]
14	12.8	12.3	10.0	10.8	8.2
15	14.4	13.5	12.9	14.2	10.7
11-15	**12.4**	**13.1**	**11.3**	**13.2**	**9.4**
Bases					
Boys					
11-13 years	*153*	*136*	*126*	*84*	*50*
14	*179*	*146*	*136*	*85*	*68*
15	*316*	*288*	*283*	*220*	*190*
11-15	*648*	*570*	*545*	*389*	*308*
Girls					
11-13 years	*157*	*111*	*110*	*82*	*47*
14	*178*	*157*	*144*	*102*	*73*
15	*314*	*279*	*270*	*216*	*176*
11-15	*649*	*547*	*524*	*400*	*296*

Notes:
The method for estimating the number of units was changed in 2007 so direct comparison with data from before this year is not possible. ¶ The data in 2010 and 2011 were weighted. ¶ All bases shown in this table are unweighted. ¶ Percentages in square brackets indicate small sample bases (between 30 and 49). ¶ Table shows mean unit consumption. One unit of alcohol is equivalent to 10ml by volume of pure alcohol.

Source:
E. Fuller (ed.) (2012) Smoking, drinking and drug use among young people in England in 2011. London: NatCen Social Research.

Figure 5.9

Alcohol consumption in last week, children aged 11 to 15 years, by gender, England 2007 to 2011

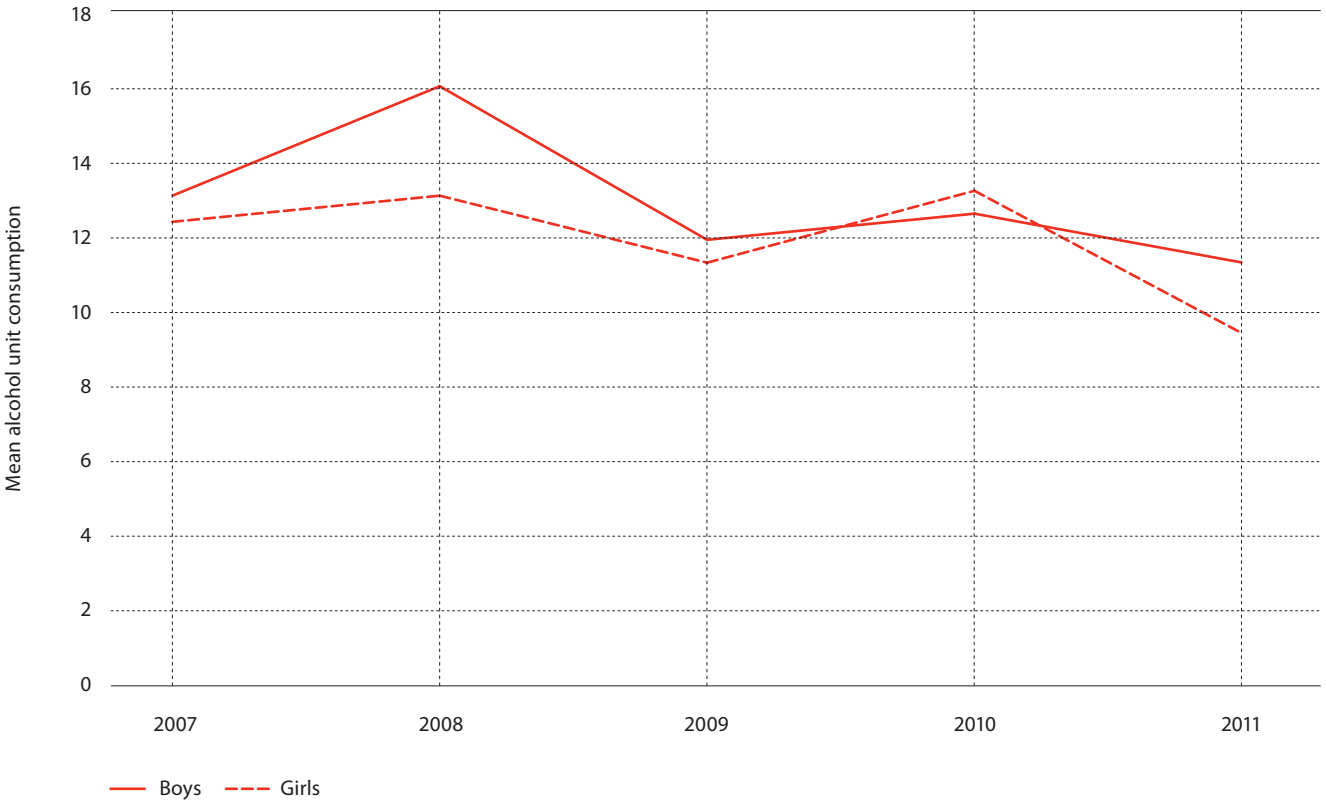


Table 5.10
Alcohol consumption in the last week, children, by gender and type of drink, England 2008 & 2011

	Mean units	
	2008	2011
Boys		
Beer, lager, cider	10.4	7.1
Shandy	0.2	0.3
Wine	1.0	1.0
Spirits	1.7	1.7
Alcopops	2.5	1.2
Other	0.2	0.1
Total	16.0	11.3
Girls		
Beer, lager, cider	4.7	3.2
Shandy	0.1	0.1
Wine	2.6	1.9
Spirits	2.5	2.1
Alcopops	3.1	2.0
Other	0.2	0.1
Total	13.1	9.4
Total		
Beer, lager, cider	7.6	5.2
Shandy	0.2	0.2
Wine	1.8	1.4
Spirits	2.1	1.9
Alcopops	2.8	1.6
Other	0.2	0.1
Total	14.6	10.4
Bases		
Boys	*570*	*308*
Girls	*547*	*296*
Total	*1,117*	*604*

Notes:
Data includes children aged 11 to 15 years. ¶ Data are shown using the revised method of calculating units of alcohol from drinks consumed. ¶ Table shows mean unit consumption. One unit of alcohol is equivalent to 10ml by volume of pure alcohol.

Source:
E. Fuller (ed.) (2012) Smoking, drinking and drug use among young people in England in 2011. London: NatCen Social Research. ¶ E. Fuller (ed.) (2009) Smoking, drinking and drug use among young people in England in 2008. London: NatCen Social Research.

Figure 5.10a

Alcohol consumption in the last week, children aged 11 to 15 years, by gender and type of drink, England 2011

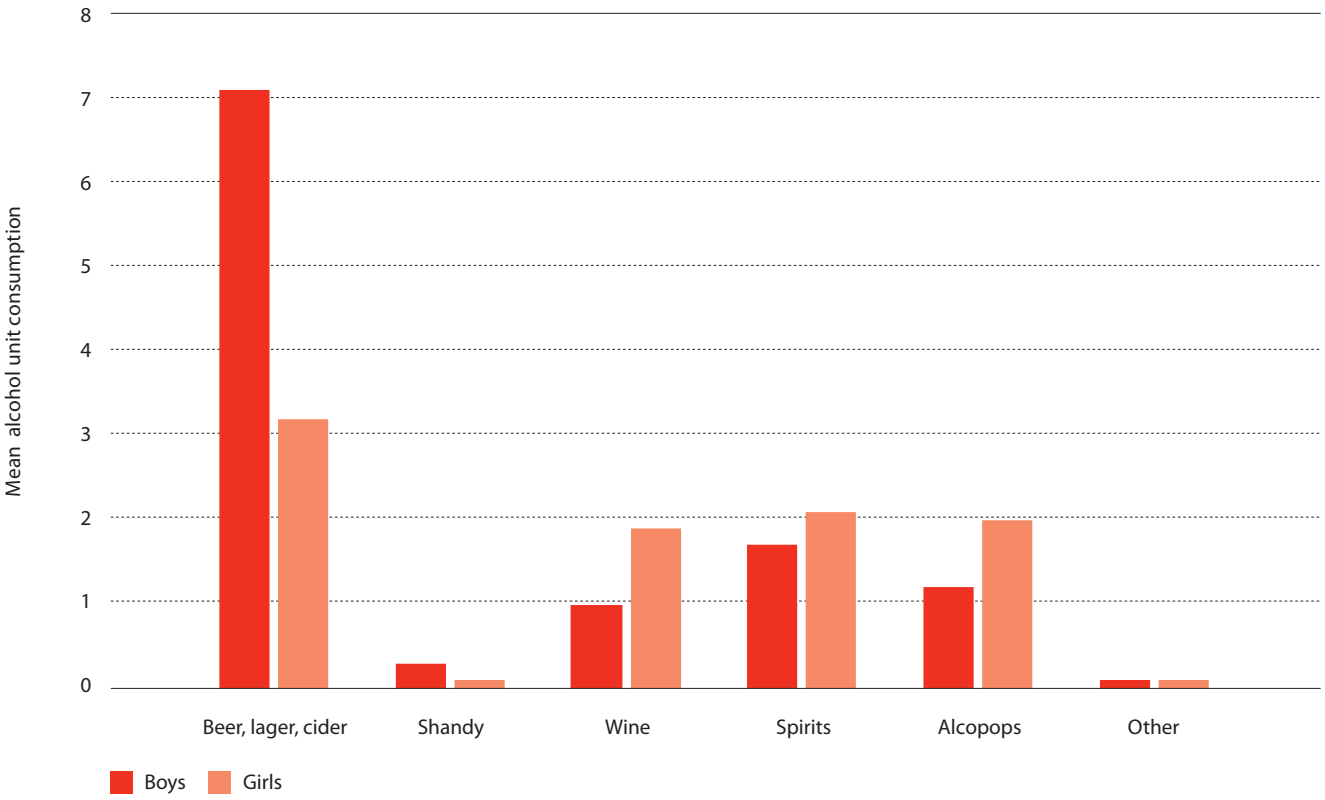


Figure 5.10b

Alcohol consumption in the last week, children aged 11 to 15 years, by type of drink, England 2008 & 2011

