

Coronary heart disease statistics

2008 edition

Steven Allender, Viv Peto, Peter Scarborough, Asha Kaur and Mike Rayner

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

Contents

	Page
<i>Foreword</i>	<i>10</i>
<i>Introduction</i>	<i>11</i>
1. Mortality	12
Table 1.1 CVD mortality targets for the United Kingdom	16
Figure 1.1a Death rates from CVD, adults aged under 75, 1969 to 2006, England, with “Our Healthier Nation” milestone and target	17
Figure 1.1b Absolute gap in death rates from CVD, between the fifth most deprived areas and the population as a whole, adults aged under 75, 1993 to 2006, England, with inequalities target	17
Figure 1.1c Death rates from CHD, adults aged under 65, 1969 to 2006, England	18
Figure 1.1d Death rates from CHD, adults aged 65 to 74, 1969 to 2006, England	18
Figure 1.1e Death rates from stroke, adults aged under 65, 1969 to 2006, England	19
Figure 1.1f Death rates from stroke, adults aged 65 to 74, 1969 to 2006, England	19
Table 1.2 Deaths by cause, sex and age, 2005, United Kingdom	20
Table 1.3 All deaths and deaths under 75 by cause and sex, 2006, England, Wales, Scotland, Northern Ireland and United Kingdom	21
Figure 1.3a Deaths by cause, men, 2006, United Kingdom	22
Figure 1.3b Deaths by cause, women, 2006, United Kingdom	22
Figure 1.3c Deaths by cause, men under 75, 2006, United Kingdom	23
Figure 1.3d Deaths by cause, women under 75, 2006, United Kingdom	23
Table 1.4 Age-specific death rates per 100,000 population from CHD by sex, 1968 to 2006, United Kingdom	24
Figure 1.4a Age-specific death rates from CHD, men, 1968 to 2006, United Kingdom, plotted as a percentage of the rate in 1968	25
Figure 1.4b Age-specific death rates from CHD, women, 1968 to 2006, United Kingdom, plotted as a percentage of the rate in 1968	25
Table 1.5 Age-standardised death rates per 100,000 population from CHD, 1968 to 2002, selected countries, the World	26
Figure 1.5a Death rates from CHD, men and women aged 35 to 74, 2000, selected countries	28
Figure 1.5b Changes in death rates from CHD, men and women aged 35 to 74, between 1990 and 2000, selected countries	28
Table 1.6 Age-standardised death rates from CHD per 100,000 population by country and Standard Region, 1978 to 1996, and by country and Government Office Region, 1997 to 2006, United Kingdom	28
Table 1.7 Numbers of deaths and age-standardised death rates from CHD for men and women under 65 by local authority, 2004/06, United Kingdom	30
Key to local authorities	33
Figure 1.7a Age-standardised death rates per 100,000 population from CHD for men under 65 by local authority, 2004/06, United Kingdom	34
Figure 1.7b Age-standardised death rates per 100,000 population from CHD for women under 65 by local authority, 2004/06, United Kingdom	35
Table 1.8 Age-standardised death rates from CHD and stroke by sex and social class, 1976/81 to 1997/99, England and Wales	36
Figure 1.8 Death rates from CHD by social class, men and women aged 35 to 64, 1978 to 1998, England and Wales	36

Table 1.9	Age-standardised death rates for CVD, CHD and stroke by deprivation twentieth, sex and age, 1993 to 2003, England and Wales	37
Figure 1.9	Age-standardised death rates for CHD and stroke, adults aged 15 to 64, 1993 to 2003, England and Wales	37
Table 1.10	CHD and stroke death rates per 100,000, by country of birth, adults aged 30 to 69, 1999 to 2003, England and Wales	38
Figure 1.10a	Standardised mortality ratios for CHD by country of birth, adults aged 30 to 69, 1999 to 2003, England and Wales	39
Figure 1.10b	Standardised mortality ratios for stroke by country of birth, adults aged 30 to 69 years, 1999 to 2003, England and Wales	39
Table 1.11	Deaths from CHD by sex, age and month, 2004/05, England and Wales	40
Figure 1.11	Deaths from CHD by sex and month, 2004/05, England and Wales	41
Table 1.12	Excess winter deaths from CHD by sex, age and Government Office Region, 2004/05, England and Wales	42
2.	<i>Morbidity</i>	43
Table 2.1	Incidence of myocardial infarction, adults, latest available year, UK studies compared	48
Table 2.2	Incidence of angina, adults, latest available year, UK studies compared	49
Table 2.3	Incidence of heart failure, adults, 1995/96, Hillingdon, England	50
Table 2.4	Prevalence of myocardial infarction, adults aged between 55 and 74, latest available year, UK studies compared	51
Table 2.5	Percentage who have experienced cardiovascular conditions (ever and recently) by sex and age, 2006, England	52
Table 2.6	Prevalence of angina, adults, latest available year, UK studies compared	53
Table 2.7	Prevalence of heart failure, adults, latest available year, UK studies compared	54
Table 2.8	Percentage reporting longstanding illness by sex, age and condition, 2006, Great Britain	55
Figure 2.8	Percentage reporting longstanding illness by sex and condition, 2006, Great Britain	56
Table 2.9	Prevalence of disease 2006/07, England, Scotland and Wales	57
Figure 2.9	Prevalence of disease 2006/07, England, Scotland and Wales	58
Table 2.10	Prevalence of CHD, stroke and CHD or stroke by sex and age, 1994, to 2006, England	59
Figure 2.10	Change in prevalence rates in CHD, stroke and CHD or stroke by sex, 1994 to 2006, England	60
Table 2.11	Rates per 1,000 population reporting longstanding diseases of the circulatory system by sex and age, 1988 to 2005, Great Britain	61
Figure 2.11	Rate of reporting longstanding cardiovascular disease by age, 1988 to 2005, Great Britain	62
3.	<i>Treatment</i>	63
Table 3.1	National Service Framework (NSF) for Coronary Heart Disease: Standards and Quality requirements, England	67
Table 3.2	Prescriptions used in the prevention and treatment of all diseases of the circulatory system, 1981 to 2006, England	69
Figure 3.2	Prescriptions used in the prevention and treatment of CVD, selected BNF paragraphs, 1981 to 2006, England	70
Table 3.3	Operations for CHD, 1977 to 2003, United Kingdom	70
Table 3.4	Percutaneous coronary interventions, 1991 to 2006, United Kingdom	71
Figure 3.4	Number of coronary artery bypass operations and percutaneous coronary interventions per year, 1980 to 2006, United Kingdom	71

Table 3.5	Inpatient cases by main diagnosis and sex, National Health Service hospitals, 2006/07, England and Scotland	72
Figure 3.5a	Inpatient cases by main diagnosis, men, National Health Service hospitals, 2006/07, England	73
Figure 3.5b	Inpatient cases by main diagnosis, women, National Health Service hospitals, 2006/07, England	73
Figure 3.5c	Inpatient cases by main diagnosis, men, National Health Service hospitals, 2006/07, Scotland	74
Figure 3.5d	Inpatient cases by main diagnosis, women, National Health Service hospitals, 2006/07, Scotland	74
Table 3.6	Rates of hospital discharge from CVD, 1970 to 2005, Europe	75
Table 3.7	Rates of hospital discharge from CHD, 1970 to 2005, Europe	76
Figure 3.7	Rates of hospital discharges for CHD, 1980 to 2005, selected European countries	76
Table 3.8	Rates of hospital discharges from stroke, 1970 to 2005, Europe	77
Figure 3.8	Rates of hospital discharges from stroke, 1980 to 2005, selected European countries	77
Table 3.9	Outcome at 4 weeks and use of free Nicotine Replacement Therapy in people using National Health Service smoking cessation services, 1999/00 to 2006/07, England and Northern Ireland	78
Table 3.10	Emergency calls: responses within 8 minutes by Ambulance Service, 1999/00 to 2006/07, England	79
Table 3.11	Thrombolytic treatment, use of aspirins, beta blockers, and statins after a heart attack, 2004/05 to 2006/07, England and Wales	80

4. Smoking 81

Table 4.1	Smoking targets for the United Kingdom	85
Figure 4.1a	Cigarette smoking by sex, adults aged 16 and over, 1972 to 2006, England, with “Smoking Kills” national targets	86
Figure 4.1b	Cigarette smoking by sex, children aged 11 to 15, 1982 to 2005, England, with “Smoking Kills” national targets	86
Table 4.2	Smoking-attributed deaths by cause, sex and age, 1995 to 2005, England and Wales, and Scotland	87
Table 4.3	Cigarette smoking by sex and age, 1972 to 2006, Great Britain	88
Figure 4.3a	Prevalence of cigarette smoking by sex and age, 2006, Great Britain	89
Figure 4.3b	Prevalence of cigarette smoking by sex, 1972 to 2006, Great Britain	89
Table 4.4	Regular cigarette smoking in young people aged 11 to 15 by sex, 1982 to 2006, England, Scotland, Wales and Northern Ireland	90
Table 4.5	Average daily cigarette consumption per smoker by sex and age, 1974 to 2006, Great Britain	91
Table 4.6	Cigarette smoking by sex and country of United Kingdom, 1976 to 2006, and by Government Office Region, 1998 to 2006, United Kingdom	92
Figure 4.6a	Percentage of men smoking by region, 2004/06, United Kingdom	93
Figure 4.6b	Percentage of women smoking by region, 2004/06, United Kingdom	93
Table 4.7	Cigarette smoking by sex and social class, adults aged 16 and over, 1992 to 2006, England	94
Figure 4.7	Cigarette smoking, by sex and social class, adults aged 16 and over, 1992 to 2006, England	94
Table 4.8	Cigarette smoking by sex and socio-economic classification, adults aged 16 and over, 2006, Great Britain	95
Figure 4.8	Cigarette smoking by sex and socio-economic classification, adults aged 16 and over, 2006, Great Britain	95
Table 4.9	Cigarette smoking by sex and ethnic group, adults aged 16 and over, 2004, England	96
Figure 4.9	Cigarette smoking by sex and ethnic group, adults aged 16 and over, 2004, England	96

Table 4.10	Prevalence of smoking, latest available data, 1995 to 2004, all available countries, the World	97
Figure 4.10a	Prevalence of smoking, men, latest available data, 1995 to 2004, the World	99
Figure 4.10b	Prevalence of smoking, women, latest available data, 1995 to 2004, the World	100
Table 4.11	Percentage regular daily smokers by country, adults aged 15 and over, 1995 to 2005, selected European countries	101
Figure 4.11	Percentage regular daily smokers by country, adults aged 15 and over, latest year between 1997 and 2005, selected European countries	102

5. *Diet* 103

Table 5.1	Selected dietary targets for the United Kingdom	106
Table 5.2	Consumption of total fat, saturated fat, salt, sugar, fibre and fruit and vegetables, adults aged 16 and over, 1975 to 2006, Great Britain	107
Figure 5.2a	Consumption of total fat, saturated fat and NME sugars, adults aged 16 and over, 1975 to 2006, Great Britain, with “Choosing a Better Diet” targets	108
Figure 5.2b	Consumption of fruit and vegetables, adults aged 16 and over, 1975 to 2006, Great Britain, with 5-a-day benchmark	108
Table 5.3	Consumption of selected foods, adults aged 16 and over, 1942 to 2006, United Kingdom	109
Figure 5.3a	Consumption of fats, adults aged 16 and over, 1942 to 2006, United Kingdom	110
Figure 5.3b	Consumption of milk and milk products, adults aged 16 and over, 1942 to 2006, United Kingdom	110
Figure 5.3c	Consumption of fresh fruit and vegetables, adults aged 16 and over, 1942 to 2006, United Kingdom	111
Table 5.4	Consumption of salt, adults aged 16 and over, 2000/01, Great Britain, and 2006, England, Scotland and Wales	111
Table 5.5	Food energy from fat and saturated fat, and consumption of fruit and vegetables, by sex and age, 2000/01, Great Britain	112
Figure 5.5	Percentage of adults failing to meet daily recommended consumption targets for fruit and vegetables, and saturated fat by sex and age, 2000/01, Great Britain	112
Table 5.6	Consumption of five portions of fruit and vegetables per day by sex, age, Government Office Region and equivalised household income, adults aged 16 and over, 2006, England	113
Table 5.7	Consumption of fruit and vegetables by sex and age, children aged 5 to 15, 2001 to 2006, England	114
Table 5.8	Consumption of energy, fat, saturated fat, sugar, sodium and fibre from school meals in primary and secondary schools, by sex, children aged 4 to 18, 2003 and 2005, England	115
Table 5.9	Consumption of energy, fat, saturated fat, sugar, salt, fibre, and fruit and vegetables, by country of the United Kingdom, and by Government Office Region in England, 2004 to 2006, United Kingdom	116
Table 5.10	Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, by income quintile, 2004 to 2006, United Kingdom	117
Table 5.11	Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, low income versus general population, adults aged 19 to 64, 2004, United Kingdom	117
Table 5.12	Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, by ethnic group, 2004 to 2006, United Kingdom	118
Table 5.13	Total energy available from fat and availability of fruit and vegetables by country, 2003, Europe	119

Figure 5.13a	Percentage of total energy available from fat by country, 2003, selected European countries, with WHO target	120
Figure 5.13b	Availability of fruit and vegetables by country, 2003, selected European countries, with WHO target	121

6. *Physical Activity* 122

Table 6.1	Physical activity targets for the United Kingdom	125
Figure 6.1	Physical activity levels, 1995, 1998 and 2003, Scotland, with “Towards a healthier Scotland” national targets	126
Table 6.2	Physical activity level by sex and age, England 2006, Scotland 2003, Wales 2004/05 and Northern Ireland, 2001	127
Figure 6.2a	Proportion meeting physical activity guideline by age and country, men, latest available year, England, Scotland, Wales and Northern Ireland	128
Figure 6.2b	Proportion meeting physical activity guideline by age and country, women, latest available year, England, Scotland, Wales and Northern Ireland	128
Table 6.3	Proportion meeting the physical activity guideline by sex and age, 1997 to 2006, England	129
Table 6.4	Physical activity level among children aged 2 to 15 by sex and age, 2006, England	130
Table 6.5	Physical activity levels by Government Office Region and sex, adults aged 16 and over, 2006, England	131
Table 6.6	Physical activity level by sex and income quintile, adults aged 16 and over, 2006, England	131
Table 6.7	Physical activity by sex and ethnic group, adults aged 16 and over, 2004, England	132
Figure 6.7	Percentage meeting physical activity guidelines by sex and ethnic group, adults aged 16 and over, 2004, England	132
Table 6.8	Self-reported physical activity levels, 2005, selected European countries	133
Figure 6.8	Percentage of adults who do no moderate-intensity physical activity in a typical week, 2005, selected European countries	134

7. *Alcohol* 135

Table 7.1	Alcohol targets and recommendations for the United Kingdom	138
Table 7.2	Alcohol consumption by sex and age, adults aged 16 and over, 2006, Great Britain	139
Figure 7.2	Percentage exceeding daily benchmarks for alcohol consumption by sex and age, adults aged 16 and over, 2006, Great Britain	139
Table 7.3	Percentage of adults aged 16 and over consuming more alcohol than the recommended daily maximum by sex and age, 1998 to 2006, Great Britain	140
Figure 7.3	Percentage consuming more alcohol than the recommended daily maximum, adults aged 16 and over, 1998 to 2006, Great Britain	141
Table 7.4	Weekly alcohol consumption by sex and age, 1992 to 2006, Great Britain	142
Table 7.5	Percentage of children aged 11 to 15 years who drank alcohol in the last week, by sex and age, 1988 to 2006, England	143
Table 7.6	Alcohol consumption by sex, country of Great Britain and Government Office Region of England, adults aged 16 and over, 2006, Great Britain	144
Figure 7.6a	Percentage of men consuming more alcohol than the recommended daily maximum (four units) by region, 2006, Great Britain	145
Figure 7.6b	Percentage of women consuming more alcohol than the recommended daily maximum (three units) by region, 2006, Great Britain	145
Figure 7.6c	Percentage of men exceeding daily benchmark for heavy drinking (eight units) by region, 2006, Great Britain	146
Figure 7.6d	Percentage of women exceeding daily benchmark for heavy drinking (six units) by region, 2006, Great Britain	146

Table 7.7	Alcohol consumption by sex and socio-economic classification, adults aged 16 and over, 2006, Great Britain	147
Table 7.8	Alcohol consumption by sex and ethnic group, adults aged 16 and over, 2004, England	148
Figure 7.8a	Alcohol consumption by ethnic group, men aged 16 and over, 2004, England	149
Figure 7.8b	Alcohol consumption by ethnic group, women aged 16 and over, 2004, England	149
Table 7.9	Alcohol consumption by country, adults aged 15 and over, 2003, Europe	150
Figure 7.9	Alcohol consumption by country, adults aged 15 and over, 2003, Europe	151