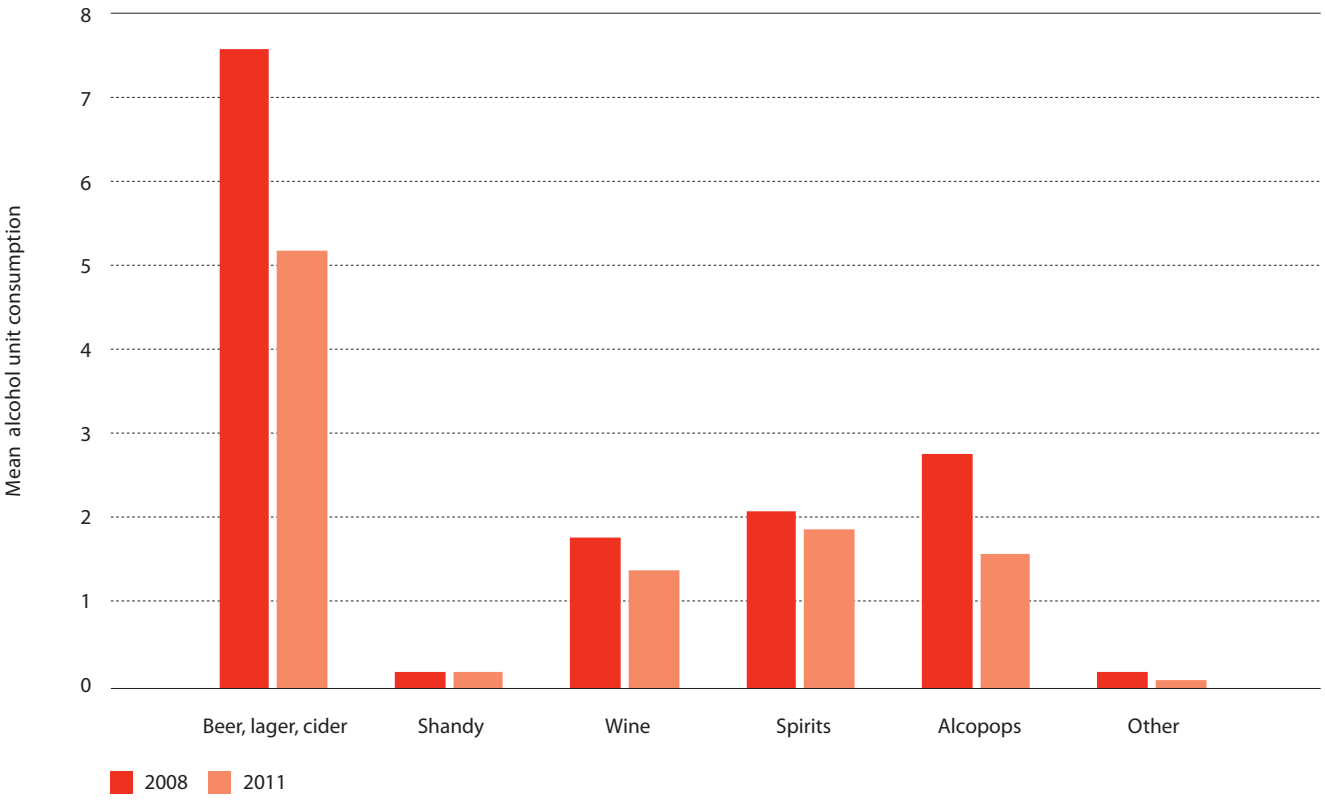


Table 5.11
Alcohol consumption in the last week, children, by gender and age, Scotland 2008 & 2010

	Mean unit consumption			
Year	2008		2010	
Age	13 years	15 years	13 years	15 years
Boys				
Normal beer, lager or cider	8.4	15.6	6.5	10.5
Strong beer, lager or cider	[see notes]		7.9	11.3
Shandy	1.9	1.8	2.2	2.5
Wine	5.0	5.8	5.1	5.8
Fortified wine	4.1	4.9	3.4	4.1
Sherry, martini etc.	2.9	2.2	1.9	2.3
Spirits, liqueurs etc.	2.8	3.9	2.3	3.1
Alcopops	5.5	6.5	6.2	7.3
Girls				
Normal beer, lager or cider	10.4	8.9	5.7	6.9
Strong beer, lager or cider	[see notes]		8.3	8.4
Shandy	1.6	1.8	1.8	2.3
Wine	4.7	5.7	3.5	4.9
Fortified wine	3.8	3.1	2.4	2.8
Sherry, martini etc.	1.6	1.9	1.7	2.1
Spirits, liqueurs etc.	3.5	5.2	2.6	4.2
Alcopops	4.7	4.7	6.5	7.4
Total				
Normal beer, lager or cider	9.2	13.0	6.2	9.1
Strong beer, lager or cider	[see notes]		8.1	10.1
Shandy	1.7	1.8	2.1	2.5
Wine	4.8	5.7	4.2	5.2
Fortified wine	3.9	4.0	2.8	3.5
Sherry, martini etc.	2.1	2.1	1.8	2.2
Spirits, liqueurs etc.	3.2	4.6	2.5	3.7
Alcopops	5.2	5.3	6.4	7.4

Notes:
As the number of pupils who drank each type varied, it has not been possible to provided bases in this table. ¶ Table shows mean unit consumption among those who had consumed that type of alcohol in the last week. One unit of alcohol is equivalent to 10ml by volume of pure alcohol. ¶ In 2010 participants were asked how much 'normal beer, lager or cider' they had drunk and how much 'strong beer, lager or cider'. Normal drinks were estimated to contain 2 units of alcohol per pint whilst strong drinks were estimated to contain 3 units of alcohol per pint. ¶ Changes to the survey between 2008 and 2010 led to greater distinction between 'normal' and 'strong' beer, lager or cider. This may explain why consumption for both categories was reported in 2010 and not 2008.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Figure 5.11

Alcohol consumption in the last week, children, by age and type of drink, Scotland 2008 & 2010

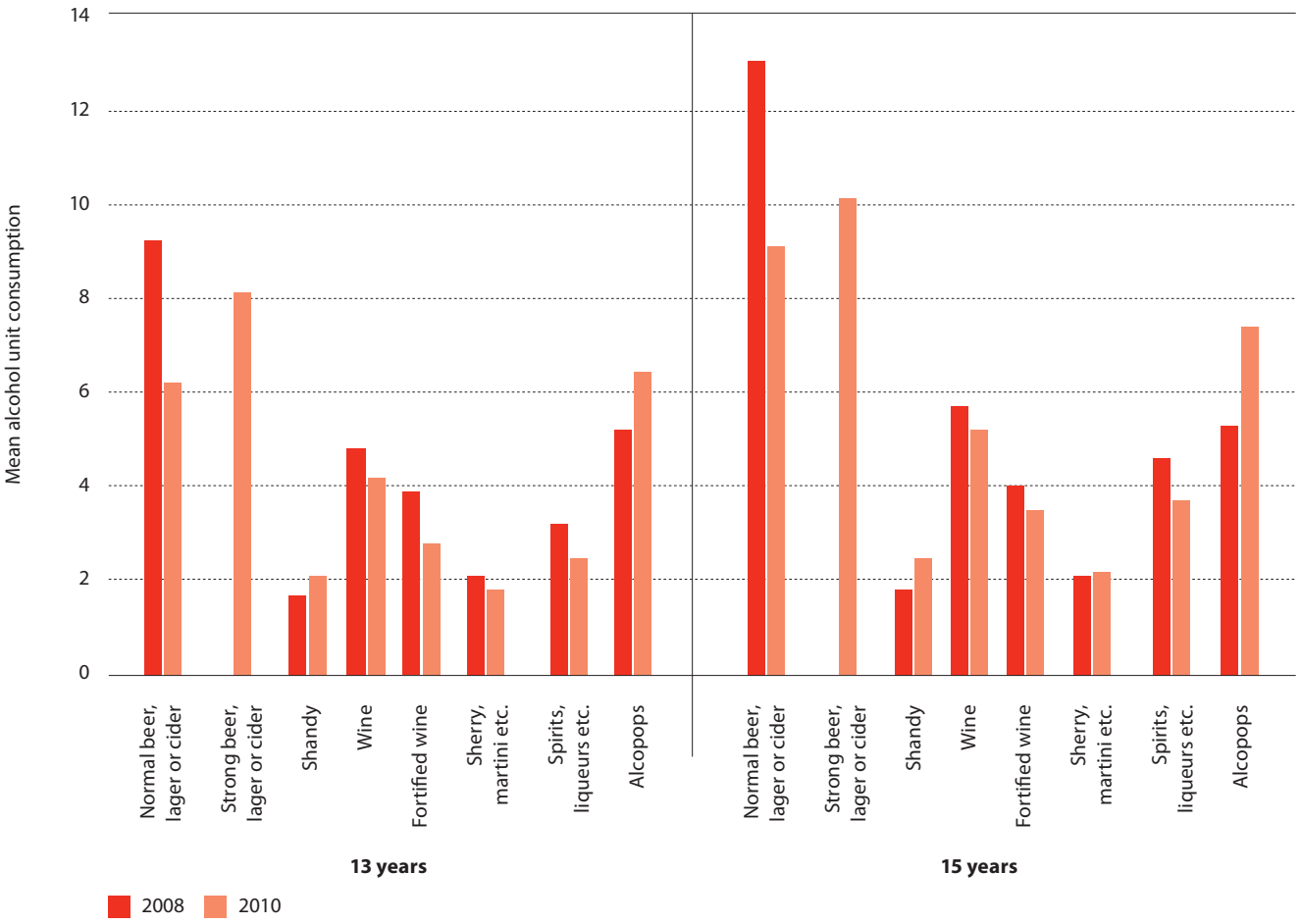


Table 5.12
Alcohol consumption in the last week, children, by gender and age, Scotland 2008 and 2010

Units	2008					
	13 years			15 years		
	Boys	Girls	All	Boys	Girls	All
	%	%	%	%	%	%
Less than 1	3	2	3	1	1	1
1-6	43	42	42	30	32	31
7-13	23	22	22	19	30	25
14-20	10	10	10	17	16	16
21-27	5	7	7	8	8	8
28-34	6	4	5	8	5	6
35-41	3	3	3	4	3	3
42-48	1	2	1	2	1	2
49 +	7	8	7	11	5	8
Average Unit Consumption	15	16	16	21	15	18
Bases	*270*	*313*	*586*	*669*	*670*	*1,344*

Units	2010					
	13 years			15 years		
	Boys	Girls	All	Boys	Girls	All
	%	%	%	%	%	%
Less than 1	16	11	13	7	7	7
1-6	33	36	34	26	28	27
7-13	18	20	19	21	24	23
14-20	10	12	11	12	14	13
21-27	7	7	7	9	8	8
28-34	4	4	4	5	4	5
35-41	3	2	3	4	4	4
42-48	2	2	2	4	2	3
49 +	7	7	7	12	8	10
Average Unit Consumption	15	15	15	22	18	20
Bases	*1,347*	*1,216*	*2,571*	*2,944*	*2,875*	*5,845*

Notes:
Bases are all pupils who reported drinking in the last week. ¶ Units are based on new alcohol conversion factor. ¶ One unit of alcohol is equivalent to 10ml by volume of pure alcohol.

Source:
The Scottish Government (2009) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2008. Edinburgh: ISD Scotland. ¶ Office for National Statistics (2011). Scottish schools adolescent lifestyle and substance use survey (SALSUS) national report. Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. NHS Scotland: Edinburgh.

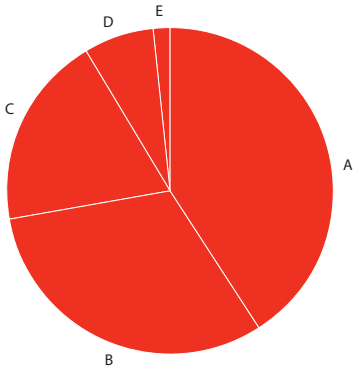
Table 5.13
Drunk in the previous month, children, Northern Ireland 2010

Frequency	Number	%
None	331	41
Once	255	31
2-3 times	155	19
4-10 times	57	7
>10 times	13	2
Total	**811**	

Notes:
Sample is drawn from children in years 8 to 12 (aged 11 to 16 years) in secondary schools in Northern Ireland. ¶ For 2010, the sample was drawn from 175 secondary schools.

Source:
Central Survey Unit (2011) Young persons' behaviour and attitudes survey 2010. Belfast: Northern Ireland Statistics Research Agency.

Figure 5.13
Drunk in the previous month, children aged 11 to 16 years, Northern Ireland 2010



A. None (40.8%)
B. Once (31.4%)
C. 2-3 times (19.1%)
D. 4-10 times (7%)
E. >10 times (1.6%)

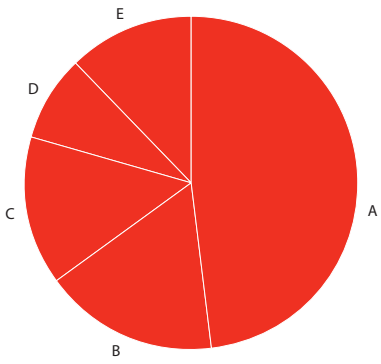
Table 5.14
Occasions when drunk in children, Northern Ireland 2010

Frequency	Number	%
Never	757	48.2
Once	264	16.8
2-3 times	228	14.5
4-10 times	132	8.4
>10 times	190	12.1
Total	**1,571**	

Notes:
Sample is drawn from children in years 8 to 12 in secondary schools in Northern Ireland. ¶ Corresponds to ages 11 to 16 years. ¶ For 2010, the sample was drawn from 175 secondary schools.

Source:
Central Survey Unit (2011) Young persons' behaviour and attitudes survey 2010. Belfast: Northern Ireland Statistics Research Agency.

Figure 5.14
Occasions when drunk, children aged 11 to 16 years, Northern Ireland 2010



A. Never (48.2%)
B. Once (16.8%)
C. 2-3 times (14.5%)
D. 4-10 times (8.4%)
E. >10 times (12%)

Table 5.15
Drunk in the last week, children, by gender and age, Scotland 2010

	13 years			15 years		
	Boys	Girls	All	Boys	Girls	All
	%	%	%	%	%	%
Been drunk in the last week	30	39	34	54	58	56
Base	*1,297*	*1,191*	*2,496*	*2,959*	*2,900*	*5,890*

Notes:
Base is all pupils who reported drinking alcohol in the last week.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Table 5.16
Consumed alcohol in the last week, children, by gender, age and school meal status, Scotland 2010

	Age	
	13 years	15 years
	%	%
Boys		
Free meals	20	36
No free meals	12	34
Don't know	*16*	*30*
Girls		
Free meals	20	37
No free meals	11	33
Don't know	*14*	*27*
Bases		
Boys		
Free meals	*992*	*799*
No free meals	*7,031*	*7,089*
Don't know	*818*	*670*
Girls		
Free meals	*1,163*	*914*
No free meals	*7,017*	*7,049*
Don't know	*789*	*517*

Notes:
Base is all 13 and 15 year olds surveyed.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Figure 5.16

Consumed alcohol in the last week, children, by gender, age and school meal status, Scotland 2010

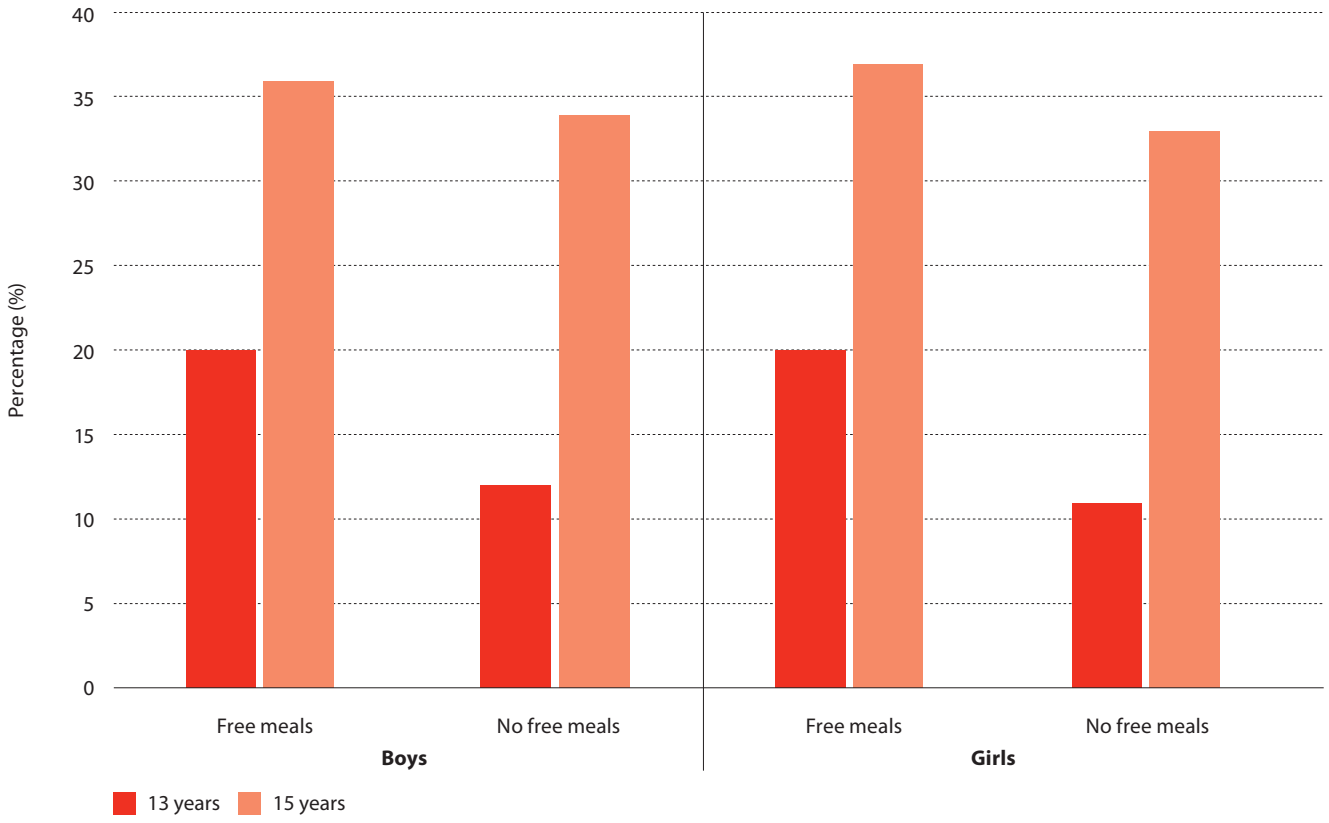


Table 5.17
Drunk at least once, children, by gender, age and school meal status, Scotland 2010

	Age	
	13 years	15 years
	%	%
Boys		
Free meals	64	76
No free meals	50	74
Don't know	*55*	*74*
Girls		
Free meals	62	84
No free meals	51	76
Don't know	*63*	*75*
Bases		
Boys		
Free meals	*454*	*589*
No free meals	*2,793*	*5,272*
Don't know	*321*	*459*
Girls		
Free meals	*613*	*714*
No free meals	*2,674*	*5,499*
Don't know	*297*	*381*

Notes:
Base is all 13 and 15 year olds who had ever drunk alcohol.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Figure 5.17

Drunk at least once, children, by gender, age and school meal status, Scotland 2010

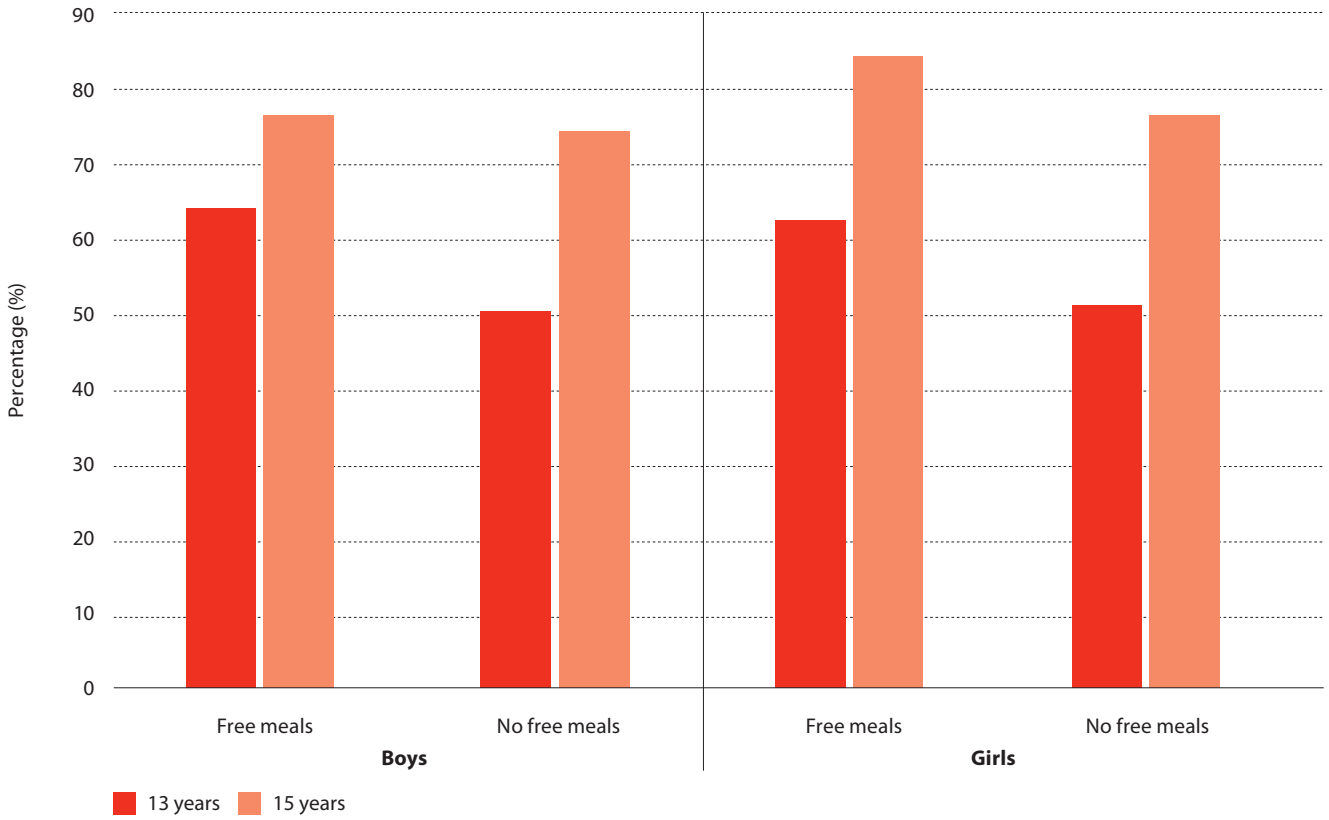


Table 5.18
Consumed alcohol in the last week, children, by gender, age and deprivation quintile, Scotland 2010