8. *Psychosocial well-being* 152

Table 8.1	GHQ12 score by sex and age, adults aged 16 and over, 2005, England and 2003, Scotland	154
Figure 8.1a	High GHQ12 score (4+) by sex and age, 2005, England	155
Figure 8.1b	High GHQ12 score (4+) by sex and age, 2003, Scotland	155
Table 8.2	GHQ12 score by sex and household income, adults aged 16 and over, 2005, England and 2003, Scotland	156
Table 8.3	GHQ12 score by sex and Government Office Region, adults aged 16 and over, 2005, England	157
Table 8.4	Prevalence of high GHQ12 score (4+) by sex and ethnic group, adults aged 16 and over, 2004, England	157
Table 8.5	Perceived social support by sex and age, adults aged 16 and over, 2005, England	158
Table 8.6	Perceived social support by sex and socio-economic classification, adults aged 16 and over, 2005, England	159
Figure 8.6	Percentage perceiving severe lack of social support by sex and socio-economic classification, adults aged 16 and over, 2005, England	159
Table 8.7	Perceived social support by sex and household income, adults aged 16 and over, 2005, England	160
Table 8.8	Percentage perceiving severe lack of social support by sex and ethnic group, adults aged 16 and over, 2004, England	161
Figure 8.8	Percentage perceiving severe lack of social support by sex and ethnic group, adults aged 16 and over, 2004, England	161

9. *Blood Pressure* 162

Table 9.1	Blood pressure recommendations and hypertension definition for the United Kingdom	165
Table 9.2	Prevalence of high blood pressure by sex and age, adults aged 16 and over, 1998 to 2006, England	166
Figure 9.2a	Prevalence of high blood pressure, by age, men aged 16 and over, 1998 to 2006, England	167
Figure 9.2b	Prevalence of high blood pressure, by age, women aged 16 and over, 1998 to 2006, England	167
Table 9.3	Blood pressure levels by sex and age, adults aged 16 and over, 2006, England	168
Figure 9.3	Prevalence of high blood pressure by sex and age, adults aged 16 and over, 2006, England	168
Table 9.4	Blood pressure levels by sex and age, adults aged 16 and over, 2003, Scotland	169
Table 9.5	Prevalence of high blood pressure by sex and age, adults aged 16 and over, 2004/05, Wales	169
Table 9.6	Blood pressure levels by sex and Government Office Region, adults aged 16 and over, 2006, England	170
Table 9.7	Blood pressure levels by sex and equivalised household income, 2006, England	171
Table 9.8	Prevalence of high blood pressure by sex and ethnic group, adults aged 16 and over, 2004, England	171

Table 9.9	Mean systolic blood pressure estimates and projections for 2002, 2005 and 2010 by sex, adults aged 15 and over, all available countries, Europe	172
Figure 9.9a	Mean systolic blood pressure estimates, men aged 15 and over, all available countries, 2002, Europe	173
Figure 9.9b	Mean systolic blood pressure estimates, women aged 15 and over, all available countries, 2002, Europe	173

10. Blood Cholesterol 174

Table 10.1	Cholesterol recommendations for the United Kingdom	177
Table 10.2	Total cholesterol levels by sex and age, 1994 to 2006, England and 1995 to 2003, Scotland	178
Figure 10.2	Percentage of adults with blood cholesterol levels of 5.0mmol/l and over, 2006, England	179
Table 10.3	Low HDL cholesterol by sex and age, 2006, England and 2003, Scotland	179
Table 10.4	Total cholesterol levels and low HDL cholesterol levels by sex and Government Office Region, adults aged 16 and over, 2006, England	180
Table 10.5	Total cholesterol levels and low HDL cholesterol by sex and equivalised household income, 2006, England	180
Table 10.6	Total cholesterol and low HDL cholesterol by sex and ethnic group, adults aged 16 and over, 2004, England	181
Table 10.7	Mean total cholesterol levels by sex, adults aged 15 and over, 2005, the World	182
Figure 10.7a	Mean total cholesterol levels, men aged 15 and over, 2005, Europe	183
Figure 10.7b	Mean total cholesterol levels, women aged 15 and over, 2005, Europe	184

11. Overweight and Obesity 185

Table 11.1	Obesity targets for the United Kingdom	188
Table 11.2	Body mass index by sex and age, adults aged 16 and over, 2006, England	189
Figure 11.2	Prevalence of overweight and obesity by sex and age, adults aged 16 and over, 2006, England	189
Table 11.3	Mean waist circumference and percentage with raised waist circumference by sex and age, adults aged 16 and over, 2006, England	190
Table 11.4	Prevalence of overweight and obesity in children by sex and age, 2006, England	190
Table 11.5	Prevalence of overweight and obesity by sex and age, adults aged 16 and over, 1994 to 2006, England	191
Figure 11.5	Prevalence of obesity by sex, adults aged 16 and over, 1994 to 2006, England	192
Table 11.6	Prevalence of overweight and obesity in children aged 2 to 15 by sex, 1995 to 2006, England	193
Figure 11.6	Prevalence of obese children aged 2 to 15, by sex, 1995 to 2006, England	194
Table 11.7	Body mass index by sex and Government Office Region, 2006, England	195
Table 11.8	Body mass index by sex and equivalised household income quintile, 2006, England	195
Table 11.9	Raised waist circumference by sex and equivalised household income quintile, 2006, England	196
Table 11.10	Prevalence of obesity by sex and ethnic group, adults aged 16 and over, 2004, England	197
Figure 11.10	Prevalence of obesity by sex and ethnic group, adults aged 16 and over, 2004, England	197
Table 11.11	Prevalence of a raised waist to hip ratio by sex and ethnic group, adults aged 16 and over, 2004, England	198

Table 11.12	Prevalence estimates of overweight and obesity for 2002, and projections for 2005 and 2010, by sex, adults aged 15 and over, the World	199
Figure 11.12a	Prevalence of obesity by sex, 2002, WHO European Region	201
Figure 11.12b	Prevalence of obesity by sex, 2002, selected countries, the World	201
Table 11.13	Prevalence of overweight and obese children by sex, WHO Region and country, latest available year, the World	202
Figure 11.13a	Percentage of boys who are overweight (including obesity), latest available year, Europe	203
Figure 11.13b	Percentage of girls who are overweight (including obesity), latest available year, Europe	203

12. *Diabetes* 204

Table 12.1	Prevalence of diagnosed diabetes by sex and age, 2006, England	206
Figure 12.1	Prevalence of diagnosed diabetes by sex and age, 2006, England	206
Table 12.2	Prevalence of undiagnosed diabetes by sex and age, adults aged 35 and over, 2003, England	206
Table 12.3	Prevalence of diagnosed diabetes by sex and age, 1991 to 2006, England	207
Figure 12.3	Prevalence of diagnosed diabetes in adults, 1991 to 2006, England	207
Table 12.4	Age-standardised prevalence of diagnosed diabetes by sex and Government Office Region, 2006, adults aged 16 and over, England	208
Table 12.5	Age-standardised prevalence of diagnosed diabetes by sex and socio-economic classification, 2003, adults aged 16 and over, England	209
Table 12.6	Age-standardised prevalence of diagnosed diabetes by sex and household income, 2006, adults aged 16 and over, England	209
Table 12.7	Prevalence of diagnosed diabetes by sex and ethnic group, adult aged 16 and over, 2004, England	210
Figure 12.7	Prevalence of diagnosed diabetes by ethnic group, 2004, adults aged 16 and over, England	210
Table 12.8	Estimated prevalence of diabetes and numbers of adults aged 20 to 79 with diabetes, 2003 and 2025, selected countries, the World	211
Figure 12.8	Prevalence of diabetes, 2003, the World	213

13. *Economic costs* 214

Table 13.1	Health care costs of CVD, CHD and stroke, 2006, United Kingdom	216
Figure 13.1a	Health care costs of CVD, 2006, United Kingdom	216
Figure 13.1b	Health care costs of CHD, 2006, United Kingdom	217
Figure 13.1c	Health care costs of stroke, 2006, United Kingdom	217
Table 13.2	Total costs of CVD, CHD and stroke, 2006, United Kingdom	218
Table 13.3	Health care costs of CVD, CHD and stroke by EU country, 2006, Europe	219
Figure 13.3	Health care costs of CVD, CHD and stroke as a proportion of total health care expenditure, by EU country, 2006, Europe	219

Foreword

This is the sixteenth edition of British Heart Foundation *Coronary Heart Disease Statistics* and no one can fail to be impressed by the dramatic reductions on death rates from cardiovascular diseases that have been documented in these pages over that time. This hasn't happened by accident, but is the result of major shifts in thinking on public health measures to prevent cardiovascular disease (CVD) and strenuous efforts to provide timely and appropriate treatment for people living with CVD, most commonly the middle aged and elderly.

However, one of the main purposes of this compendium is to try to look deeper into the trends and behaviours that might influence the burden of cardiovascular disease in the future. When one does this, the data tell a much more worrying story. For example, they show that the rate of fall of premature deaths from coronary heart disease in people under 45 years of age, particularly women, has slowed and may be starting to rise. The data also show why this might be; young people continue to smoke at an unacceptably high rate, take relatively little exercise, and are becoming more obese. The statistics sound a loud warning that unless we tackle cardiovascular risk factors in the young as aggressively as we are doing in the middle aged and elderly, our next 16 editions are likely to document a tragic reversal of all the benefits achieved so far.

Morbidity data is always difficult to collect, but we believe our revised chapter paints a more accurate and disturbing picture of an ever increasing burden of people living with cardiovascular diseases. This confirms, in case there was any doubt, that cardiovascular disease remains a major health issue in the UK and that much more work still needs to be done before it can be considered beaten or even controlled.

Prof Peter Weissberg
Medical Director

Introduction

This is the sixteenth edition of *Coronary heart disease statistics* produced by the British Heart Foundation.

Coronary heart disease statistics is designed for health professionals, medical researchers and anyone else with an interest in coronary heart disease (CHD). It aims to provide the most recent statistics related to the incidence, causes and effects of the disease.

It is divided into 13 sections. The first two chapters on mortality and morbidity deal with demographic trends in CHD and related diseases of the circulatory system. Following a section on treatment on CHD there are chapters on the main modifiable risk factors for the disease: smoking, an unhealthy diet, lack of physical activity, a high alcohol consumption, poor psychosocial wellbeing, raised blood pressure, raised blood cholesterol, obesity and diabetes. The final chapter provides information about the economic costs of CHD.

Each chapter contains a set of tables¹ and graphs to illustrate key points and a brief review of the data presented. Where appropriate it contains tables showing the public health targets for England, Wales, Scotland and Northern Ireland.

All data in *Coronary heart disease statistic* are also available on the British Heart Foundation's www.heartstats.org website. Further copies of this publication can be downloaded from the website, as well as copies of recent supplements on diet, physical activity and obesity, congenital heart disease, smoking and European cardiovascular disease.

The www.heartstats.org website aims to be the most comprehensive and up-to-date source of statistics on cardiovascular disease in the UK. The website is updated on an ongoing basis, and contains a wider range of tables and figures than available in the *Coronary heart disease statistics* compendia and associated supplements.

1. Throughout the *Coronary heart disease statistics*, table column and/or row percentages may not add up to 100% because of rounding.

1. Mortality

Total mortality

Diseases of the heart and circulatory system (cardiovascular disease or CVD) are the main cause of death in the UK and account for almost 198,000 deaths each year. More than one in three deaths (35%) are from CVD each year. The main forms of CVD are coronary heart disease (CHD) and stroke. About half (48%) of all deaths from CVD are from CHD and more than a quarter (28%) are from stroke (Table 1.2).

CHD by itself is the most common cause of death in the UK. Around one in five men and one in seven women die from the disease. CHD causes around 94,000 deaths in the UK each year (Table 1.3 and Figures 1.3a and 1.3b).

Other forms of heart disease cause over 31,000 deaths in the UK each year so in total there were just under 126,000 deaths from heart disease in the UK in 2006 (Table 1.3).

Premature mortality

CVD is one of the main causes of premature death in the UK (death before the age of 75). 30% of premature deaths in men and 22% of premature deaths in women were from CVD in 2006 (Figures 1.3c and 1.3d). CVD caused just over 53,000 premature deaths in the UK in 2006 (Table 1.3).

CHD, by itself, is the most common cause of premature death in the UK (Figures 1.3c and 1.3d). About one fifth (19%) of premature deaths in men and one in ten (10%) premature deaths in women were from CHD (Figures 1.3c and 1.3d). CHD caused almost 31,000 premature deaths in the UK in 2006 (Table 1.3).

Other forms of heart disease cause more than 7,500 premature deaths in the UK each year. In total there were over 38,000 premature deaths from heart disease in the UK in 2006 – around one fifth of all premature deaths.

Recent trends in death rates in the UK

Death rates from CVD have been falling in the UK since the early 1970s. For people under 75 years, they have fallen by 40% in the last ten years (Figure 1.1a).

Death rates from CHD have been falling in the UK since the late 1970s (Figures 1.1c and 1.1d). For people under 65 years, they have fallen by 45% in the last ten years (Figure 1.1c).

In recent years, CHD death rates have been falling slower in younger age groups and fastest in those aged 55 and over. For example, between 1997 and 2006 there was a 46% fall in the CHD death rate for men aged 55 to 64 in the UK, compared to a 22% fall in men aged 35 to 44 years. In women there was a 53% fall in those aged 55 to 64 years and a 20% fall in those aged 35 to 44 years (Table 1.4 and Figures 1.4a and 1.4b). There is some evidence that these rates are beginning to plateau in younger age groups¹.

Death rates from stroke fell throughout the latter part of the twentieth century². For people under 65 they have fallen by 30% in the last ten years (Figure 1.1e). Recently rates have declined at a slower rate than previously, particularly in the younger age groups (Figures 1.1e and 1.1f).

A recent study aimed to explain the decline in mortality from CHD over the last two decades of the twentieth century in Britain. Combining and analysing data on uptake and effectiveness of cardiological treatments and risk factor trends, the authors examined how much of the decline in CHD mortality in England and Wales between 1981 and 2000 could be attributed to medical and surgical treatments and how much to changes in cardiovascular risk factors. They concluded that more than half (58%) of the CHD mortality decline in Britain during the 1980s and 1990s was attributable to reductions in major risk factors, principally smoking. Treatments to individuals, including secondary prevention, explained the remaining two-fifths (42%) of the mortality decline³.

International differences

Despite recent improvements, internationally the death rate from CHD in the UK is relatively high (Table 1.5 and Figure 1.5a). In countries of Eastern and Central Europe - where death rates have been rising rapidly recently - the death rates are generally higher than in the UK but among developed European countries only Ireland and Finland have a higher rate than the UK (Figure 1.5a).

While the death rate from CHD has been falling in the UK it has not been falling as fast as in some other countries. For example, the death rate for men aged 35 to 74 fell by 42% between 1990 and 2000 in the UK, but it fell by 48% in Australia and 54% in Norway. For women the death rate fell by 44% in the UK but in Australia and New Zealand the rate fell by 51% and 48% respectively (Figure 1.5b).

Over the same period, the death rates from CHD in countries of Eastern and Central Europe (most notably countries of the former USSR) have experienced substantial increases. In the Ukraine, for example, between 1990 and 2000 death rates rose by over 60% in both men and women (Figure 1.5b).

National and regional differences

Death rates from CHD are highest in Scotland, and the North of England, lowest in the South of England, and intermediate in Wales and Northern Ireland. The premature death rate for men living in Scotland is 65% higher than in the South West of England and 112% higher for women. For more than 25 years these rates have been consistently highest in Scotland (Table 1.6).

Maps of CHD mortality by local authority in the UK demonstrate this North-South gradient and show that the highest mortality rates are also concentrated in urban areas (Table 1.7 and Figures 1.7a and 1.7b).

Socio-economic differences

Since the 1970s the premature death rate has fallen across all social groups for both men and women. However for men the death rate has fallen faster in non-manual workers than in manual workers, that is the difference in death rates increased between these groups (Figure 1.8). At the end of the 1980s the premature death rate from CHD for male manual workers was 58% higher

than for male non-manual workers. The premature death rate from CHD for female manual workers was more than twice as high as that for female non-manual workers. Towards the end of the 1990s the premature death rate was 50% higher for manual male workers compared with their non-manual counterparts. During the same period the premature death rate for female manual workers was 73% higher than their non-manual counterparts (Table 1.8).

In 1997 it was estimated that each year 5,000 lives and 47,000 working years are lost in men aged 20 to 64 years due to social class inequalities in CHD death rates. Just under one in three of all deaths under 65 years resulting from social class inequalities are due to CHD. In England and Wales there is a strong positive relationship between deaths from circulatory diseases and levels of deprivation (Table 1.9). This pattern is clear in CHD and stroke for both men and women (Figure 1.9).

To help reduce these socio-economic inequalities, CVD inequalities targets have been introduced in England, Scotland and Wales (Table 1.1). Data from the Central Health Monitoring Unit show that in England there has been clear progress towards this target: the absolute gap in CVD mortality between the fifth most deprived areas and the population as a whole, in people aged under 75, has fallen by just over 20% since the mid-1990s (Figure 1.1b).