		Most deprived	2nd	3rd	4th	Least deprived
		%	%	%	%	%
Boys	13 years	18	16	15	14	12
	15 years	34	34	35	38	32
Girls	13 years	18	16	15	14	12
	15 years	34	34	35	38	32
Bases						
Boys	*13 years*	*1,458*	*1,901*	*2,101*	*1,966*	*2,268*
	15 years	*1,193*	*1,957*	*1,878*	*1,947*	*2,081*
Girls	*13 years*	*1,478*	*2,003*	*2,015*	*1,892*	*2,066*
	15 years	*1,197*	*1,872*	*1,887*	*1,788*	*1,959*

Notes:
Base is all 13 and 15 year olds surveyed. ¶ Percentages relate to those children who consumed alcohol in the last week.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Figure 5.18

Consumed alcohol in the last week, children, by gender, age and deprivation quintile, Scotland 2010

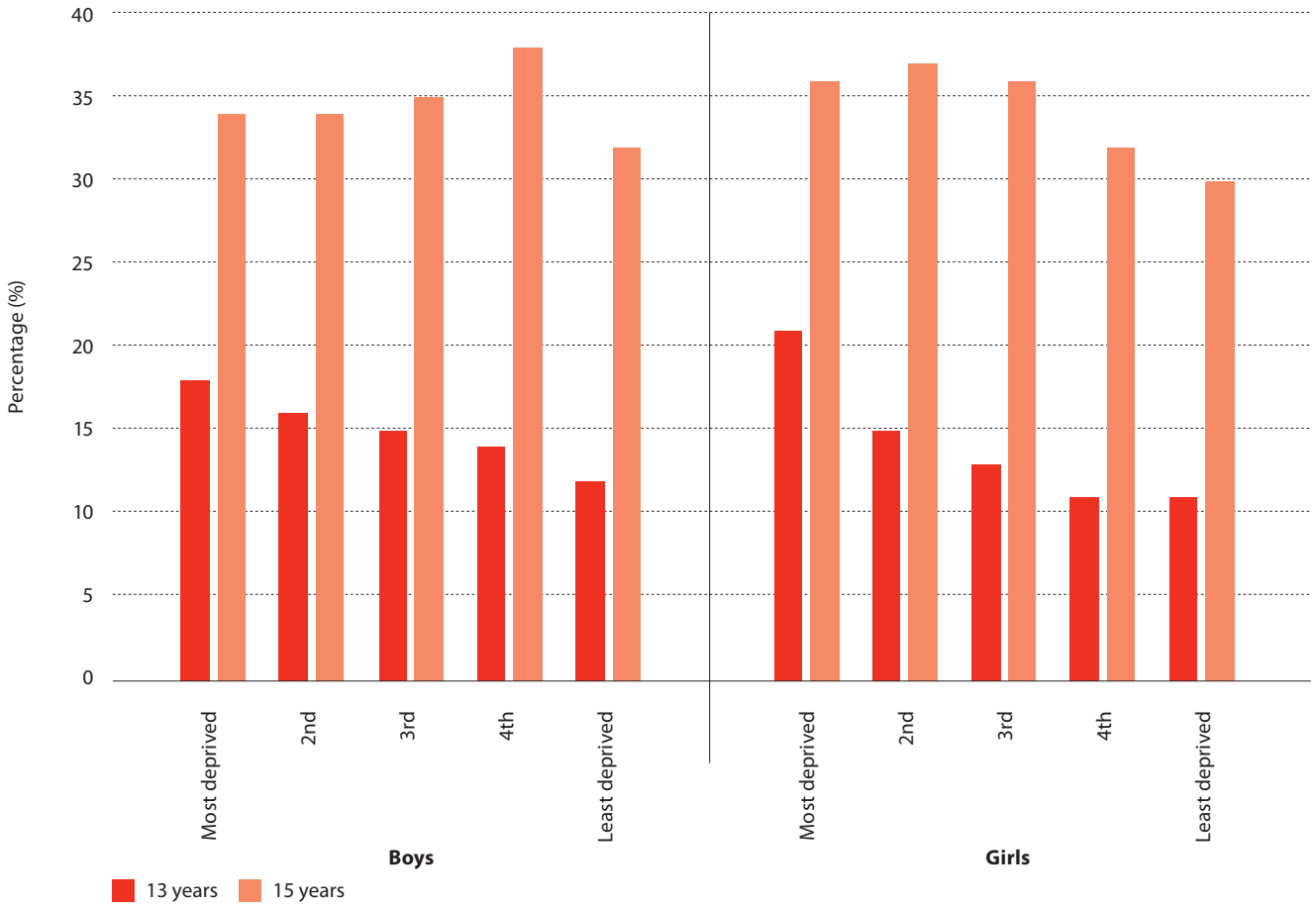


Table 5.19
Drunk in the last week, children, by gender, age and deprivation quintile, Scotland 2010

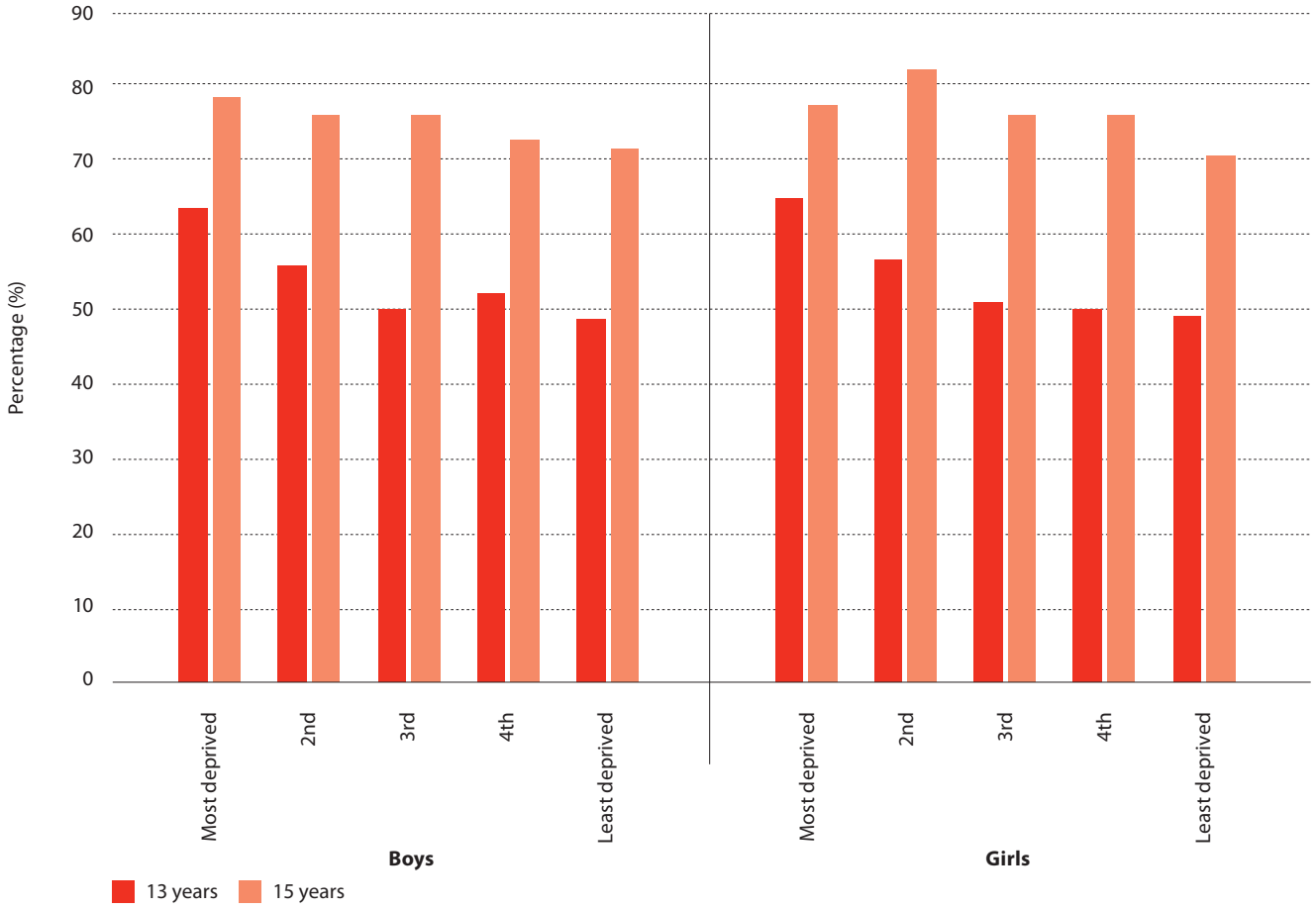
		Most deprived	2nd	3rd	4th	Least deprived
		%	%	%	%	%
Boys	13 years	64	56	50	52	49
	15 years	79	77	76	73	72
Girls	13 years	65	57	51	50	49
	15 years	78	82	76	77	71
Bases						
Boys	*13 years*	*636*	*810*	*939*	*855*	*822*
	15 years	*857*	*1,430*	*1,422*	*1,507*	*1,485*
Girls	*13 years*	*722*	*917*	*850*	*734*	*662*
	15 years	*944*	*1,471*	*1,501*	*1,407*	*1,452*

Notes:
Base is all 13 and 15 year olds who had ever drunk alcohol.