Ethnic differences

Among men living in the UK but born in South Asia and Eastern Europe and among women living in the UK but born in South Asia there is a higher premature death rate from CHD than average. Data from 2003 show that the death rate among Bangladeshi men is 112% higher and the death rate among Pakistani women living in England is 146% higher than the average for England and Wales (Table 1.10 and Figure 1.10a). Premature death rates from CHD for men born in the Caribbean and West Africa and for women born in Italy but living in the UK were lower than average (Table 1.10 and Figure 1.10a).

Men living in England but born in Bangladesh had more than twice the chance of suffering premature death from stroke than those born in England and Wales.

The difference in the death rates between those born in South Asia and the general population increased in the 1970s and 1980s. This is because the death rate from CHD was not falling as fast in South Asian groups as it was in the rest of the population. From 1971 to 1991 the mortality rate for 20 to 69 year olds for the whole population fell by 29% for men and 17% for women whereas in people born in South Asia it fell by 20% for men and 7% for women⁴.

Women born in Jamaica and living in England were 76% more likely to die prematurely from stroke than those born in England and Wales (Table 1.10 and Figure 1.10b).

Excess winter mortality

In the UK more people die of CHD in the winter months. In 2004/05, just under 7,000 people died from CHD in England and Wales each month in June and July, compared to around 9,000 in December and January (Table 1.11 and Figure 1.11).

Excess winter mortality is the mortality that occurs in winter above that which occurs in the rest of the year⁵. In 2004/05, in England and Wales, during the winter months there were around

19% more deaths than would be expected on the basis of the underlying mortality throughout the year. This percentage is higher in older age groups, with excess winter mortality more than twice as high in the over 85s compared to the under 65s (Table 1.12).

The amount of excess winter mortality varies considerably by region – it is highest in the West Midlands and lowest in the North East of England. Excess winter mortality also varies from year to year. In 1999/2000, there were nearly twice as many excess winter deaths from CHD than in 2004/05 (8,960 compared to 5,450 deaths)⁶.

Public health targets

Recent trends indicate that the Our Healthier Nation target to reduce the death rate from CHD, stroke and related diseases in people under 75 years by at least two fifths by 2010 will be met (Figure 1.1a).

Progress towards the CVD inequalities target in England is also steady. If this continues, the target to reduce the inequalities gap in premature death rates from CVD between the areas with the worst health and deprivation indicators and the population as a whole by 40% by 2010 will also be met (Figure 1.1b).

1. Allender S, Scarborough P, O'Flaherty M, Capewell S. (2008) 20th century CHD mortality in England and Wales: population trends in CHD risk factors and coronary death. *BMC Public Health* (in press).
2. Office for National Statistics (1997) *The Health of Adult Britain*. The Stationery Office: London.
3. Unal B, Critchley JA, Capewell S (2004) Explaining the decline in coronary heart disease mortality in England and Wales between 1981 and 2000. *Circulation* 109: 1101-1107.
4. Wild S, McKeigue P (1997) Cross sectional analysis of mortality by country of birth in England and Wales, 1970-92. *BMJ* 314: 705-710.
5. Excess winter deaths are calculated by subtracting the actual number of deaths in winter (usually December to March), from the number of deaths which would have been expected for this period, calculated on the basis of the actual number of deaths occurring in the surrounding non-winter months. It is postulated that excess winter mortality is partially preventable through improvements to cold damp housing – see Olsen N (2001) Prescribing warmer, healthier homes. *BMJ* 322: 748-749.
6. Office for National Statistics (2006), personal communication.

Table 1.1 CVD mortality targets for the United Kingdom

England^{1,2}	
CVD - <i>Target</i>	To reduce the death rate from CHD, stroke and related diseases in people under 75 years by at least two fifths by 2010 – saving up to 200,000 lives in total
CVD - <i>Milestone</i>	To reduce the death rate from CHD, stroke and related diseases in people under 75 years by at least one quarter by 2005
CVD - <i>Inequalities target</i>	To reduce the inequalities gap in death rates from CHD, stroke and related diseases between the fifth of areas with the worst health and deprivation indicators and the population as a whole in people under 75 years by 40% by 2010
Wales^{3,4}	
CHD – <i>Health outcome target</i>	To reduce CHD mortality in 65-74 year olds from 600 per 100,000 in 2002 to 400 per 100,000 in 2012
CHD – <i>Health inequality target</i>	To improve CHD mortality in all groups and at the same time aim for a more rapid improvement in the most deprived groups
Stroke	To reduce stroke mortality in 65-74 year olds by 20% by 2012
Scotland⁵	
CHD - <i>Target</i>	To reduce mortality rates from CHD among people under 75 years by 60% between 1995 and 2010, from the 1995 baseline of 124.6 to 49.8 per 100,000 population (standardised to the European Standard Population)
CHD - <i>Inequalities target</i>	To reduce the death rate from coronary heart disease (CHD) of those aged under 75 years living in the most deprived 15% of areas in Scotland. Reduce mortality from CHD among the under 75s in deprived areas.
Stroke – <i>Target</i>	To reduce mortality rates from stroke among people under 75 years by 50% between 1995 and 2010, from the 1995 baseline of 37.5 to 18.8 per 100,000 population (standardised to the European Standard Population)
Northern Ireland⁶	
	No target set

1. Department of Health (1999) *Our Healthier Nation*. DH: London.

2. Department of Health (2004) *National Standards, Local Action: Health and Social Care Standards and Planning Framework 2005/06 and 2007/08*. DH: London.

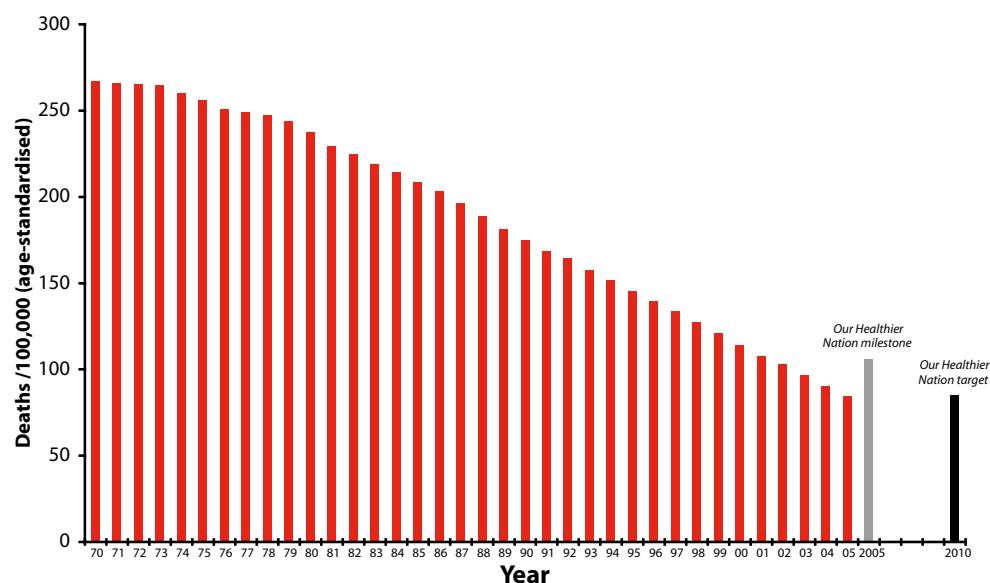
3. Welsh Assembly Government (2005) See Chief Medical Officer Wales website www.cmo.wales.gov.uk/content/work/health-gain-targets/the-targets-e.htm#chd

4. Welsh Assembly Government (2005) See Chief Medical Officer Wales website www.cmo.wales.gov.uk/content/work/health-gain-targets/the-targets-e.htm#olderpeople

5. Scottish Executive (2008). *Spending Review 2007*, Scottish Government. *The Scottish Executive*: (<http://www.scotland.gov.uk/Publications/2007/11/30090722/34>) and <http://www.scotland.gov.uk/Publications/2007/12/11103453/6>.

6. New strategies for CVD in Northern Ireland are currently being developed by the Department of Health, Social Services and Public Safety.

Figure 1.1a Death rates from CVD, adults aged under 75, 1969 to 2006, England, with “Our Healthier Nation” milestone and target

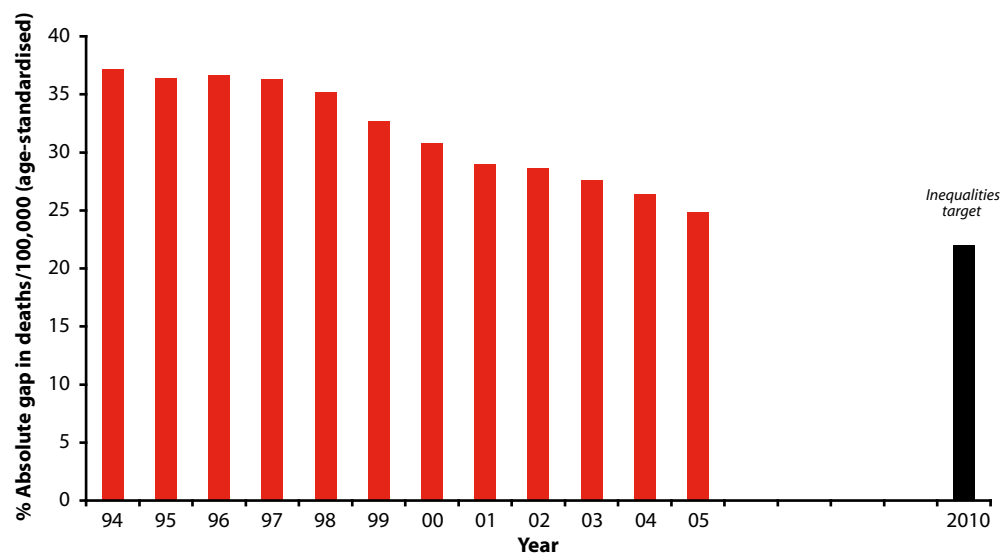


Notes: Data are three year moving averages plotted against middle year. ICD9 data have been adjusted to be comparable with ICD10 data.

Data from 1984-1992 have been adjusted due to the effects of coding medical enquiries and WHO Rule 3.

Source: Data from Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.

Figure 1.1b Absolute gap in death rates from CVD, between the fifth most deprived areas and the population as a whole, adults aged under 75, 1993 to 2006, England, with inequalities target

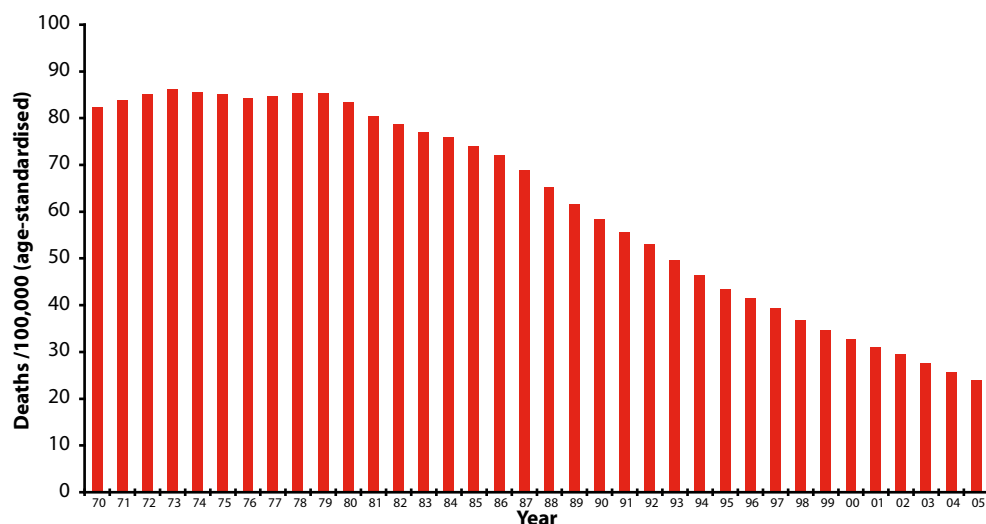


Notes: Data are three year moving averages plotted against middle year.

There is a discontinuity in the data around year 2000 due to the change to the 10th revision of the WHO International Classification of Diseases.

Source: Data from Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.

Figure 1.1c Death rates from CHD, adults aged under 65, 1969 to 2006, England



Notes: Data are three year moving averages plotted against middle year. There is a discontinuity in the data around year 2000 due to the change to the 10th revision of the WHO International Classification of Diseases. Data from 1984-1992 have been adjusted due to the effects of coding medical enquiries and WHO Rule 3.

Source: Data from the Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.

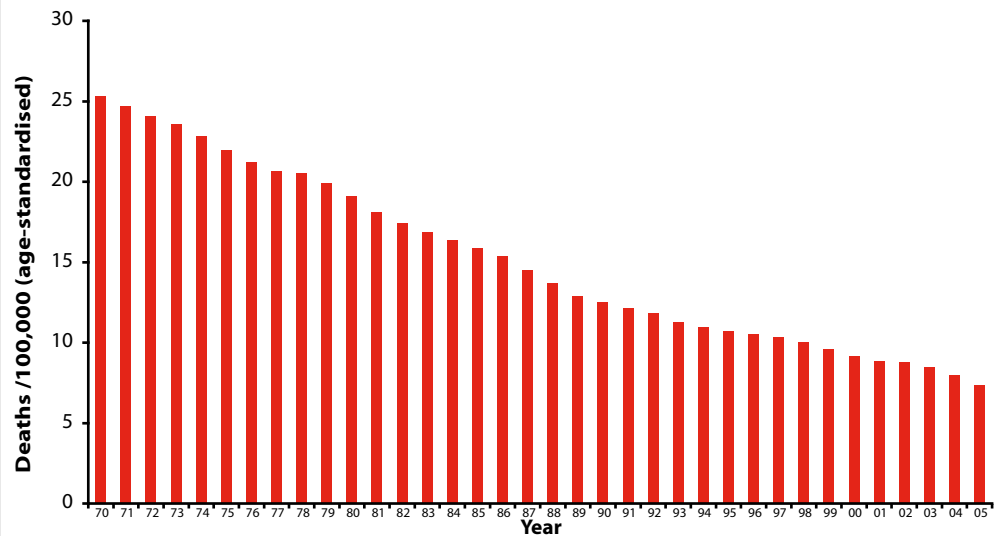
Figure 1.1d Death rates from CHD, adults aged 65 to 74, 1969 to 2006, England



Notes: Data are three year moving averages plotted against middle year. See Figure 1.1c for other notes.

Source: Data from Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.

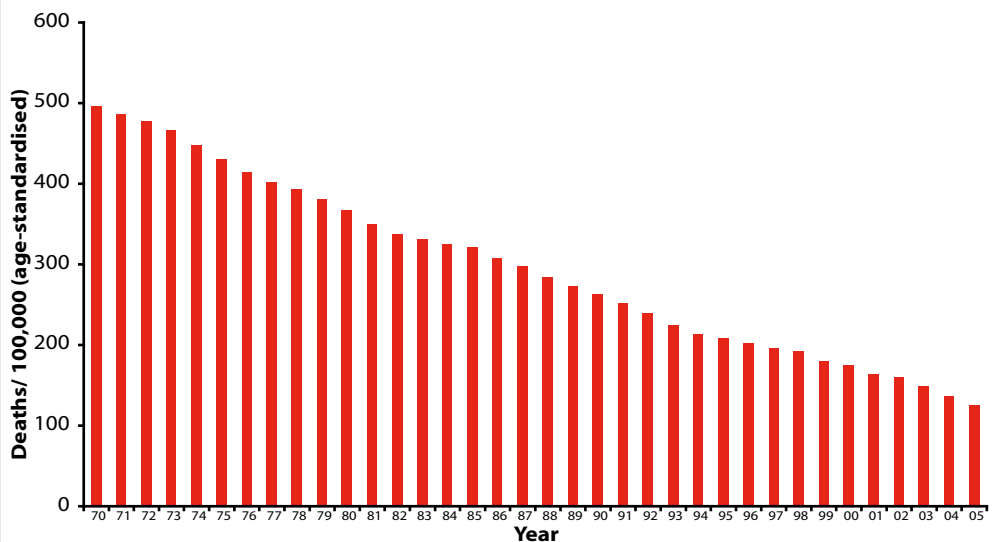
Figure 1.1e Death rates from stroke, adults under 65, 1969 to 2006, England



Notes: Data are three year moving averages plotted against middle year. See Figure 1.1c for other notes.

Source: Data from Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.

Figure 1.1f Death rates from stroke, adults aged 65 to 74, 1969 to 2006, England



Notes: Data are three year moving averages plotted against middle year. See Figure 1.1c for other notes.

Source: Data from Office for National Statistics; analysis by Health Improvement Analytical Team - Monitoring Unit, Department of Health.