Source:
The Scottish Government (2011) Scottish schools adolescent lifestyle and substance use survey national report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. Edinburgh: ISD Scotland.

Figure 5.19

Drunk in the last week, children, by gender, age and deprivation quintile, Scotland 2010



CHAPTER SIX —

SMOKING

Smoking is a highly addictive behaviour which is known to increase the risk of cardiovascular disease (CVD). It is important, therefore, to understand the extent of this behaviour in children and young people in the UK. Most individuals start smoking in their teenage years and then develop an addiction which can endure throughout adulthood.

Prevalence

In England in 2011, 6% of 11 year olds had smoked a cigarette, but this had increased to 45% amongst 15 year olds. While this figure seems high when compared to the prevalence of smoking in the adult population (20% in 2010) [1], only 11% of 15 year olds considered themselves regular smokers (Table 6.1, Figure 6.1). In Scotland in 2010, 34% of girls and 31% of boys had smoked a cigarette, with a prevalence as high as 45% at age 15 (Table 6.2). In Northern Ireland in 2010, 19% of 11 to 16 year olds reported having ever tried smoking tobacco, with 25% of those reporting to smoke everyday (Table 6.3).

Time trends

The percentage of children smoking or having ever tried smoking has declined over the past two decades, with the exception of Northern Ireland. The prevalence of 11 to 15 year olds in England having ever smoked declined from 44% in 2001 to 25% in 2011 (Table 6.4). In Scotland the percentage of 15 year olds who are regular smokers declined between 1986 and 2010, from 26% to 14% in girls and 24% to 11% in boys (Table 6.5, Figures 6.5a, 6.5b). Teenage smoking in Wales increased between 1986 and 1996, peaking at 26% in teenagers aged 15 to 16 years in 1996. Teenage smoking declined after this however and in 2009 13% were regular smokers. More girls than boys smoke in Wales, with 16% of 15 to 16 year old girls smoking at least once a week, compared to 11% of boys of the same age in 2009 (Table 6.6, Figure 6.6). In Northern Ireland, the percentage of 11 to 16 year olds who have ever tried tobacco declined from 37% in 2000 to 19% in 2010 (Table 6.7, Figure 6.7).

International

When compared to other countries surveyed by the 2009 Health Behaviour in School-aged Children (HBSC) study, England (41%), Wales (42%) and Scotland (39%) all have a relatively low percentage of children who have ever smoked tobacco. In Greenland 85% of 15 year olds had tried tobacco, but in Armenia the equivalent figure was just 22% (Table 6.8, Figure 6.8).

1. Joint Health Surveys Unit (2011). Health Survey for England 2010. Updating of the trend tables. The Information Centre: Leeds. http://www.hscic.gov.uk/pubs/hse10trends (accessed April 2013).

Table 6.1
Smoking in children, by gender and age, England 2011

	11 years	12 years	13 years	14 years	15 years	Total
	%	%	%	%	%	%
Boys						
Regular smoker	0	0	2	5	11	4
Occasional smoker	0	1	3	6	7	4
Used to smoke	1	2	3	5	8	4
Tried smoking	6	10	14	15	16	13
Ever smoked	*7*	*13*	*21*	*31*	*42*	*25*
Never smoked	*93*	*87*	*79*	*69*	*58*	*75*
Girls						
Regular smoker	0	0	3	8	11	5
Occasional smoker	1	1	5	8	10	5
Used to smoke	0	2	3	5	9	4
Tried smoking	3	5	9	16	18	11
Ever smoked	*4*	*8*	*21*	*37*	*48*	*26*
Never smoked	*96*	*92*	*79*	*63*	*52*	*74*
Total						
Regular smoker	0	0	2	7	11	5
Occasional smoker	0	1	4	7	9	4
Used to smoke	1	2	3	5	8	4
Tried smoking	5	8	12	16	17	12
Ever smoked	*6*	*11*	*21*	*34*	*45*	*25*
Never smoked	*94*	*89*	*79*	*66*	*55*	*75*
Bases						
Boys	*503*	*673*	*604*	*625*	*761*	*3,166*
Girls	*527*	*645*	*693*	*637*	*778*	*3,280*
Total	*1,030*	*1,318*	*1,297*	*1,262*	*1,539*	*6,446*

Notes:
The data in 2010 and 2011 were weighted.

Source:
Bridges S, Valdeep G, Omole T, Sutton R, Wright V. (2012) Smoking, drinking and drug use among young people in England 2011. The Information Centre: Leeds.

Figure 6.1
Children who have ever smoked cigarettes, by age, England 2011

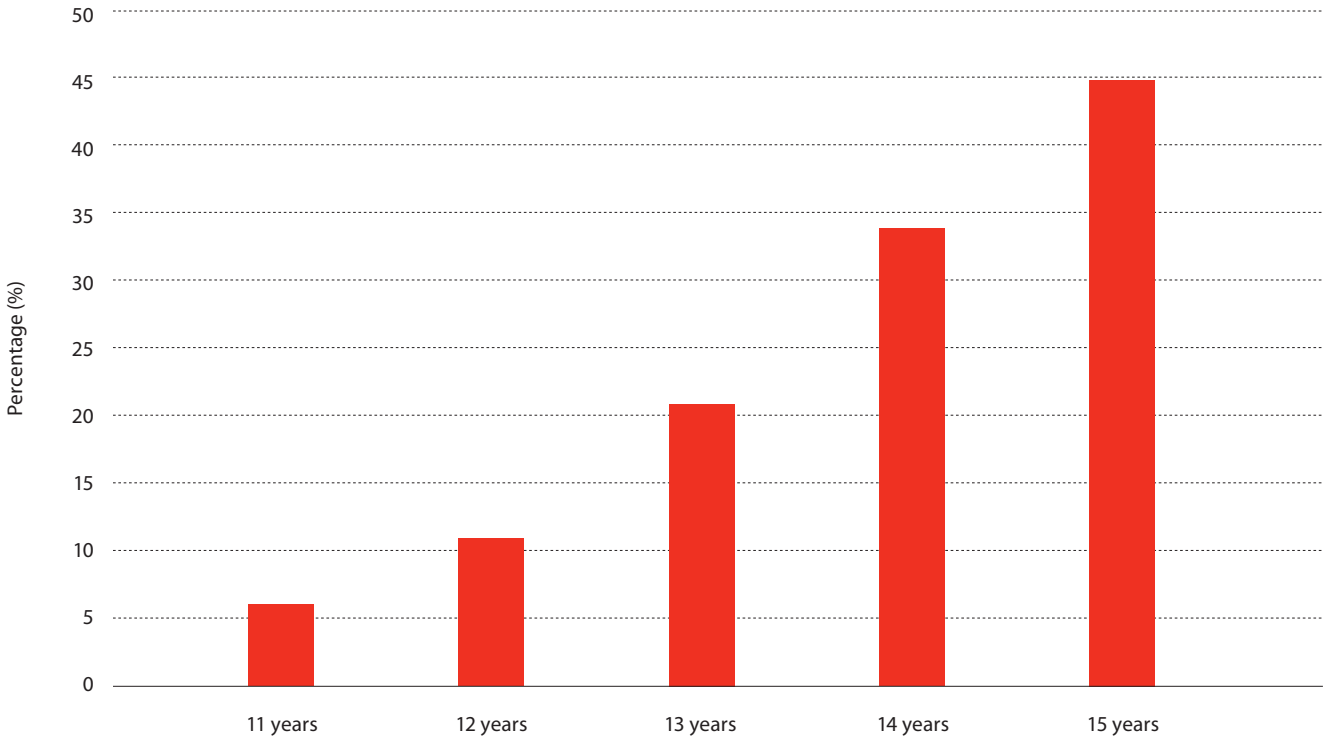


Table 6.2
Smoking in children, by gender and age, Scotland 2010

	13 years			15 years		
	Boys	Girls	All	Boys	Girls	All
	%	%	%	%	%	%
Regular smoker	3	3	3	11	14	13
Occasional smoker	3	3	3	5	7	6
Used to smoke	3	4	4	7	9	8
Tried once	11	11	11	18	18	18
Ever smoked	*20*	*21*	*21*	*41*	*48*	*45*
Never smoked	*80*	*79*	*79*	*58*	*52*	*55*
Base	*9,610*	*9,394*	*19,046*	*9,016*	*8,685*	*17,772*

Source:
The Scottish Government (2011) Scottish Schools Adolescent lifestyle and substance use survey National report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. ISD Scotland: Edinburgh.

Table 6.3
Smoking in children, Northern Ireland 2010

	%	Base
Have you ever smoked tobacco?		
Yes	19.2	674
No	80.8	2,844
How often do you smoke now?		
Every day	25.2	168
At least once a week, but not every day	9.5	63
Less than once a week	9.4	63
I do not smoke now	56.0	374

Notes:
Children aged 11 to 16 years. ¶ How often do you smoke now?' Refers only to those children who said they had ever smoked tobacco.

Source:
Central Survey Unit (2011) Young persons' behaviour and attitudes survey 2010. Northern Ireland Statistics Research Agency.

Table 6.4
Smoking in children, by gender, England 2001 to 2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	%	%	%	%	%	%	%	%	%	%	%
Boys											
Regular smoker	8	9	7	7	7	7	5	5	5	4	4
Occasional smoker	7	6	6	4	5	4	4	4	4	4	4
Used to smoke	8	6	7	7	7	7	6	5	5	4	4
Tried smoking	20	18	20	19	18	18	16	16	15	13	13
Ever smoked	*42*	*39*	*40*	*37*	*37*	*36*	*31*	*31*	*29*	*25*	*25*
Never smoked	*58*	*61*	*60*	*63*	*63*	*64*	*69*	*69*	*71*	*75*	*75*
Girls											
Regular smoker	11	11	11	10	10	10	8	8	7	6	5
Occasional smoker	9	8	8	7	8	6	6	6	6	5	5
Used to smoke	8	8	8	8	8	8	7	6	5	5	4
Tried smoking	17	16	17	15	16	16	15	13	12	12	11
Ever smoked	*45*	*44*	*44*	*41*	*42*	*41*	*36*	*33*	*30*	*28*	*26*
Never smoked	*55*	*56*	*56*	*59*	*58*	*59*	*64*	*67*	*70*	*72*	*74*
Total											
Regular smoker	10	10	9	9	9	9	6	6	6	5	5
Occasional smoker	8	7	7	5	6	5	5	5	5	4	4
Used to smoke	8	7	8	8	8	7	6	6	5	5	4
Tried smoking	19	17	18	17	17	17	15	15	14	13	12
Ever smoked	*44*	*42*	*42*	*39*	*40*	*39*	*33*	*32*	*29*	*27*	*25*
Never smoked	*56*	*58*	*58*	*61*	*60*	*61*	*67*	*68*	*71*	*73*	*75*
Bases											
Boys	*4,652*	*5,064*	*5,179*	*4,989*	*4,623*	*4,018*	*4,021*	*3,950*	*3,820*	*3,663*	*3,166*
Girls	*4,625*	*4,732*	*5,081*	*4,629*	*4,469*	*4,134*	*3,717*	*3,800*	*3,792*	*3,591*	*3,280*
Total	*9,277*	*9,796*	*10,260*	*9,618*	*9,092*	*8,152*	*7,738*	*7,750*	*7,612*	*7,254*	*6,446*

Notes:
The data in 2010 and 2011 were weighted. ¶ Children aged 11 to 15 years.