Table 1.2 Deaths by cause, sex and age, 2006, United Kingdom

		All ages	Under 35	35-44	45-54	55-64	65-74	75+
All causes	Men	273,488	9,015	7,439	14,300	31,856	56,175	154,703
	Women	297,546	4,823	4,416	9,421	20,775	40,175	217,936
	Total	571,034	13,838	11,855	23,721	52,631	96,350	372,639
All diseases of the circulatory system (I00-I99)	Men	94,987	548	1,521	4,254	10,068	19,276	59,320
	Women	102,780	315	634	1,537	3,892	11,279	85,123
	Total	197,767	863	2,155	5,791	13,960	30,555	144,443
Coronary heart disease (I20-I25)	Men	52,585	114	834	2,809	6,802	11,885	30,141
	Women	41,796	34	185	588	1,883	5,494	33,612
	Total	94,381	148	1,019	3,397	8,685	17,379	63,753
Stroke (I60-I69)	Men	21,267	113	220	578	1,284	3,295	15,777
	Women	33,831	77	193	490	927	2,821	29,323
	Total	55,098	190	413	1,068	2,211	6,116	45,100
Diabetes (E10-E14)	Men	3,041	38	86	151	280	695	1,791
	Women	3,390	40	53	84	187	516	2,510
	Total	6,431	78	139	235	467	1,211	4,301
Cancer (C00-D48)	Men	82,336	844	1,221	4,136	13,006	22,627	40,502
	Women	75,465	648	1,763	4,621	11,124	17,277	40,032
	Total	157,801	1,492	2,984	8,757	24,130	39,904	80,534
Colo-rectal cancer (C18-C21)	Men	8,515	43	104	421	1,299	2,398	4,250
	Women	7,450	32	100	327	835	1,503	4,653
	Total	15,965	75	204	748	2,134	3,901	8,903
Lung cancer (C33, C34)	Men	19,627	19	156	911	3,474	6,143	8,924
	Women	14,556	17	148	751	2,514	4,136	6,990
	Total	34,183	36	304	1,662	5,988	10,279	15,914
Breast cancer (C50)	Women	12,323	78	616	1,377	2,331	2,403	5,518
	Total	12,323	78	616	1,377	2,331	2,403	5,518
Respiratory disease (J00-J99)	Men	35,477	250	253	663	2,453	6,120	25,738
	Women	42,252	199	151	497	1,766	4,707	34,932
	Total	77,729	449	404	1,160	4,219	10,827	60,670
Injuries and poisoning (V01-Y98)	Men	12,662	3,607	2,199	1,664	1,358	1,032	2,802
	Women	7,803	999	550	639	590	589	4,436
	Total	20,465	4,606	2,749	2,303	1,948	1,621	7,238
All other causes	Men	45,090	3,728	2,161	3,435	4,704	6,454	24,608
	Women	65,948	2,623	1,267	2,045	3,221	5,818	50,974
	Total	108,809	6,351	3,428	5,480	7,925	12,272	75,582

Notes: ICD codes in parentheses.

Source: England and Wales, Office for National Statistics (2008) personal communication.

Scotland, General Register Office (2008) personal communication.

Northern Ireland, General Register Office Statistics and Research Agency (2008) personal communication.

Table 1.3 *All deaths and deaths under 75 by cause and sex, 2006, England, Wales, Scotland, Northern Ireland and United Kingdom*

		All ages					Under 75				
		England	Wales	Scotland	Northern Ireland	United Kingdom	England	Wales	Scotland	Northern Ireland	United Kingdom
All causes	Men	225,314	14,861	26,251	7,062	273,488	95,771	6,466	13,152	3,396	118,785
	Women	245,012	16,222	28,842	7,470	297,546	63,939	4,376	9,085	2,210	79,610
	Total	470,326	31,083	55,093	14,532	571,034	159,710	10,842	22,237	5,606	198,395
All diseases of the circulatory system (I00-I99)	Men	78,501	5,382	8,798	2,306	94,987	28,850	2,059	3,825	933	35,667
	Women	84,329	5,905	9,973	2,573	102,780	14,036	1,008	2,106	507	17,657
	Total	162,830	11,287	18,771	4,879	197,767	42,886	3,067	5,931	1,440	53,324
All heart disease (I00-I52)	Men	53,696	3,673	6,148	1,672	65,189	21,681	1,541	2,926	738	26,886
	Women	49,442	3,580	5,971	1,633	60,626	8,898	652	1,439	351	11,340
	Total	103,138	7,253	12,119	3,305	125,815	30,579	2,193	4,365	1,089	38,226
Rheumatic heart disease (I00-I09)	Men	290	20	37	9	356	115	11	20	2	148
	Women	678	59	83	35	855	202	12	30	12	256
	Total	968	79	120	44	1,211	317	23	50	14	404
Hypertensive disease (I10-I15)	Men	1,543	103	170	32	1,848	624	49	86	12	771
	Women	2,191	168	240	62	2,661	363	28	64	9	464
	Total	3,734	271	410	94	4,509	987	77	150	21	1,235
Coronary heart disease (I20-I25)	Men	43,079	3,018	5,099	1,389	52,585	18,005	1,306	2,491	642	22,444
	Women	33,705	2,491	4,433	1,167	41,796	6,357	470	1,098	259	8,184
	Total	76,784	5,509	9,532	2,556	94,381	24,362	1,776	3,589	901	30,628
Other heart disease including heart failure (I26-I52)	Men	8,784	532	842	242	10,400	2,937	175	329	82	3,523
	Women	12,868	862	1,215	369	15,314	1,976	142	247	71	2,436
	Total	21,652	1,394	2,057	611	25,714	4,913	317	576	153	5,959
Stroke (I60-I69)	Men	17,494	1,202	2,060	511	21,267	4,386	310	645	149	5,490
	Women	27,750	1,860	3,406	815	33,831	3,606	259	522	121	4,508
	Total	45,244	3,062	5,466	1,326	55,098	7,992	569	1,167	270	9,998
Other diseases of the circulatory system (I70-I99)	Men	7,311	507	590	123	8,531	2,783	208	254	46	3,291
	Women	7,137	465	596	125	8,323	1,532	97	145	35	1,809
	Total	14,448	972	1,186	248	16,854	4,315	305	399	81	5,100
Diabetes (E10-E14)	Men	2,418	145	373	105	3,041	956	50	197	47	1,250
	Women	2,710	210	378	92	3,390	658	56	145	21	880
	Total	5,128	355	751	197	6,431	1,614	106	342	68	2,130
Cancer (C00-D48)	Men	67,845	4,574	7,847	2,070	82,336	34,057	2,357	4,263	1,157	41,834
	Women	61,896	4,167	7,513	1,889	75,465	28,792	1,982	3,706	953	35,433
	Total	129,741	8,741	15,360	3,959	157,801	62,849	4,339	7,969	2,110	77,267
Colo-rectal cancer (C18-C21)	Men	6,950	501	839	225	8,515	3,438	259	440	128	4,265
	Women	6,116	418	729	187	7,450	2,256	169	299	73	2,797
	Total	13,066	919	1,568	412	15,965	5,694	428	739	201	7,062
Lung cancer (C33,C34)	Men	15,846	1,098	2,162	521	19,627	8,505	620	1,248	330	10,703
	Women	11,540	787	1,900	329	14,556	5,918	410	1,052	186	7,566
	Total	27,386	1,885	4,062	850	34,183	14,423	1,030	2,300	516	18,269
Breast cancer (C50)	Women	10,243	673	1,108	299	12,323	5,615	374	632	184	6,805
	Total	10,243	673	1,108	299	12,323	5,615	374	632	184	6,805
Respiratory disease (J00-J99)	Men	29,562	1,870	3,161	884	35,477	7,901	519	1,092	227	9,739
	Women	34,912	2,220	4,022	1,098	42,252	5,804	393	934	189	7,320
	Total	64,474	4,090	7,183	1,982	77,729	13,705	912	2,026	416	17,059
Injuries and poisoning (V01-Y98)	Men	9,966	661	1,461	574	12,662	7,670	512	1,189	505	9,876
	Women	6,335	413	776	279	7,803	2,693	168	352	176	3,389
	Total	16,301	1,074	2,237	853	20,465	10,363	680	1,541	681	13,265
All other causes	Men	37,022	2,229	4,611	1,123	44,985	16,337	969	2,586	527	20,419
	Women	54,830	3,307	6,180	1,539	65,856	11,956	769	1,842	364	14,931
	Total	91,852	5,536	10,791	2,662	110,841	28,293	1,738	4,428	891	35,350

Notes: ICD codes (10th revision) in parentheses.

British Heart Foundation Statistics Database *www.heartstats.org* Source: England and Wales, Office for National Statistics (2008) Deaths registered by cause and area of residence, personal communication.
Scotland, General Register Office (2008) Deaths registered by cause and area of residence, personal communication.
Northern Ireland, Statistics and Research Agency (2008) Deaths registered by cause and area of residence, personal communication.

Figure 1.3a Deaths by cause, men, 2006, United Kingdom

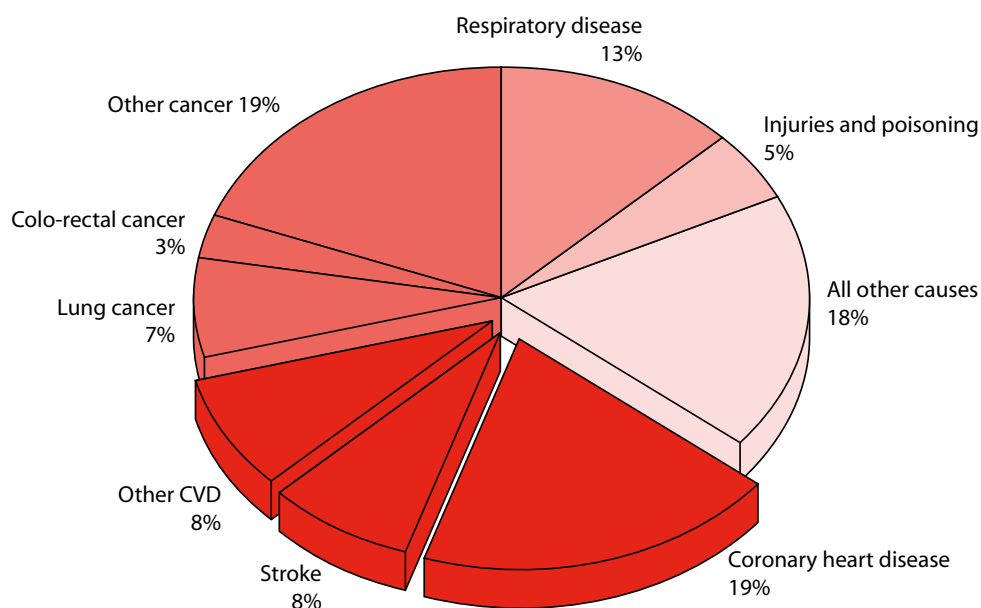


Figure 1.3b Deaths by cause, women, 2006, United Kingdom

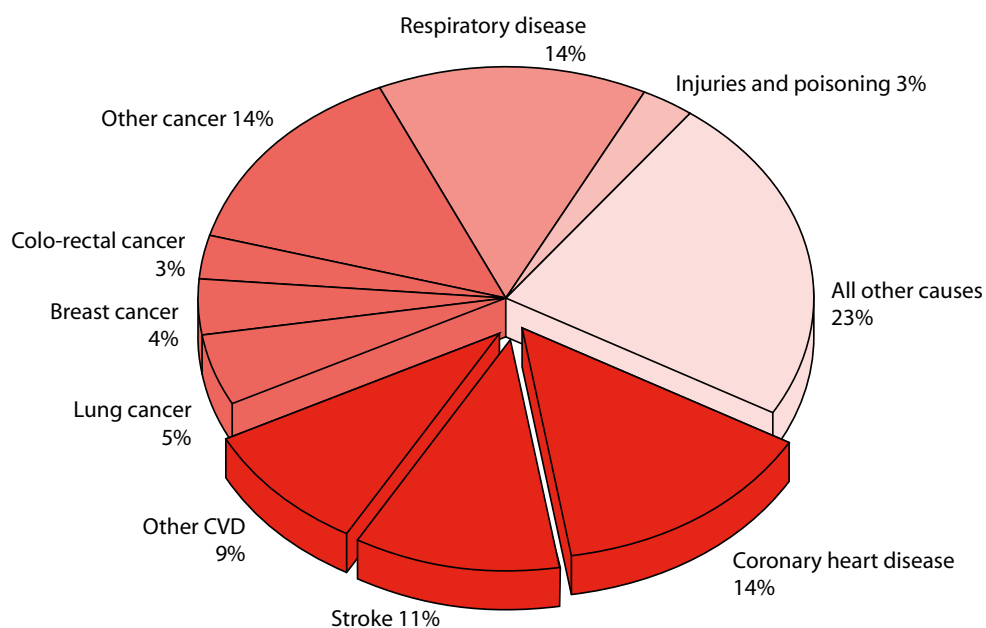


Figure 1.3c Deaths by cause, men under 75, 2006, United Kingdom

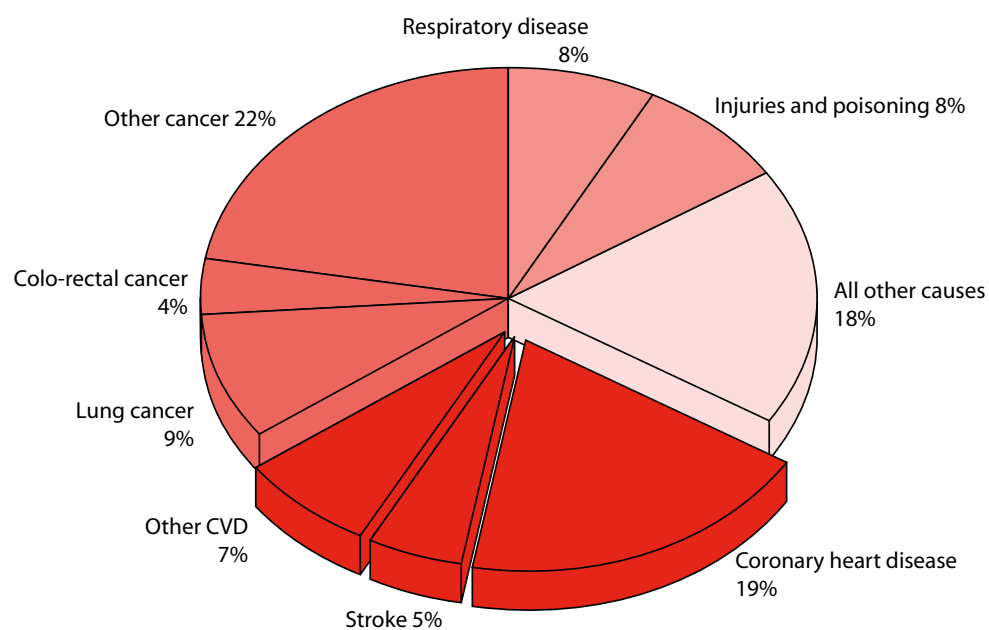


Figure 1.3d Deaths by cause, women under 75, 2006, United Kingdom

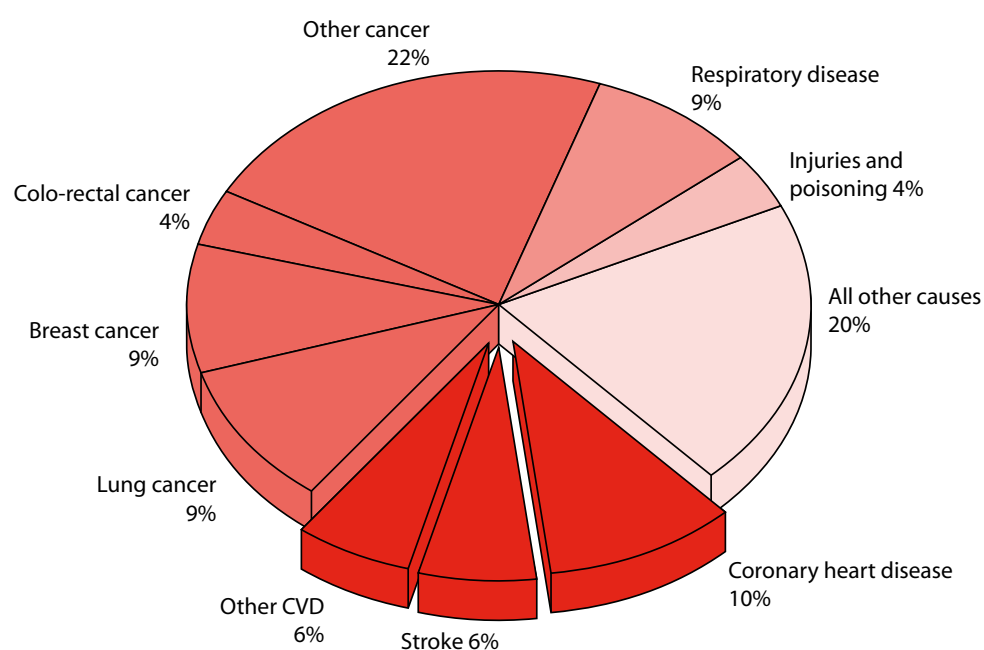


Table 1.4 *Age-specific death rates per 100,000 population from CHD by sex, 1968 to 2006, United Kingdom*