Source:
Bridges S, Valdeep G, Omole T, Sutton R, Wright V. Smoking, drinking and drug use among young people in England 2011. The Information Centre 2012.

Table 6.5
Smoking in children, by gender and age, Scotland 1982 to 2010

	13 years		15 years	
	Boys	Girls	Boys	Girls
	%	%	%	%
1982	8	10	29	26
1984	10	12	29	34
1986	7	8	24	26
1990	8	10	22	28
1992	9	9	22	28
1994	11	10	20	23
1996	8	10	30	30
1998	9	11	25	27
2000	5	10	15	24
2002	6	9	16	24
2004	5	7	14	24
2006	3	5	12	18
2008	3	4	14	16
2010	3	3	11	14
Base (2010)	*9,610*	*9,394*	*9,016*	*8,685*

Notes:
Table shows regular smokers, defined as usually smoking at least one cigarette a week.

Source:
The Scottish Government (2011) Scottish Schools Adolescent lifestyle and substance use survey National report: Smoking, drinking and drug use among 13 and 15 year olds in Scotland in 2010. ISD Scotland: Edinburgh.

Figure 6.5a
Regular smoking in children aged 13 years, by gender, Scotland 1982 to 2010

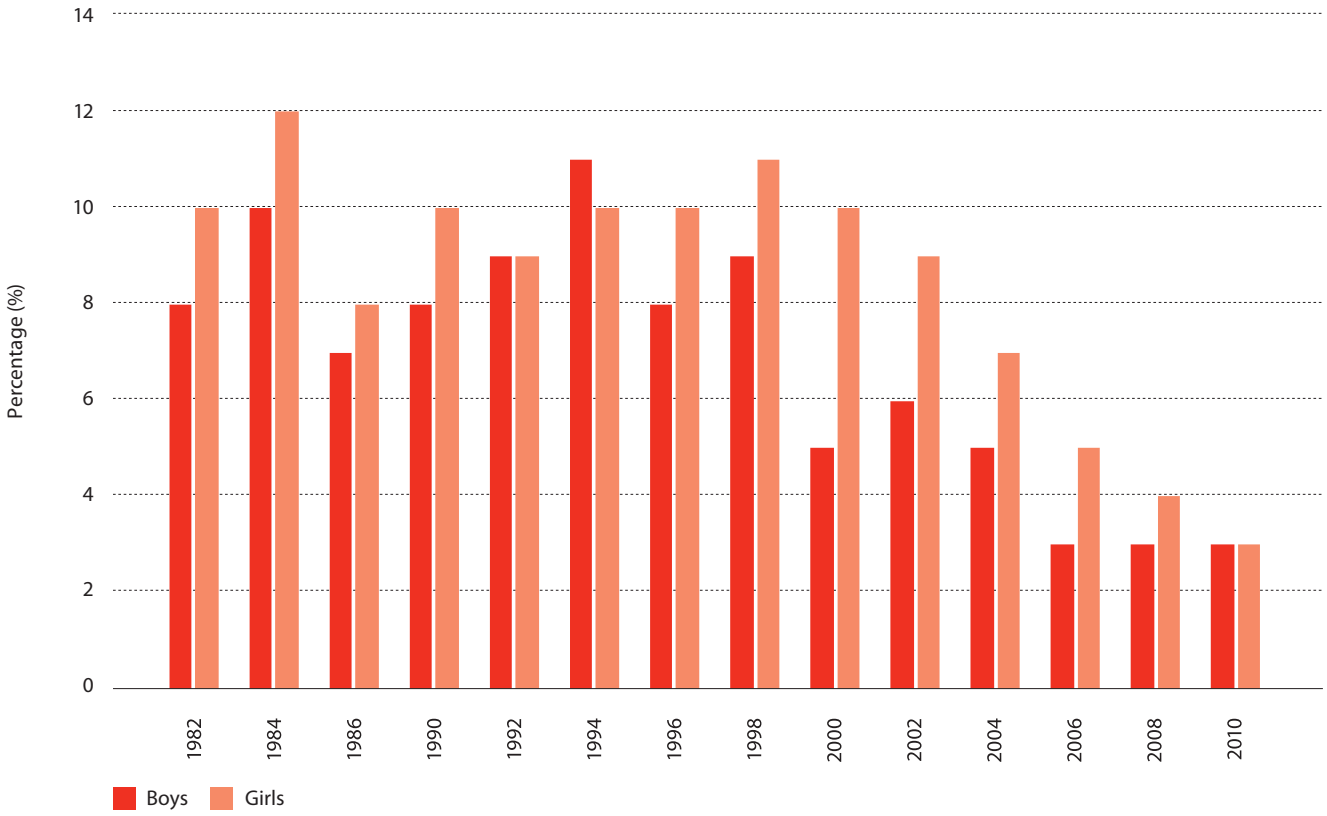


Figure 6.5b
Regular smoking in children aged 15 years, by gender, Scotland 1982 to 2010

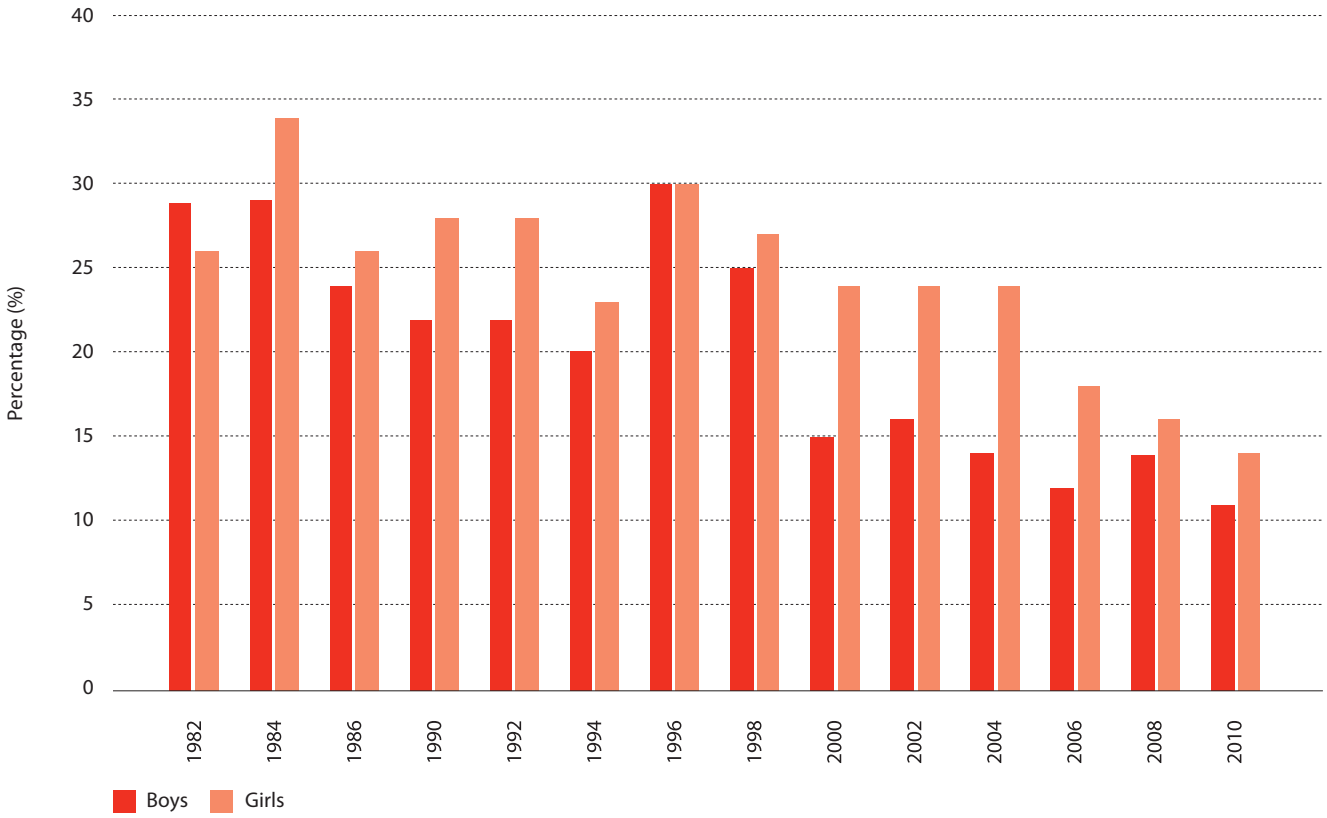


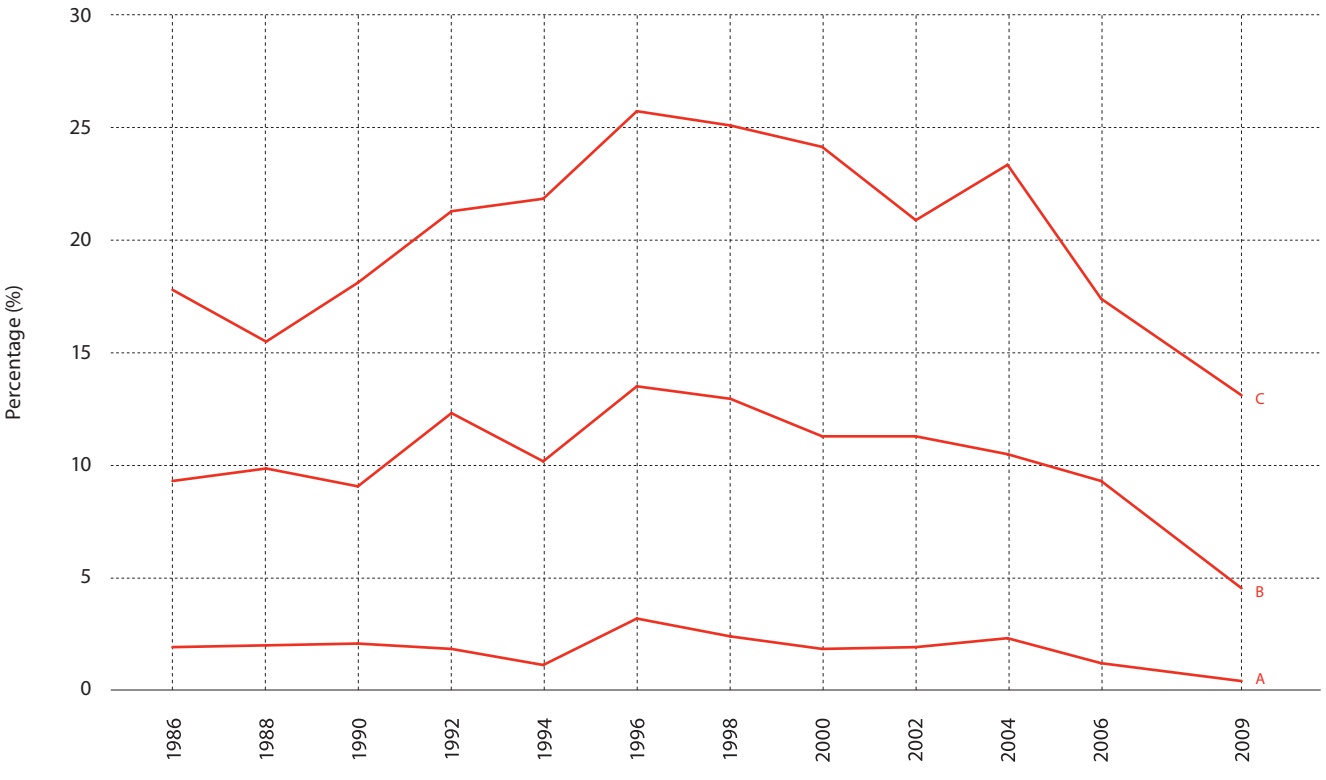
Table 6.6
Smoking in children, by gender and age, Wales 1986 to 2009

	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006	2009
	%	%	%	%	%	%	%	%	%	%	%	%
Boys												
11-12 years	2.0	1.9	2.5	1.6	0.9	2.3	2.3	1.2	2.1	2.5	1.2	0.3
13-14	6.9	9.1	7.6	9.8	7.6	10.8	7.5	6.0	8.1	7.6	6.0	3.3
15-16	16.0	12.1	14.1	18.3	17.7	23.0	21.4	19.5	15.4	19.0	12.2	10.7
Girls												
11-12 years	1.7	2.2	1.7	2.0	1.4	4.1	2.5	2.3	1.6	2.0	1.2	0.4
13-14	12.0	10.9	10.7	15.0	13.0	16.4	18.8	16.8	14.8	12.9	12.5	5.7
15-16	19.8	19.2	22.3	24.5	26.3	28.9	29.0	29.1	26.9	27.5	22.6	15.6
All												
11-12 years	1.9	2.0	2.1	1.8	1.1	3.2	2.4	1.8	1.9	2.3	1.2	0.4
13-14	9.3	9.9	9.1	12.3	10.2	13.5	13.0	11.3	11.3	10.5	9.3	4.5
15-16	17.8	15.5	18.1	21.3	21.9	25.8	25.1	24.2	20.9	23.4	17.4	13.1

Notes:
Children in each age group who reported smoking at least once a week.

Source:
Health statistics Wales 2012. http://wales.gov.uk/topics/statistics/headlines/health2012/1209272/?lang=en (accessed January 2013)

Figure 6.6
Regular smoking in children, by age, Wales 1986 to 2009



A. 11-12 years B. 13-14 years C. 15-16 years

Table 6.7
Smoking in children, Northern Ireland 2000 to 2010

	2000		2003		2007		2010	
	%	*Number*	%	*Number*	%	*Number*	%	*Number*
Have you ever smoked tobacco?								
Yes	36.6	*2,289*	32.7	*2,325*	24.2	*815*	19.2	*674*
No	63.4	*3,964*	67.3	*4,776*	75.8	*2,546*	80.8	*2,844*
How often do you smoke now?								
Every day	25.6	*584*	27.5	*636*	24.9	*202*	25.2	*168*
At least once a week, but not every day	7.7	*175*	6.7	*155*	6.4	*52*	9.5	*63*
Less than once a week	6.5	*147*	6.1	*141*	4.9	*40*	9.4	*63*
I do not smoke now	60.2	*1,373*	59.7	*1,382*	63.8	*518*	56.0	*374*

Notes:
Children aged 11 to 16 years. ¶ 'How often do you smoke now?' Refers only to those children who said they had ever smoked tobacco.

Source:
Central Survey Unit. Young persons' behaviour and attitudes survey 2010. Northern Ireland Statistics Research Agency (2011).

Figure 6.7
Percentage of 11 to 16 year olds who have ever smoked tobacco, Northern Ireland 2000 to 2010

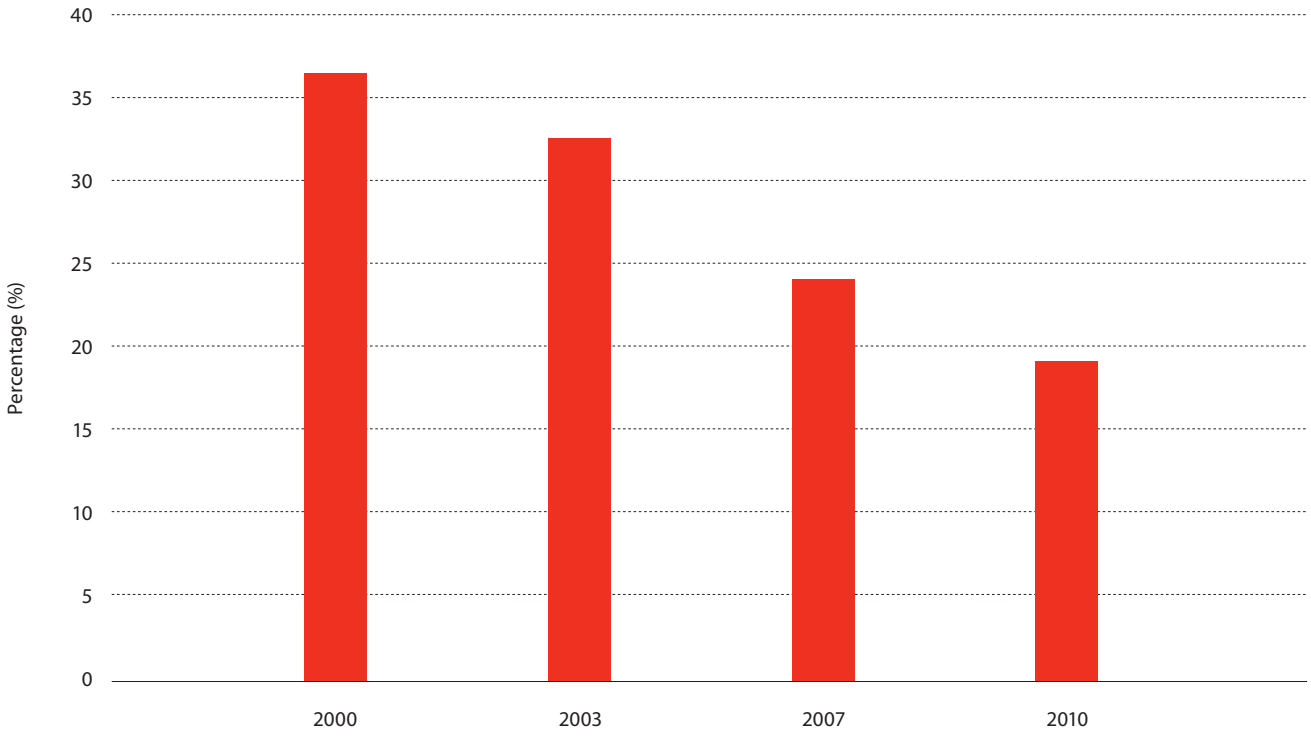


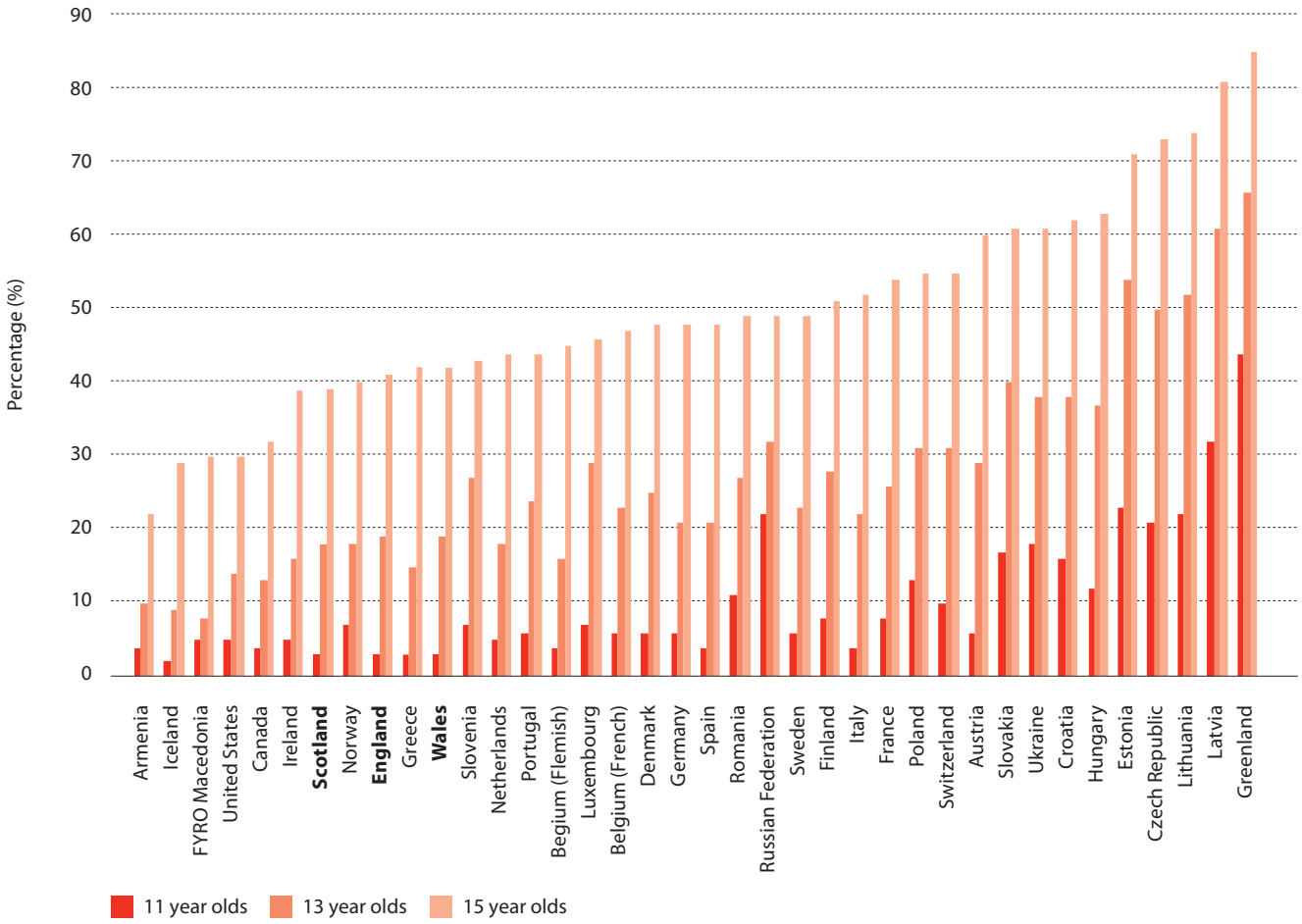
Table 6.8
Tried smoking, children, by gender, age and country, HBSC 2009/10