	35-44		45-54		55-64		65-74	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
1968	65	11	253	46	714	198	1,639	726
1969	63	11	262	47	728	202	1,660	731
1970	65	11	267	46	727	204	1,631	704
1971	69	10	280	50	724	200	1,634	698
1972	69	11	297	54	759	218	1,718	739
1973	66	11	296	56	755	220	1,692	731
1974	68	12	298	55	758	226	1,696	725
1975	63	11	298	54	742	215	1,684	717
1976	60	12	279	55	752	220	1,687	721
1977	61	11	281	53	732	209	1,678	714
1978	62	11	288	55	754	216	1,705	725
1979	57	9	286	57	749	215	1,665	706
1980	56	9	270	50	733	215	1,621	688
1981	53	9	260	49	702	203	1,601	692
1982	47	8	245	48	696	206	1,588	688
1983	46	7	242	46	705	213	1,618	692
1984	42	7	227	45	696	213	1,591	695
1985	43	7	221	43	687	213	1,601	702
1986	42	6	217	40	662	204	1,529	681
1987	41	6	201	39	638	201	1,489	661
1988	37	6	188	36	610	191	1,441	639
1989	37	6	170	32	567	180	1,373	627
1990	37	6	159	33	536	179	1,352	594
1991	34	6	153	30	512	169	1,312	593
1992	32	6	142	28	490	155	1,274	571
1993	29	5	136	26	478	147	1,266	567
1994	27	5	118	24	427	131	1,173	520
1995	26	5	117	24	408	124	1,133	498
1996	25	5	112	22	384	119	1,073	465
1997	23	5	107	21	361	110	983	434
1998	23	4	103	22	343	104	952	420
1999	22	5	97	20	317	94	902	387
2000	19	5	92	20	291	84	823	347
2001	20	4	93	19	271	79	763	328
2002	21	4	89	19	250	72	707	304
2003	19	5	85	18	238	66	660	275
2004	19	4	81	16	219	57	599	250
2005	19	4	73	16	204	54	558	225
2006	18	4	72	15	194	52	500	207

Source: 1968 to 1999: World Health Organization (2002) www3.who.int/whosis

From 2000: Office for National Statistics (personal communication) and www.statistics.gov.uk

Figure 1.4a Age-specific death rates from CHD, men, 1968 to 2006, United Kingdom, plotted as a percentage of the rate in 1968

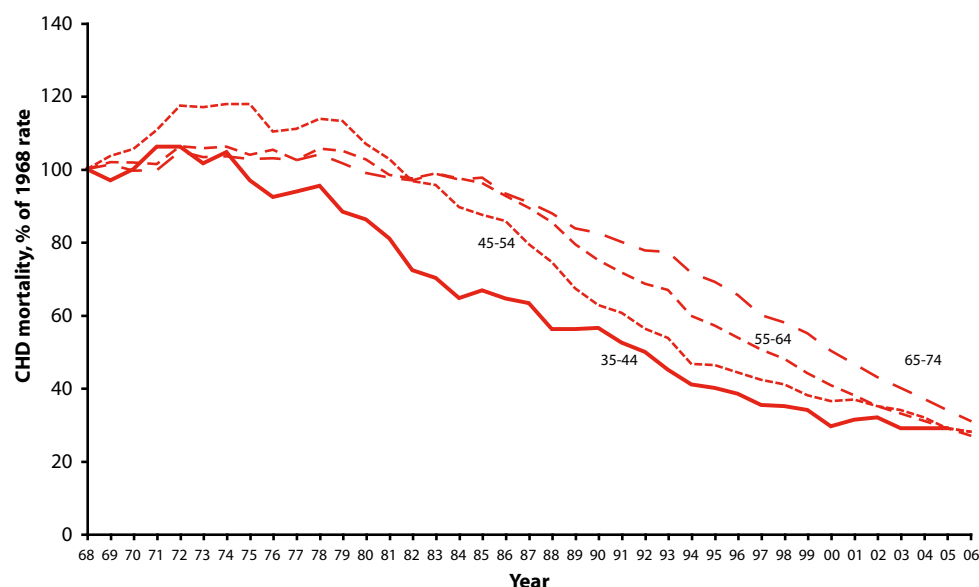


Figure 1.4b Age-specific death rates from CHD, women, 1968 to 2006, United Kingdom, plotted as a percentage of the rate in 1968

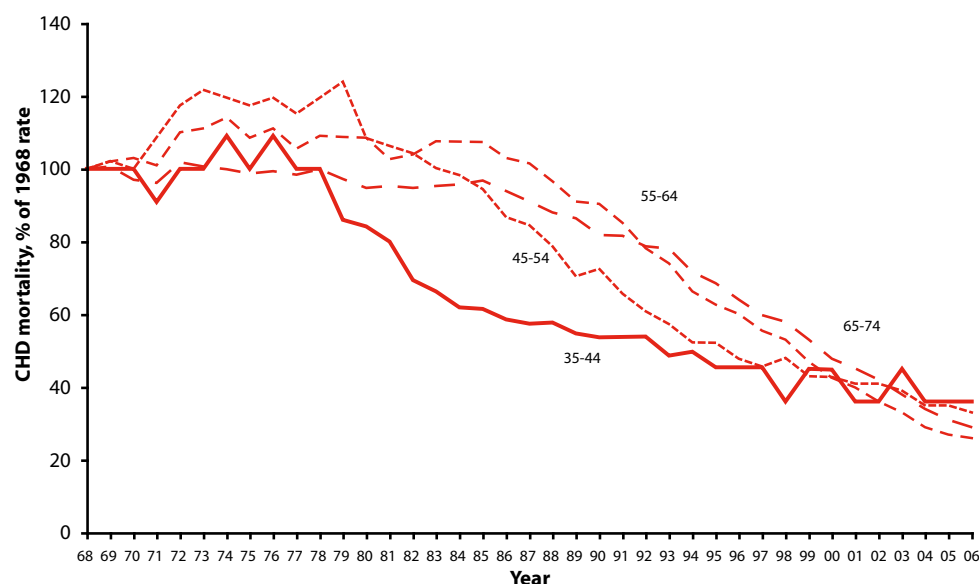


Table 1.5 Age-standardised death rates per 100,000 population from CHD, 1968 to 2002, selected countries, the World

	1968	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002
MEN AGED 35-74																		
Albania										126		140	115	163	147	162		
Argentina		364				281	245	201	208	189	185	170	159	143	140	139	127	
Armenia								408		429	460	495	524	458	486	464	464	501
Australia	674	657	623	609	553	499	449	424	392	346	315	275	248	217	196	171	144	
Austria		334	335	341	359	349	311	329	315	290	262	253	249	241	226	218	194	164
Azerbaijan								577		567	651	643	692	654	694	690	662	
Belarus								534		517	503	530	560	683	694	772	780	
Belgium	345	351	364	335	332	313	273	270	247	221	184	159	147	151	146			
Bulgaria	195	235	261	291	300	311	308	295	315	321	309	315	312	352	334	335	296	293
Canada		551	524	515	498	457	418	393	354	327	296	254	228	212	199	218	163	
Chile	208	225	211	173	156	175	169	174	178	149	149	145	135	135	135	124	118	
Colombia													183	190	180	160		
Croatia										222	202	203	253	269	300	328	323	239
Cuba	274	240	211	255	256	290	280	255	264	264	286	281	250	241	244	228	201	
Czech Republic										543	505	533	487	442	391	328	294	259
Czechoslovakia	408	459	442	460	458	464	471	469	513	514	482	526						
Denmark		430	454	445	465	443	438	404	392	370	342	315	289	239	204	174		
Estonia								616		653	603	648	659	744	600	593	522	523
Finland		697	680	700	700	664	616	599	562	531	477	434	407	346	320	268	267	231
France	152	149	160	164	160	154	148	145	143	140	118	106	101	94	91	85	82	
Georgia								494		482	571	527	699			550	507	
Germany												253	251	237	218	200	177	
Germany, Dem Rep				231	236	244	274	272	280	273	273	289						
Germany, Fed Rep	317	325	346	348	362	354	341	336	328	298	270	245						
Greece	128	135	155	161	188	192	181	185	181	180	190	187	181	168	176	170	165	
Hungary		349	360	361	372	420	418	463	464	459	438	435	458	452	441	428	387	344
Iceland			461	469	456	399	453	388	421	296	334	264	249	251	203	154	161	
Ireland	455	495	522	548	526	542	521	515	503	505	462	421	381	368	332	302	253	
Israel					434	395	347	356	310	305	255	211	219	199	150	149		
Italy	230	225	224	235	249	249	221	211	203	191	172	159	153	145	133	128	108	
Japan	92	94	84	84	78	74	74	67	63	55	52	49	46	49	58	56	54	53
Kazakhstan								499		456	462	487	516	638	720	721	758	722
Kyrgyzstan								437		384	391	394	389	517	500	477	490	528
Latvia								628	691	588	593	653	719	904	647	628	568	564
Lithuania								508		522	521	585	629	663	549	457	424	489
Luxembourg							291	329	319	260	258	228	199	184	189	146	145	
Macedonia, Fmr Yug Rep													247	253	257	248	234	131
Malta	359	294	326	334	468	504	522	455	366	366	365	309	309	246	251	232	240	193
Mauritius		272	208	287	361	358	452	425	406	400	386	401	425	424	414	473	396	
Mexico	96	96	88	100	97	104	115	106		104	123	131	133	138	138	139	130	
Moldova, Rep of								607		509	455	452	469	600	626	579	650	638
Netherlands		400	408	372	393	379	346	333	318	309	268	240	210	196	182	163	141	116
New Zealand	637	609	575	574	554	529	508	494	455	447	402	350	348	276	263	222	190	
Norway		445	430	428	415	414	411	407	405	404	369	345	297	263	221	203	158	
Poland		179	205	212	244	263	277	266	284	307	310	326	327	281	267		272	236
Portugal			185	177	188	177	173	146	159	146	151	144	142	128	125	122	103	105
Romania		138	151	156	172	195	215	227	258	267	272	282	337	368	388	361	335	342
Russian Federation								575	612	533	534	556	591	816	675	639	771	835
Slovakia													463	470	1024	398	397	
Slovenia										230	187	183	220	219	178	184	162	137
Spain	99		137	164	165	161	151	150	151	146	141	131	131	125	128	121	113	
Sweden		397	418	423	436	436	440	417	384	372	334	292	263	240	216	190	171	
Switzerland		227	224	221	239	246	236	225	224	205	190	181	170	147	137	132	113	157
Tajikistan								374		333	357	363	348	404				
Trinidad & Tobago		362	366	344	344	327	351	388	416	391	356	346	319	352	364			
Turkmenistan								552		549	590	638	619	725	770	638		
Ukraine								625		521	486	512	588	687	749	725	839	867
United Kingdom	517	523	554	551	540	546	521	497	490	470	434	393	364	325	297	265	229	201
Uruguay	312	314	353	338	321	314	280	236	242	214	220	200		181	154	151	140	
USA	694	657	634	588	540	504	425	397	359	323	292	273	253	239	224	203	216	
USSR								575	606	521	516	538						
Uzbekistan								507		460	462	480	534	538	546	540	570	
Venezuela	250	257	260	248	256	255	207	223		186	217	249	262	247	246	239	229	
Yugoslavia, Fmr	118	137	151	170	184	182	196	187	210	223	205	200						

Table 1.5 continued

	1968	1970	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002
WOMEN AGED 35-74																		
Albania											48		48	40	52	57	71	
Argentina		141				99	81	68	71	61	59	53	47	42	39	42	38	
Armenia								202		210	209	208	248	192	205	200	197	
Australia	258	257	235	234	200	186	160	154	145	134	117	106	93	79	69	61	52	
Austria		117	120	121	121	119	99	101	102	94	84	80	81	80	81	70	59	
Azerbaijan								267		284	303	301	357	307	329	325	340	
Belarus								249		244	223	211	220	262	290	290	307	
Belgium	111	121	117	112	107	100	90	86	83	72	61	48	46	53	47			
Bulgaria	124	150	157	168	162	162	148	137	142	134	126	126	122	132	134	128	116	119
Canada		196	180	181	167	155	144	134	123	112	100	88	77	75	67	68	55	
Chile	120	126	114	93	80	79	79	72	76	69	66	66	61	56	50	47	44	
Colombia													109	110	102	92		
Croatia										66	70	60	97	100	106	113	108	
Cuba	157	161	139	177	175	191	172	164	161	160	177	174	158	142	145	136	111	
Czech Republic										202	174	179	162	162	149	120	106	97
Czechoslovakia	164	184	177	183	181	172	173	176	191	191	169	181						
Denmark		157	159	158	159	141	142	133	132	130	116	108	98	83	76	63		
Estonia								236		248	219	236	212	252	205	203	191	164
Finland		192	193	184	188	177	161	162	155	151	141	126	109	98	84	81	68	58
France	49	50	52	50	48	44	41	42	41	38	30	27	26	24	22	21	18	
Georgia								241		235	264	247	328			240	220	
Germany												80	82	79	75	69	59	
Germany, Dem Rep				79	82	83	95	91	99	99	97	97						
Germany, Fed Rep	94	100	106	108	112	106	99	101	100	93	84	76						
Greece	42	47	55	59	60	60	52	53	54	52	59	57	55	48	50	50	46	
Hungary		161	167	165	162	168	157	170	170	174	161	162	168	173	169	164	150	138
Iceland			128	106	95	124	117	122	102	83	96	84	95	89	52	42	60	
Ireland	196	199	213	225	202	200	192	186	186	176	160	142	134	120	107	99	78	
Israel					215	207	153	179	141	141	121	100	89	93	65	63		
Italy	87	87	85	85	84	82	68	63	61	56	51	46	43	43	39	37	32	
Japan	45	47	41	42	37	33	32	29	27	23	21	19	17	18	21	19	17	
Kazakhstan								215		210	210	196	212	266	296	286	306	290
Kyrgyzstan								204		198	208	193	188	250	249	227	243	267
Latvia								250	261	242	229	226	229	292	199	208	178	167
Lithuania								209		207	204	208	210	223	188	157	135	146
Luxembourg							107	85	101	91	60	53	42	51	36	48	36	41
Macedonia, Fmr Yug Rep													89	94	104	107	103	
Malta	158	107	139	107	169	248	259	201	148	176	146	153	156	126	105	73	101	82
Mauritius		87	96	103	110	140	152	168	183	173	183	177	167	189	197	231	222	
Mexico	55	57	52	54	52	56	58	50		50	58	66	68	73	74	72	71	
Moldova, Rep of								403		364	324	284	285	366	409	359	385	383
Netherlands		125	126	116	118	112	102	100	97	90	79	72	70	67	64	56	48	42
New Zealand	241	223	229	215	206	196	208	186	180	165	148	138	124	109	92	71	71	
Norway		134	129	128	116	114	111	103	106	103	97	87	80	63	57	56		
Poland		55	59	61	69	76	74	71	77	83	83	90	94	84	79		86	70
Portugal			81	75	72	69	62	59	57	56	56	52	48	47	44	40	38	34
Romania		75	77	80	89	97	111	116	130	138	135	133	147	164	176	170	154	152
Russian Federation								229	252	222	211	204	209	281	239	230	267	288
Slovakia													174	185	179	160	162	
Slovenia										64	60	62	67	72	59	64	49	39
Spain	33		42	50	50	48	44	44	42	40	39	37	36	34	33	32	29	
Sweden		147	149	143	137	133	129	121	111	108	99	88	85	72	68	59	54	
Switzerland		67	63	62	63	69	62	60	56	51	51	48	46	41	40	37	52	
Tajikistan								223		195	222	208	201	264				
Trinidad & Tobago		220	222	201	175	224	201	230	225	209	222	235	241	257		226		
Turkmenistan								271		301	314	343	361	430	433	332		
Ukraine								309		270	241	226	257	315	339	333	373	381
United Kingdom	175	173	184	185	183	182	174	171	172	167	156	145	134	120	107	97	80	71
Uruguay	134	138	150	156	116	119	97	91	88	73	78	74		58	51	52	45	
USA	273	257	242	220	197	185	156	147	139	127	118	108	101	96	92	84	90	
USSR								252	272	238	225	216						
Uzbekistan								273		272	270	270	315	340	327	351	361	
Venezuela	147	138	145	142	137	131	107	109		98	109	124	128	122	118	114	109	
Yugoslavia, Fmr	59	63	69	77	89	81	80	71	83	82	77	73	66					

Notes: ICD codes 410-414 (8th and 9th Revision), I20-I25 (10th Revision). Age-standardised using the European Standard Population.

Source: World Health Organization (2004) www3.who.int/whosis.