	11 Year olds			13 Year olds			15 Year olds		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
	%	%	%	%	%	%	%	%	%
Armenia	7	2	4	17	3	10	33	11	22
Austria	8	4	6	29	28	29	57	63	60
Belgium (Flemish)	6	2	4	18	15	16	47	44	45
Belgium (French)	9	4	6	25	20	23	46	48	47
Canada	4	4	4	13	14	13	31	34	32
Croatia	22	10	16	41	35	38	62	62	62
Czech Republic	25	16	21	50	51	50	70	75	73
Denmark	9	3	6	24	26	25	45	51	48
England	**3**	**4**	**3**	**21**	**18**	**19**	**37**	**45**	**41**
Estonia	29	16	23	57	51	54	77	65	71
Finland	10	5	8	31	26	28	52	49	51
France	11	5	8	27	25	26	53	55	54
Germany	8	4	6	23	18	21	50	46	48
Greece	5	1	3	15	15	15	42	42	42
Greenland	45	43	44	63	68	66	82	88	85
Hungary	14	10	12	39	35	37	63	63	63
Iceland	4	1	2	11	7	9	33	26	29
Ireland	6	4	5	17	15	16	38	40	39
Italy	6	2	4	26	19	22	52	53	52
Latvia	41	24	32	66	56	61	81	81	81
Lithuania	31	12	22	56	47	52	77	70	74
Luxembourg	8	6	7	32	26	29	56	56	46
FYRO Macedonia	6	3	5	10	6	8	33	26	30
Netherlands	7	4	5	20	15	18	45	43	44
Norway	9	5	7	23	13	18	40	40	40
Poland	16	9	13	35	26	31	57	53	55
Portugal	8	4	6	26	23	24	44	43	44
Romania	15	7	11	31	22	27	55	43	49
Russian Federation	27	18	22	34	30	32	52	47	49
Scotland	**4**	**3**	**3**	**17**	**20**	**18**	**37**	**42**	**39**
Slovakia	23	11	17	44	37	40	64	57	61
Slovenia	10	5	7	30	24	27	53	53	43
Spain	6	2	4	23	20	21	41	54	48
Sweden	7	5	6	24	22	23	45	52	49
Switzerland	14	6	10	36	26	31	60	50	55
Ukraine	25	10	18	46	30	38	69	53	61
United States	7	3	5	15	13	14	30	31	30
Wales	**4**	**3**	**3**	**17**	**22**	**19**	**38**	**46**	**42**
HBSC average	**13**	**7**	**10**	**29**	**25**	**27**	**50**	**49**	**49**

Notes:
Young people were asked if they had ever smoked tobacco (at least one cigarette, cigar or pipe). Response options were "yes or "no".

Source:
Currie C, et al. Social determinants of health and well-being among young people. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. WHO Regional Office for Europe.

Figure 6.8
Tried smoking, children, by gender, age and country, HBSC 2009/10



BRITISH HEART FOUNDATION RESOURCES

These are our resources most closely related to topics in this publication. Links are shown where items are available for download. Details of how to order are provided at the end of the list.

Congenital Heart Disease

What if my child has a congenital heart condition? Advice for parents and carers
This booklet is aimed at parents of children and young people who have a congenital heart condition. It explains why it's good for children and young people with congenital heart conditions to be active, and provides information to make it easy for them to be physically active safely, within the limits of their condition.
Order code – G524
or download at **bhf.org.uk/publications**

Understanding your child's heart
Written for parents of babies and children with congenital heart disease. Fifteen titles are available.
Visit **bhf.org.uk/schools**

Understanding your child's heart
DVD providing parents of children with congenital heart disease practical information, help and support.
Order code – DVD24

Information leaflets for young people with congenital heart disease
A series of leaflets to enable young people with heart conditions to understand more about their condition as they start to take more responsibility for their own health. The leaflets educate young people on their condition and problems they are likely to encounter in their teenage years. 14 titles are available.
Visit **bhf.org.uk/schools**

The BHF card
An "ID Card" for young people who have an ongoing heart condition. Ordered and filled out by a cardiac nurse, cardiologist or cardiac physiologist and given to young people for free, it can be shown to others at times when their condition is questioned or forgotten.
Order code – G486

Your journey, your rules
A new resource designed to support young people living with heart conditions to have a smooth transition between paediatric and adult services and care. Includes sections on lifestyle choices and risky behaviours.
Order code – G690

Straight from the heart
This resource will help young people who are going into hospital for any kind of heart procedure. It's called *Straight from the heart* because all the tips have come from young people who have been through a heart procedure. We worked in partnership with the Children's Heart Federation to create this resource and also had help from young people and heart experts.
Order code – G562

The Small Creature
An award winning pack for children under 11 who are coming to terms with the loss of a loved one.
Visit **cbhf.net**
Order code – G458

Medical Risk Factors

Blood pressure
This booklet is for people who want to know more about blood pressure. It may be particularly useful for people with high blood pressure, and for their family and friends.
Order code – HIS4
or download at **bhf.org.uk/publications**

Diabetes and your heart
This booklet is for people who have diabetes, and for their families and friends. It may also be useful if you don't have diabetes but you have been told you may develop it in the future.
Order code – HIS22
or download at **bhf.org.uk/publications**

Reducing your blood cholesterol
This booklet explains what cholesterol is, its role in coronary heart disease, what causes high levels and how it can be kept under control. It also explains which medicines are used to treat high levels.
Order code – HIS3
or download at **bhf.org.uk/publications**

Diet

Eatwell plate
Our Eatwell plate shows the proportions of foods, from the five food groups, for healthy eating. Online plates are available for both men and women, making portion control and better food choices easier.
Visit **bhf.org.uk/eatwellplate**

Cut the saturated fat
Our wall chart includes information on the different types of fat in food and advice on the healthiest options to choose, both when cooking or eating out.
Order code – M4
or download at **bhf.org.uk/publications**

Cut down on salt
This booklet provides practical tips and recipe ideas. It describes guideline levels salt intake for adults and how to identify high salt foods.
Order code – G160
or download at **bhf.org.uk/publications**

Physical Inactivity

Physical activity for all
A course for professionals working with children and young people with asthma, obesity, diabetes and congenital heart conditions. Designed for PE teachers, play practitioners and other physical activity leaders wanting to improve their knowledge of medical conditions that may cause concern during PE lessons or physical activity sessions.
Order code – G570 activity pack
Visit **bhfactive.org.uk**

Make a move
This programme helps secondary schools become active schools. The Motivator pack, complete with supporting resources, helps 11 to 14 year old students become more physically active.
Order code – G656 Motivator pack

Early movers
This pack comes complete with leaflets, stickers, posters, height chart and seven booklets to help practitioners develop physically active play environments for babies and pre-school children.
Order code – G609
or download at **bhf.org.uk/publications**

Alcohol

See **Your journey, your rules** above.

Smoking

Smokey Joe
This online resource and teachers notes include a game, associated classroom activities and a range of mini quiz questions and answers.
Order code – G497 teacher notes
or visit **stuboutjoe.com/schools**

Stop smoking
This booklet provides practical tips for smokers who are thinking about giving up and helps them to understand more about why they smoke and how they can stop smoking for good. It explains the link between smoking and heart disease and discusses different approaches to quitting, with tips and activities to help you on your journey.
Order code – G118
or download at **bhf.org.uk/publications**

Other BHF websites:

cbhf.net
For children living with and without heart conditions. CBHF features games, animations and basic information about how to maintain a healthy heart.

yheart.net
For young people living with and without heart conditions. It uses a range of formats, including games and videos, to provide young people with information, advice and guidance about how to improve their heart health.

yoobot.co.uk/yoobot.html
Online nutrition game for teenagers

Downloading publications

If you want to download a BHF publication, please search by title at **bhf.org.uk/publications**

To order any items

Go to **bhf.org.uk/schools**
Email orderline@bhf.org.uk
Phone BHF Orderline 0870 600 6566

Code number
Each resource has a code number. You will need to quote this code number when ordering resources, to help ensure that you order the right resource.

Suggested donations
The BHF makes all of its resources available to everyone without charge. However, if you are able to send us a donation it would be appreciated. Visit **bhf.org.uk/donate**

Acknowledgements

The compilers would like to thank Ed Dicks, Jenna Hall, Catherine Kelly, Peter Weissberg, Clare Mills, Heidi Walker, Hilary Jordan, Mervyn Wilson, David Cunningham, Rachel Stewart, Andrew D McLean, Kim Swain, Carrie Doole and Marie Climson for their help in producing this publication.

British Heart Foundation

Coronary heart disease is the UK's single biggest killer.

For over 50 years we've pioneered research that's transformed the lives of people living with heart and circulatory conditions. Our work has been central to the discoveries of vital treatments that are changing the fight against heart disease.

But so many people still need our help.

From babies born with life-threatening heart problems to the many mums, dads and grandparents who survive a heart attack and endure the daily battles of heart failure.

Join our fight for every heartbeat in the UK. Every pound raised, minute of your time and donation to our shops will help make a difference to people's lives.

FIGHT FOR EVERY HEARTBEAT

bhf.org.uk