Figure 1.5a Death rates from CHD, men and women aged 35 to 74, 2000, selected countries

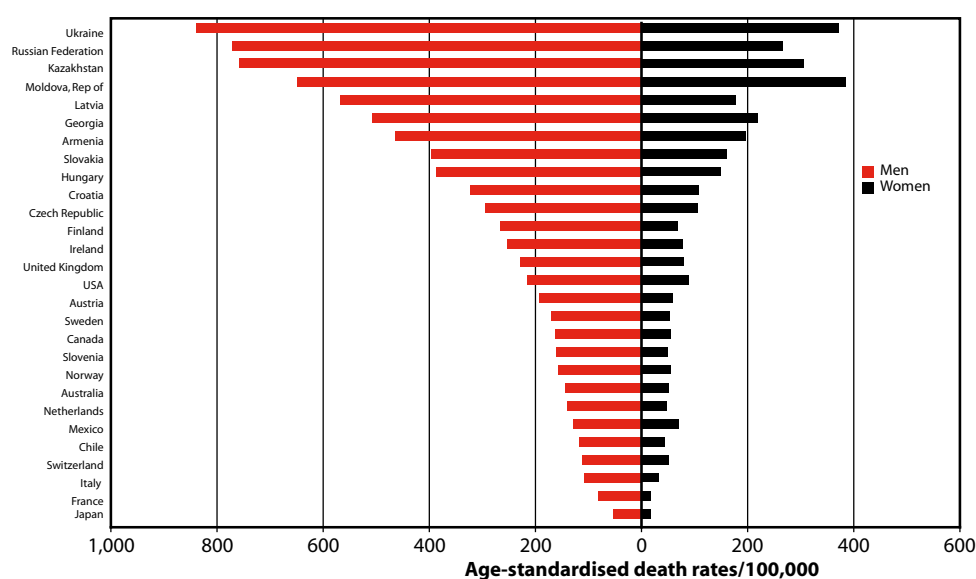


Figure 1.5b Changes in death rates from CHD, men and women aged 35 to 74, between 1990 and 2000, selected countries

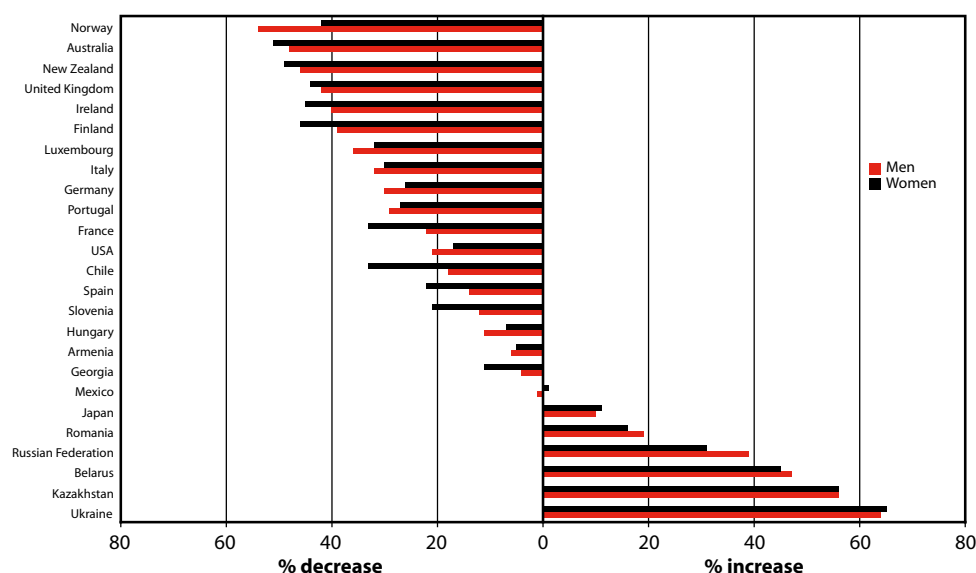


Table 1.6 Age-standardised death rates from CHD per 100,000 population by country and Standard Region, 1978 to 1996, and by country and Government Office Region, 1997 to 2006, United Kingdom

	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	MEN AGED 35-74										1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
											MEN AGED 35-74																				
MEN AGED 35-74	United Kingdom	578	521	497	490	470	434	393	364	325	292	United Kingdom										295	260	244	226	213	199	189	173	161	149
	England	523	501	478	471	449	414	377	349	307	281	England										261	252	234	218	205	192	181	167	155	144
	North	613	594	562	576	539	517	468	448	375	337	North East										336	323	283	266	247	231	224	204	186	169
	Yorkshire and Humberside	603	559	545	532	528	490	438	395	342	310	Yorkshire and Humberside										291	288	253	240	236	212	201	176	172	166
	North West	612	583	575	564	538	514	460	413	373	338	North West										314	307	279	262	250	231	220	210	192	183
	East Midlands	535	502	490	475	445	427	384	351	300	281	East Midlands										260	258	240	219	200	199	189	169	155	140
	West Midlands	519	500	498	493	480	436	416	371	320	308	West Midlands										285	262	259	234	225	211	195	179	170	153
	East Anglia	462	432	385	420	382	335	305	290	270	240	East										218	206	202	189	177	159	151	142	131	124
	South East	464	450	421	410	385	349	319	303	272	250	South East										216	202	197	174	168	152	151	138	126	116
South West	489	474	434	428	418	368	332	306	274	243	London										249	246	231	224	201	198	189	168	158	144	
Wales	629	582	533	518	501	467	427	379	344	318	South West										223	219	198	192	174	164	146	141	125	118	
Scotland	656	616	606	595	581	538	481	458	408	371	Wales										294	278	279	246	238	225	206	180	179	163	
Northern Ireland	653	658	571	598	602	562	483	437	380	338	Scotland										347	332	318	289	261	246	244	221	213	191	
											Northern Ireland										323	302	290	250	228	216	195	194	175	166	
											WOMEN AGED 35-74																				
WOMEN AGED 35-74	United Kingdom	202	174	171	172	167	156	145	134	120	104	United Kingdom										98	93	85	78	76	69	65	58	52	49
	England	171	163	160	162	158	146	137	127	109	99	England										91	89	81	73	70	65	60	54	49	46
	North	235	217	220	222	210	209	196	176	158	134	North East										133	123	113	100	88	84	82	72	64	65
	Yorkshire and Humberside	205	192	196	205	189	183	173	155	125	116	Yorkshire and Humberside										112	100	89	87	82	75	66	61	58	54
	North West	220	210	205	210	205	194	178	167	143	129	North West										115	120	104	93	90	84	72	70	62	59
	East Midlands	170	165	161	171	167	151	141	127	105	99	East Midlands										95	99	84	75	71	73	64	59	55	48
	West Midlands	177	167	167	175	167	161	146	134	115	110	West Midlands										103	95	91	76	79	70	69	57	52	48
	East Anglia	145	134	124	127	123	104	100	94	84	76	East										72	74	62	59	56	49	47	42	39	37
	South East	139	134	131	130	127	114	107	104	90	81	South East										68	64	63	56	52	52	46	43	38	36
South West	147	136	126	137	133	112	113	97	86	77	London										83	81	79	73	70	63	61	54	47	42	
Wales	195	204	184	187	182	166	154	142	127	112	South West										69	68	65	56	54	50	49	40	34	34	
Scotland	256	241	245	228	220	219	201	182	160	140	Wales										108	97	90	88	85	79	72	69	59	53	
Northern Ireland	233	228	226	204	207	209	177	168	153	127	Scotland										136	129	118	109	98	96	90	81	75	72	
											Northern Ireland										115	107	101	89	83	78	65	66	60	59	

Notes: ICD-9 codes 410-414 for pre-2001 data, ICD-10 codes 120-25 thereafter.

Age-standardised using the European Standard Population. Government Office Regions replaced Standard regions in England in 1997.

Source: Pre 1997: Office for Population Censuses and Surveys (1994) Mortality Statistics 1992, DHS series, HMSO: London and previous editions;

Office for National Statistics 1993-1996 figures, personal communication.

1997-2006: England and Wales: Office for National Statistics, personal communication.

Scotland and Northern Ireland: raw data from the General Register Office for Scotland, and the Northern Ireland Statistics and Research Agency.

Table 1.7 Numbers of deaths and age-standardised death rates from CHD for men and women under 65 by local authority, 2004/06, United Kingdom

		Men		Women				Men		Women	
Map reference	Local authority	Number of deaths 2004-2006	Age standardised death rate/ 100,000	Number of deaths 2004-2006	Age standardised death rate/ 100,000	Map reference	Local authority	Number of deaths 2004-2006	Age standardised death rate/ 100,000	Number of deaths 2004-2006	Age standardised death rate/ 100,000
ENGLAND		26,197	39.25	6,406	9.27	90	Lewisham	99	42.30	23	9.12
A	South East	3,550	31.93	784	6.86	91	Merton	51	24.91	13	6.05
1	Medway Towns UA	153	45.59	31	9.51	92	Newham	144	66.90	40	19.06
2	Bracknell Forest UA	30	21.66	8	5.84	93	Redbridge	91	31.26	21	7.07
3	West Berkshire UA	60	28.72	16	7.88	94	Richmond upon Thames	58	25.74	12	5.49
4	Reading UA	62	40.54	11	7.21	95	Southwark	99	42.89	26	10.02
5	Slough	78	57.42	12	9.93	96	Sutton	49	22.76	10	4.16
6	Windsor & Maidenhead UA	55	29.52	9	4.66	97	Tower Hamlets	101	65.81	26	16.94
7	Wokingham UA	60	28.46	9	4.19	98	Waltham Forest	113	49.81	32	13.56
8	Milton Keynes UA	96	33.85	24	8.74	99	Wandsworth	75	32.96	35	13.36
9	Brighton & Hove UA	111	39.24	21	7.45	100	Westminster	61	25.60	19	7.89
10	Portsmouth UA	108	48.65	16	7.36	B	South West	2,288	31.67	550	7.26
11	Southampton UA	133	52.14	31	13.00	101	Bath & North East Somerset UA	60	26.22	17	6.92
12	Isle of Wight UA	71	33.49	19	8.76	102	Bristol UA	194	43.43	46	10.14
13	Aylesbury Vale	74	31.20	16	6.58	103	North Somerset UA	106	34.95	17	5.43
14	Chiltern	27	19.80	10	6.83	104	South Gloucestershire UA	105	30.45	25	6.94
15	South Bucks	22	23.51	6	6.10	105	Plymouth UA	143	45.52	38	11.53
16	Wycombe	49	22.15	10	4.42	106	Torbay UA	101	51.01	19	8.37
17	Eastbourne	40	33.13	11	8.28	107	Bournemouth UA	52	24.65	10	5.00
18	Hastings	56	46.35	13	10.72	108	Poole UA	48	24.97	9	4.38
19	Lewes	29	20.78	15	10.57	109	Swindon UA	74	31.68	20	8.58
20	Rother	46	34.71	11	7.97	110	Caradon	40	30.78	9	6.32
21	Wealden	65	29.99	9	3.90	111	Carrick	44	32.05	13	9.32
22	Basingstoke & Deane	63	28.78	15	6.88	112	Kerrier	55	37.60	5	3.04
23	East Hampshire	42	24.78	9	5.22	113	North Cornwall	52	39.76	9	5.60
24	Eastleigh	47	28.39	11	7.12	114	Penwith	41	39.87	8	7.16
25	Fareham	43	27.38	5	2.80	115	Restormel	61	40.91	21	13.25
26	Gosport	32	32.40	6	5.42	116	Isles of Scilly	2	44.94	0	0.00
27	Hart	36	29.14	4	3.29	117	East Devon	52	25.24	8	4.09
28	Havant	49	29.31	18	10.32	118	Exeter	51	37.38	18	12.43
29	New Forest	67	25.34	15	5.01	119	Mid Devon	31	26.25	13	11.64
30	Rushmoor	37	34.71	5	5.08	120	North Devon	62	45.65	10	7.43
31	Test Valley	40	24.64	10	5.89	121	South Hams	30	21.88	6	3.82
32	Winchester	40	24.91	9	5.74	122	Teignbridge	56	28.71	17	8.33
33	Ashford	38	25.30	8	5.03	123	Torridge	36	35.02	6	6.63
34	Canterbury	76	41.40	18	8.93	124	West Devon	22	25.28	2	2.08
35	Dartford	47	42.09	10	8.96	125	Christchurch	15	24.94	9	12.31
36	Dover	59	38.57	20	12.03	126	East Dorset	12	8.25	8	5.57
37	Gravesham	45	33.87	14	9.71	127	North Dorset	30	31.15	9	8.41
38	Maidstone	66	31.16	12	5.56	128	Purbeck	17	24.66	3	3.45
39	Sevenoaks	47	28.82	8	4.55	129	West Dorset	50	32.85	7	4.53
40	Shepway	52	36.83	17	11.22	130	Weymouth & Portland	34	34.46	3	3.13
41	Swale	72	40.10	27	14.31	131	Cheltenham	47	33.87	6	4.16
42	Thanet	86	47.43	14	7.48	132	Cotswold	22	17.09	13	9.75
43	Tonbridge & Malling	37	23.66	11	6.95	133	Forest of Dean	47	36.91	12	9.25
44	Tunbridge Wells	49	33.97	9	6.12	134	Gloucester	58	40.29	14	9.71
45	Cherwell	36	20.57	12	6.79	135	Stroud	41	24.23	14	7.70
46	Oxford	51	36.88	9	6.59	136	Tewkesbury	31	25.70	7	5.62
47	South Oxfordshire	56	30.75	15	7.64	137	Mendip	50	32.87	11	7.02
48	Vale of White Horse	44	26.49	6	3.42	138	Sedgemoor	53	30.94	12	6.76
49	West Oxfordshire	42	30.19	7	4.60	139	South Somerset	53	23.14	12	4.53
50	Elmbridge	43	25.01	10	5.80	140	Taunton Deane	37	24.92	6	3.74
51	Epsom & Ewell	23	23.11	7	6.96	141	West Somerset	13	21.79	3	4.83
52	Guildford	46	27.21	16	9.36	142	Kenet	32	29.33	9	8.22
53	Mole Valley	31	24.24	6	4.55	143	North Wiltshire	48	25.78	17	9.23
54	Reigate & Banstead	49	28.03	10	5.83	144	Salisbury	40	25.25	19	11.46
55	Runnymede	32	30.26	7	6.69	145	West Wiltshire	40	23.21	10	5.58
56	Spelthorne	46	37.34	2	1.75	C	East of England	2,483	32.44	529	6.70
57	Surrey Heath	36	31.85	5	4.52	146	Peterborough UA	87	44.04	20	9.94
58	Tandridge	43	36.70	6	4.95	147	Luton UA	104	47.72	18	8.54
59	Waverley	37	22.12	10	5.67	148	Southend-on-Sea UA	72	34.48	19	8.54
60	Woking	29	25.03	9	8.04	149	Thurrock UA	57	29.99	22	11.58
61	Adur	23	28.17	9	9.82	150	Mid Bedfordshire	49	27.18	8	4.44
62	Arun	85	39.80	8	3.49	151	Bedford	81	40.08	14	6.91
63	Chichester	39	24.82	9	4.85	152	South Bedfordshire	52	32.36	12	7.17
64	Crawley	42	35.71	9	8.02	153	Cambridge	40	35.72	9	7.56
65	Horsham	44	23.71	8	4.15	154	East Cambridgeshire	29	25.79	5	4.48
66	Mid Sussex	33	17.76	8	4.26	155	Fenland	58	44.08	13	9.58
67	Worthing	45	36.39	13	9.13	156	Huntingdonshire	69	29.20	11	4.59
	London	3,117	39.71	755	9.08	157	South Cambridgeshire	39	19.95	11	5.49
68	City of London	5	35.58	0	0.00	158	Basildon	79	36.72	20	8.78
69	Barking & Dagenham	88	50.76	29	16.52	159	Braintree	66	32.82	23	11.13
70	Barnet	131	35.22	21	5.12	160	Brentwood	21	21.51	4	3.95
71	Bexley	75	26.56	32	10.71	161	Castle Point	42	28.78	9	6.15
72	Brent	146	52.32	42	14.08	162	Chelmsford	54	23.82	7	2.94
73	Bromley	106	27.20	18	4.31	163	Colchester	59	26.34	19	8.18
74	Camden	115	54.92	20	9.30	164	Epping Forest	59	33.12	10	5.70
75	Croydon	143	35.98	25	6.04	165	Harlow	35	40.08	12	12.31
76	Ealing	147	45.38	31	9.31	166	Maldon	36	36.17	9	8.89
77	Enfield	124	38.75	27	7.93	167	Rochford	30	27.68	4	3.77
78	Greenwich	108	46.34	31	12.16	168	Tendring	108	51.36	22	9.65
79	Hackney	99	58.05	32	16.53	169	Uttlesford	27	24.77	8	7.33
80	Hammersmith & Fulham	63	40.78	13	7.92	170	Broxbourne	38	32.96	18	14.65
81	Haringey	94	46.48	16	7.21	171	Dacorum	50	26.68	10	5.15
82	Harrow	93	37.64	13	4.78	172	East Hertfordshire	49	26.64	9	4.77
83	Havering	121	40.60	22	6.78	173	Hertsmer	42	33.81	3	2.20
84	Hillingdon	124	42.86	21	7.07	174	North Hertfordshire	52	32.51	12	7.35
85	Hounslow	103	43.46	33	13.74	175	St Albans	42	23.82	5	2.83
86	Islington	98	59.98	22	11.87	176	Stevenage	30	32.95	5	4.88
87	Kensington & Chelsea	41	21.18	15	6.58	177	Three Rivers	36	31.23	5	4.68
88	Kingston upon Thames	46	25.41	11	6.35	178	Watford	34	36.31	5	5.66
89	Lambeth	106	47.52	24	9.49						

Map reference	Local authority	Men		Women		Map reference	Local authority	Men		Women	
		Number of deaths 2004-2006	Age standardised death rate/ 100,000	Number of deaths 2004-2006	Age standardised death rate/ 100,000			Number of deaths 2004-2006	Age standardised death rate/ 100,000	Number of deaths 2004-2006	Age standardised death rate/ 100,000
179	Welwyn Hatfield	36	28.68	6	4.50	276	Trafford	116	42.57	32	11.07
180	Breckland	54	28.29	9	4.67	277	Wigan	246	55.89	71	15.29
181	Broadland	48	25.74	14	6.99	278	Knowsley	111	62.26	38	19.68
182	Great Yarmouth	69	49.67	17	11.17	279	Liverpool	331	64.76	86	15.77
183	Kings Lynn & West Norfolk	70	32.50	21	9.29	280	St Helens	133	52.99	37	14.11
184	North Norfolk	55	33.65	13	7.64	281	Sefton	180	46.89	42	9.97
185	Norwich	70	49.03	10	6.71	282	Wirral	182	42.59	49	10.63
186	South Norfolk	38	21.01	4	2.06	283	Halton UA	84	51.76	21	12.33
187	Babergh	41	30.90	11	7.74	284	Warrington UA	126	46.56	30	10.90
188	Forest Heath	30	41.47	3	3.92	285	Blackburn with Darwen UA	95	56.81	18	11.11
189	Ipswich	60	40.38	9	6.20	286	Blackpool UA	127	61.72	26	12.52
190	Mid Suffolk	44	30.76	8	5.72	287	Chester	41	25.05	9	5.23
191	St Edmundsbury	34	23.12	9	5.60	288	Congleton	57	39.77	8	5.57
192	Suffolk Coastal	56	30.62	6	3.28	289	Crewe & Nantwich	73	43.87	16	9.69
193	Waveney	52	30.02	8	4.49	290	Ellesmere Port & Neston	47	42.13	7	6.28
<i>D</i>	<i>East Midlands</i>	<i>2,349</i>	<i>38.99</i>	<i>606</i>	<i>9.85</i>	291	Macclesfield	82	36.50	19	8.24
194	Corby	30	42.12	11	14.65	292	Vale Royal	81	43.12	22	11.29
195	Daventry	50	43.02	6	4.79	293	Allerdale	62	42.40	14	9.81
196	East Northamptonshire	30	26.04	10	8.40	294	Barrow-in-Furness	57	55.15	14	13.63
197	Kettering	34	27.06	11	8.78	295	Carlisle	93	62.50	19	12.36
198	Northampton	104	42.57	24	9.34	296	Copeland	43	39.02	14	13.02
199	South Northamptonshire	44	33.55	11	8.53	297	Eden	26	30.11	3	3.93
200	Wellingborough	42	40.75	8	7.16	298	South Lakeland	47	28.02	12	6.94
201	Derby UA	137	46.68	25	8.63	299	Burnley	78	64.16	19	15.81
202	Leicester UA	172	55.61	52	17.17	300	Chorley	76	48.17	14	8.65
203	Rutland UA	14	25.44	5	8.93	301	Fylde	46	39.91	7	5.75
204	Northingham UA	159	56.19	46	16.64	302	Hyndburn	65	58.87	16	14.37
205	Amber Valley	76	41.76	24	12.81	303	Lancaster	75	42.59	23	12.15
206	Bolsover	48	44.34	19	18.01	304	Pendle	69	55.74	8	6.45
207	Chesterfield	69	48.22	19	13.51	305	Preston	69	42.62	18	11.34
208	Derbyshire Dales	40	33.72	10	8.70	306	Ribble Valley	37	42.42	6	6.60
209	Erewash	63	39.19	15	9.07	307	Rossendale	40	41.13	15	16.26
210	High Peak	43	31.93	12	9.39	308	South Ribble	55	35.41	9	5.52
211	North East Derbyshire	63	39.46	22	12.97	309	West Lancashire	66	40.14	18	10.61
212	South Derbyshire	48	37.52	10	7.86	310	Wyre	73	45.11	18	9.77
213	Blaby	37	27.96	8	5.68	<i>G</i>	<i>Yorkshire and the Humber</i>	<i>2,947</i>	<i>43.25</i>	<i>772</i>	<i>11.09</i>
214	Charnwood	78	36.80	20	9.23	311	Barnsley	142	45.04	53	16.68
215	Harborough	29	23.73	5	3.90	312	Doncaster	189	46.92	43	10.51
216	Hinckley & Bosworth	49	30.42	9	6.02	313	Rotherham	166	46.83	40	10.93
217	Melton	33	43.16	5	6.85	314	Sheffield	277	42.09	68	10.13
218	North West Leicestershire	54	40.78	18	12.74	315	Bradford	286	50.17	86	15.14
219	Oadby & Wigston	27	37.13	3	3.95	316	Calderdale	129	46.95	24	8.50
220	Boston	40	45.31	6	6.91	317	Kirklees	203	38.59	60	11.10
221	East Lindsey	83	37.57	23	9.29	318	Leeds	383	44.17	105	11.70
222	Lincoln	52	50.02	15	14.37	319	Wakefield	210	46.24	54	11.85
223	North Kesteven	62	41.49	13	7.93	320	Kingston upon Hull UA	167	55.11	49	16.45
224	South Holland	51	41.40	12	8.19	321	East Riding of Yorkshire UA	175	33.97	45	8.79
225	South Kesteven	72	37.27	9	4.49	322	North East Lincolnshire UA	100	46.28	31	14.68
226	West Lindsey	44	32.51	8	5.74	323	North Lincolnshire UA	95	40.28	21	8.74
227	Ashfield	63	38.51	23	14.06	324	York UA	95	39.92	17	6.50
228	Bassetlaw	70	40.88	20	12.06	325	Craven	22	24.24	3	3.05
229	Broxtowe	51	33.34	14	8.51	326	Hambleton	42	30.83	10	7.04
230	Gedling	45	28.02	15	8.88	327	Harrogate	76	33.62	17	7.44
231	Mansfield	58	42.62	15	11.06	328	Richmondshire	26	39.29	7	9.70
232	Newark & Sherwood	50	30.32	20	11.61	329	Ryedale	29	33.08	1	1.07
233	Rushcliffe	35	22.12	5	3.39	330	Scarborough	91	54.44	24	12.87
<i>E</i>	<i>West Midlands</i>	<i>3,154</i>	<i>43.42</i>	<i>765</i>	<i>10.23</i>	331	Selby	44	36.94	14	12.13
234	Birmingham	608	56.62	156	13.90	<i>H</i>	<i>North East</i>	<i>1,647</i>	<i>47.40</i>	<i>453</i>	<i>12.62</i>
235	Coventry	171	47.70	45	12.22	332	Gateshead	146	57.66	27	9.79
236	Dudley	163	37.17	39	8.89	334	Newcastle upon Tyne	157	50.37	44	13.89
237	Sandwell	241	67.52	56	15.50	335	North Tyneside	112	42.70	24	8.67
238	Solihull	106	36.98	35	10.95	336	South Tyneside	105	52.99	34	16.48
239	Walsall	168	49.63	49	14.15	337	Sunderland	168	44.86	51	13.08
240	Wolverhampton	158	53.31	34	11.29	338	Hartlepool UA	70	59.23	25	20.52
241	County of Herefordshire UA	88	31.49	18	6.03	339	Middlesbrough UA	98	58.76	26	15.17
242	Telford & Wrekin UA	108	49.24	26	11.74	340	Redcar and Cleveland UA	90	44.32	36	17.42
243	Stoke-on-Trent UA	187	57.94	43	13.41	341	Stockton-on-Tees UA	116	46.19	29	11.31
244	Bridgnorth	28	31.79	11	11.95	342	Darlington UA	60	42.74	10	7.11
245	North Shropshire	31	34.59	7	7.17	343	Chester-le-Street	34	42.06	7	8.82
246	Oswestry	23	40.76	4	5.93	344	Derwentside	67	53.69	25	19.63
247	Shrewsbury & Atcham	50	36.61	9	6.02	345	Durham	63	50.82	11	8.95
248	South Shropshire	20	26.01	2	2.92	346	Easington	61	49.19	29	21.69
249	Cannock Chase	56	42.44	16	12.46	347	Sedgefield	47	36.35	16	12.20
250	East Staffordshire	62	41.02	15	10.05	348	Teesdale	12	28.60	1	2.34
251	Lichfield	38	23.96	11	6.84	349	Wear Valley	40	43.23	11	11.55
252	Newcastle-under-Lyme	75	42.09	20	11.05	350	Alnwick	10	19.97	5	10.47
253	South Staffordshire	62	35.47	15	8.37	351	Berwick-upon-Tweed	9	22.43	4	7.49
254	Stafford	43	22.93	20	10.10	352	Blyth Valley	63	51.43	16	13.11
255	Staffordshire Moorlands	56	35.34	13	8.54	353	Castle Morpeth	32	39.92	3	4.96
256	Tamworth	36	33.79	15	14.67	354	Tynedale	35	35.43	5	5.12
257	North Warwickshire	30	29.18	14	14.30	355	Wansbeck	52	59.07	14	15.38
258	Nuneaton & Bedworth	82	47.58	19	10.46	SCOTLAND		3,788	54.22	1,110	14.97
259	Rugby	57	42.55	3	2.22	356	Aberdeen City	130	48.73	32	11.85
260	Stratford-on-Avon	52	27.76	10	5.07	357	Aberdeenshire	121	33.59	35	9.96
261	Warwick	68	37.69	8	4.60	358	Angus	77	45.51	23	13.01
262	Bromsgrove	36	25.00	7	4.68	359	Argyll & Bute	70	47.81	15	10.18
263	Malvern Hills	37	31.31	6	4.65	360	Clackmannanshire	37	53.59	9	12.09
264	Redditch	41	35.44	13	11.34	361	Dumfries & Galloway	79	33.46	20	7.76
265	Worcester	54	45.41	10	7.87	362	Dundee City	120	66.45	29	14.86
266	Wychavon	68	35.94	5	2.79	363	East Ayrshire	110	64.14	32	17.62
267	Wyre Forest	51	30.03	11	6.42	364	East Dunbartonshire	48	31.88	14	8.72
<i>F</i>	<i>North West</i>	<i>4,662</i>	<i>50.50</i>	<i>1,192</i>	<i>12.49</i>	365	East Lothian	63	48.78	12	8.64
268	Bolton	180	49.84	52	14.26	366	East Renfrewshire	47	38.37	8	6.09
269	Bury	128	51.69	25	9.57	367	Edinburgh, City of	303	56.52	80	14.12
270	Manchester	304	71.03	85	19.80	368	Eilean Siar	22	48.44	9	21.91
271	Oldham	176	62.73	56	18.71	369	Falkirk	110	53.48	41	19.03
272	Rochdale	170	62.48	52	18.84	370	Fife	271	53.48	76	14.27
273	Salford	171	63.47	53	19.00	371	Glasgow City	541	82.70	176	25.36
274	Stockport	177	45.28	45	11.20						
275	Tameside	167	56.68	46	15.71						

Map reference	Local authority	Men		Women	
		Number of deaths 2004-2006	Age standardised death rate/ 100,000	Number of deaths 2004-2006	Age standardised death rate/ 100,000
372	Highland	132	39.24	30	8.87
373	Inverclyde	94	83.23	26	21.32
374	Midlothian	61	54.64	20	16.17
375	Moray	45	35.16	14	10.46
376	North Ayrshire	127	66.04	35	16.40
377	North Lanarkshire	300	70.46	101	21.92
378	Orkney Islands	14	42.07	2	6.50
379	Perth & Kinross	82	39.83	20	8.92
380	Renfrewshire	140	59.88	37	14.02
381	Scottish Borders	78	46.95	14	7.48
382	Shetland Islands	13	39.09	0	0.00
383	South Ayrshire	69	40.75	30	16.29
384	South Lanarkshire	245	58.93	77	16.82
385	Stirling	50	40.50	12	9.33
386	West Dunbartonshire	76	62.17	38	28.25
387	West Lothian	113	51.18	43	18.04
WALES		1,806	43.38	515	11.78
388	Blaenau Gwent UA	60	59.31	24	23.37
389	Bridgend UA	74	39.61	24	12.30
390	Caerphilly UA	147	62.29	32	12.78
391	Cardiff UA	146	41.46	28	7.54
392	Carmarthenshire UA	106	38.78	32	11.06
393	Ceredigion UA	39	32.40	15	11.54
394	Conwy UA	62	37.47	21	11.40
395	Denbighshire UA	46	32.45	12	7.69
396	Flintshire UA	90	42.08	29	12.56
397	Gwynedd UA	62	35.17	14	7.52
398	Isle of Anglesey UA	35	31.98	8	6.56
399	Merthyr Tydfil UA	39	50.33	16	19.54
400	Monmouthshire UA	45	33.02	8	6.30
401	Neath Port Talbot UA	93	47.43	24	11.76
402	Newport UA	85	46.39	25	13.55
403	Pembrokeshire UA	78	44.08	21	11.14
404	Powys UA	69	32.05	16	8.29
405	Rhondda, Cynon, Taff UA	193	60.28	54	15.89
406	Swansea UA	140	46.91	52	16.03
407	The Vale of Glamorgan UA	70	41.50	14	7.86
408	Torfaen UA	53	40.22	17	12.71
409	Wrexham UA	74	39.10	29	15.13
NORTHERN IRELAND		982	46.36	285	12.91
410	Ards	52	46.87	17	15.31
411	Belfast	184	62.65	60	18.18
412	Castlereagh	25	30.52	13	14.30
413	Down	33	39.51	11	13.02
414	Lisburn	47	34.87	12	8.28
415	North Down	39	34.30	8	6.46
416	Antrim	32	49.72	12	18.63
417	Ballymena	31	38.67	8	9.08
418	Ballymoney	12	32.64	3	9.03
419	Carrickfergus	24	47.39	4	7.30
420	Coleraine	32	43.66	11	14.29
421	Cookstown	29	72.16	9	22.54
422	Larne	16	36.03	5	10.61
423	Magherafelt	28	59.71	8	16.53
424	Moyle	9	37.38	1	4.33
425	Newtownabbey	54	51.10	7	6.32
426	Armagh	32	45.20	10	14.22
427	Banbridge	23	41.15	6	10.96
428	Craigavon	53	52.13	16	15.24
429	Dungannon	33	56.23	6	10.26
430	Newry and Mourne	49	46.66	11	10.18
431	Fermanagh	33	41.97	9	11.82
432	Limavady	18	42.47	4	10.56
433	Derry	54	45.76	17	13.60
434	Omagh	20	33.53	6	10.42
435	Strabane	20	41.03	11	23.77

Notes: ICD (10th revision) codes I20-I25; directly standardised using the European Standard Population.

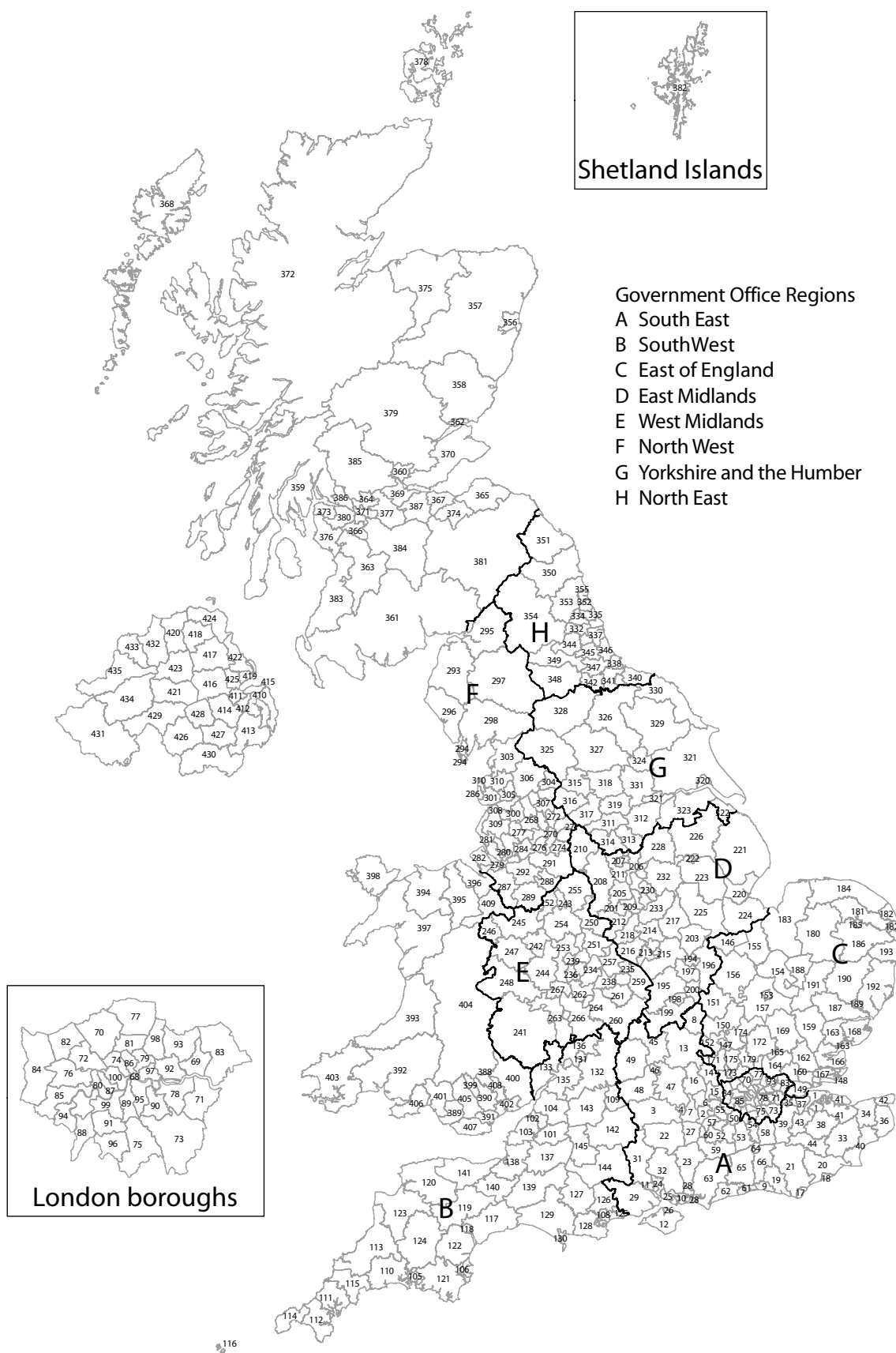
The age-adjusted death rate/100,000 is an annual rate. The numbers of deaths 2004-2006 is the total number of deaths over the three year period.

Source: England and Wales: rates calculated in partnership with the Office for National Statistics.

Scotland: rates calculated in partnership with the General Register Office for Scotland.

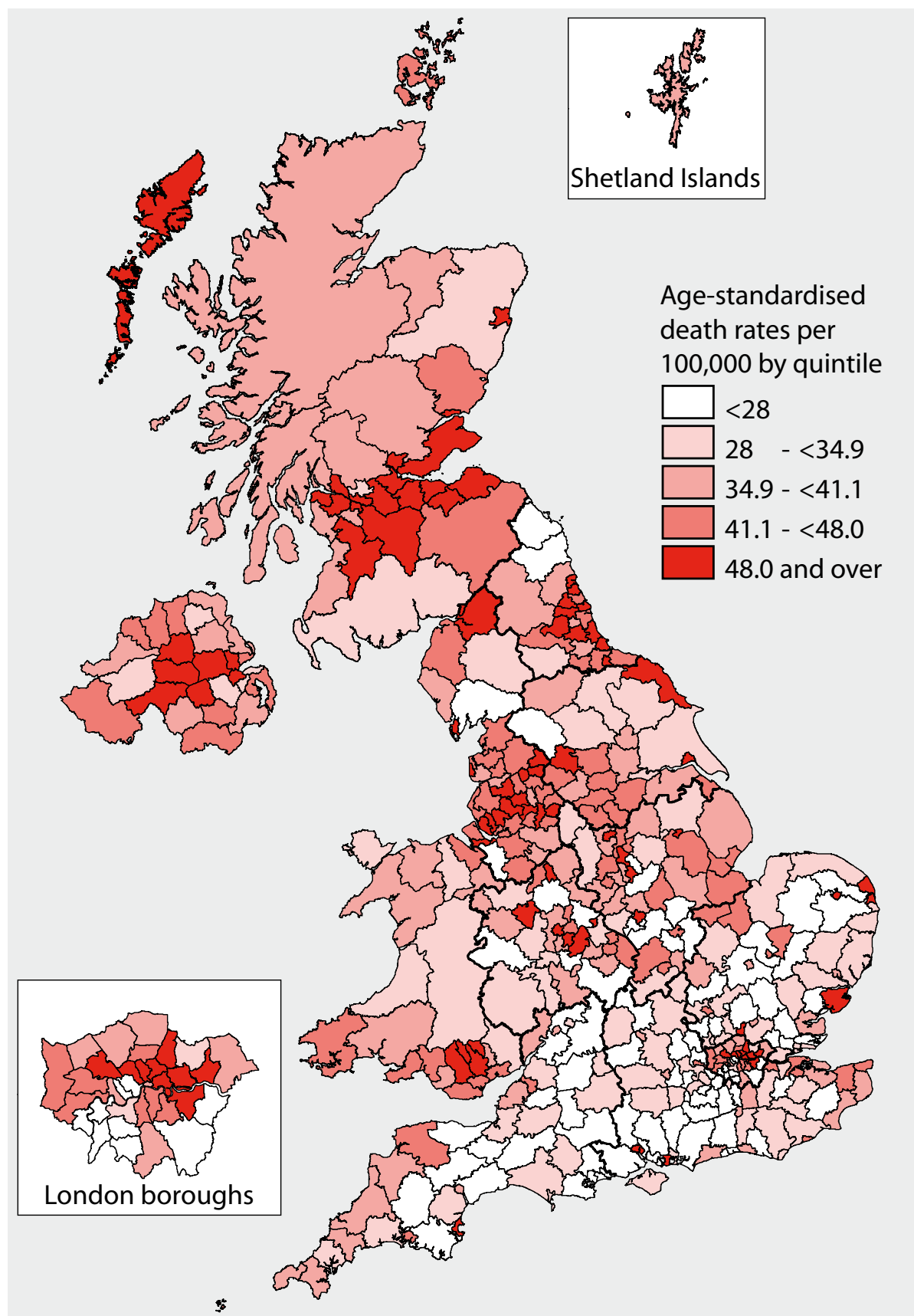
Northern Ireland: rates calculated in partnership with Northern Ireland Statistics and Research Agency.

Key to local authorities



British Heart
Foundation
Statistics Database
www.heartstats.org

Figure 1.7a Age-standardised death rates per 100,000 population from CHD for men under 65 by local authority, 2004/06, United Kingdom



Great Britain boundaries: © Crown copyright. All rights reserved. (BHF HPRG) (WL5926) (2003)

Northern Ireland boundaries: Reproduced by permission of the Ordnance Survey of Northern Ireland on behalf of the Controller of Her Majesty's Stationery Office. © Crown copyright 2003 (20164)

British Heart
Foundation
Statistics Database
www.heartstats.org

Figure 1.7b Age-standardised death rates per 100,000 population from CHD for women under 65 by local authority, 2004/06, United Kingdom

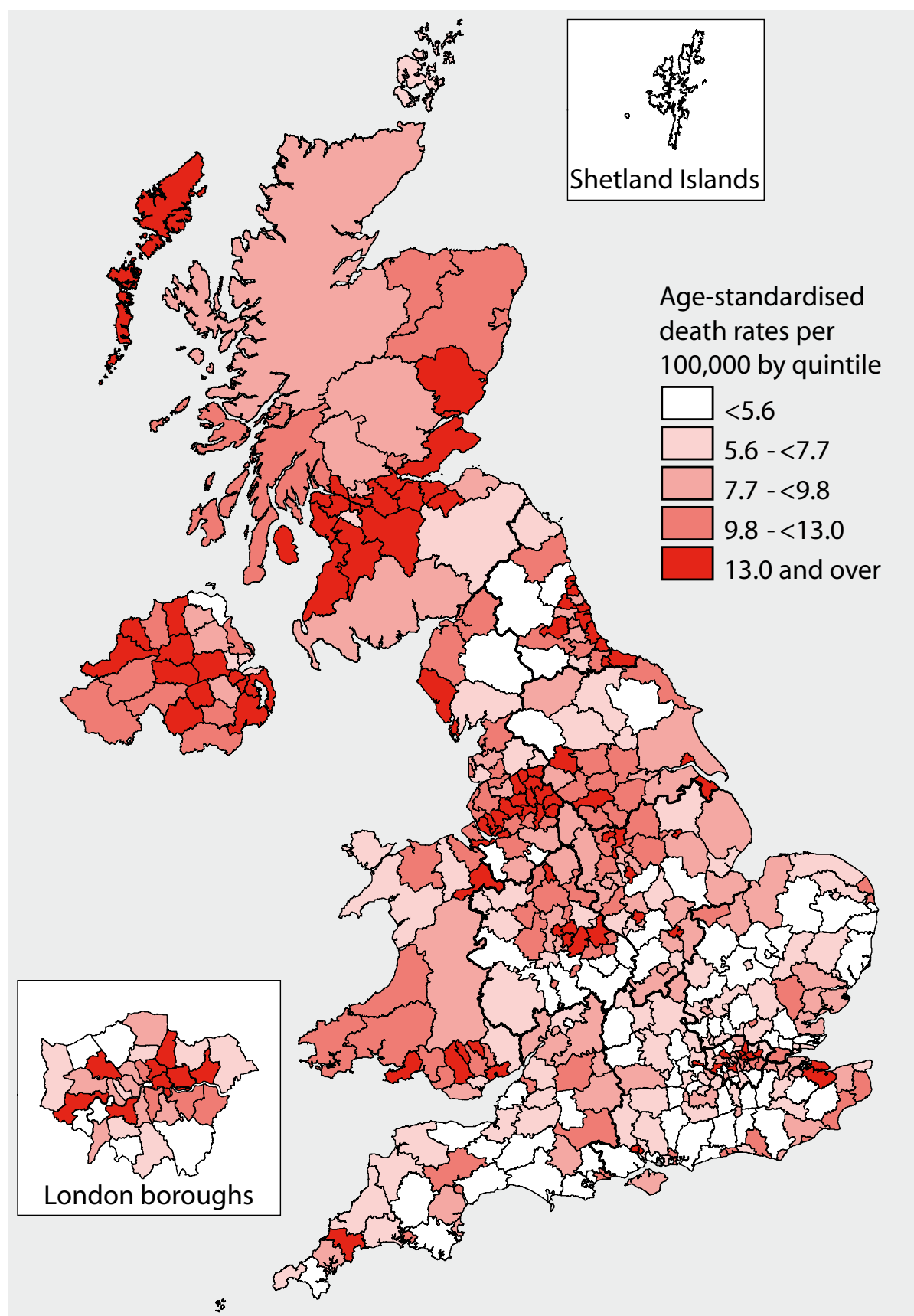


Table 1.8 Age-standardised death rates from CHD and stroke by sex and social class, 1976/81 to 1997/99, England and Wales

		MEN					WOMEN				
		1976/81	1981/85	1986/92	1993/96	1997/99	1976/81	1981/85	1986/92	1993/96	1997/99
Coronary heart disease											
I/II	Professional/intermediate	246	185	160	97	90	39	45	29	21	22
IIIN	Skilled non-manual	382	267	162	117	117	56	57	39	35	30
IIIM	Skilled manual	309	269	231	159	141	85	67	59	46	41
IV/V	Partly skilled/unskilled	363	293	266	215	107	105	76	78	48	50
Total non-manual		291	212	161	105	100	44	49	33	27	26
Total manual		345	285	255	179	150	98	73	72	46	45
Ratio manual:non-manual		1.19	1.34	1.58	1.70	1.50	2.23	1.49	2.18	1.70	1.73
Stroke											
I/II	Professional/intermediate	45	28	29	22	12	26	19	14	8	18
IIIN	Skilled non-manual	38	46	27	17	13	36	29	22	14	9
IIIM	Skilled manual	41	45	33	30	24	36	32	18	24	22
IV/V	Partly skilled/unskilled	54	59	40	45	32	42	41	34	22	19
Total non-manual		42	34	28	20	12	29	23	17	11	14
Total manual		50	54	38	35	27	40	38	29	22	21
Ratio manual:non-manual		1.19	1.59	1.36	1.75	2.25	1.38	1.65	1.71	2.00	1.50

Notes: Data from 1993/96 refer to directly age-standardised rates per 100,000 person years.
Data before 1993/96 refers to age-standardised death rates per 100,000 population.
Men and women aged 35-64.

Source: Data from 1993/96 from Office for National Statistics (2003) Trends in social class differences in mortality by cause, 1986 to 2000. The Stationery Office: London.
Data before 1993/96 from Office for National Statistics (1997) Health Inequalities. The Stationery Office: London.

Figure 1.8 Death rates from CHD by social class, men and women aged 35 to 64, 1978 to 1998, England and Wales

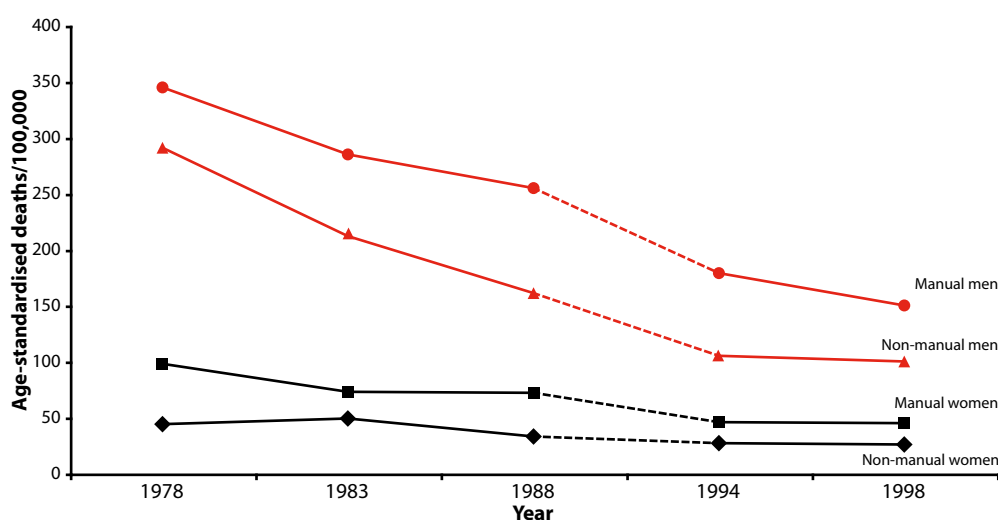


Table 1.9 Age-standardised death rates for CVD, CHD and stroke by deprivation twentieth, sex and age, 1999 to 2003, England and Wales

	Deprivation twentieth																					
	Least deprived										Most deprived											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	Ratio
CVD, ages 0–74																						
MEN	94	104	108	116	119	122	129	136	142	146	152	165	171	177	184	193	200	206	227	250	152	2.7
WOMEN	40	44	47	50	52	52	57	60	63	66	69	73	78	84	88	89	94	94	106	115	69	2.9
CHD, ages 15–64																						
MEN	35	40	42	48	49	50	52	58	60	62	67	74	75	80	83	90	93	98	108	123	67	3.5
WOMEN	7	8	10	11	11	11	13	13	15	15	18	19	19	22	24	25	26	27	33	37	17	5.5
Stroke, all ages																						
MEN	63	62	61	64	63	65	66	66	67	69	72	71	72	72	75	76	77	78	84	91	70	1.5
WOMEN	61	58	60	60	60	60	57	62	61	63	63	64	64	65	67	67	65	65	70	69	63	1.1
Stroke, ages 15–64																						
MEN	8	9	9	9	10	11	11	12	11	13	13	14	14	15	16	19	19	19	23	29	14	3.6
WOMEN	6	6	7	8	7	8	9	10	10	10	10	10	11	12	14	14	14	15	17	17	11	2.6

Notes: Data for CVD from 1999 and 2001 to 2003.
 Data for CHD from 1999 to 2003.
 Ratio is ratio between most deprived and least deprived twentieths.
 Death rate is calculated for deaths per 100,000 population.
 Deprivation is measured using the Carstairs Deprivation Index.

Source: Office for National Statistics (2006) Health Statistics Quarterly (32) Winter.
http://www.statistics.gov.uk/downloads/theme_health/HSQ32.pdf

Figure 1.9 Age-standardised death rates for CHD and stroke by deprivation twentieth and sex, adults aged 15 to 64, 1993 to 2003, England and Wales

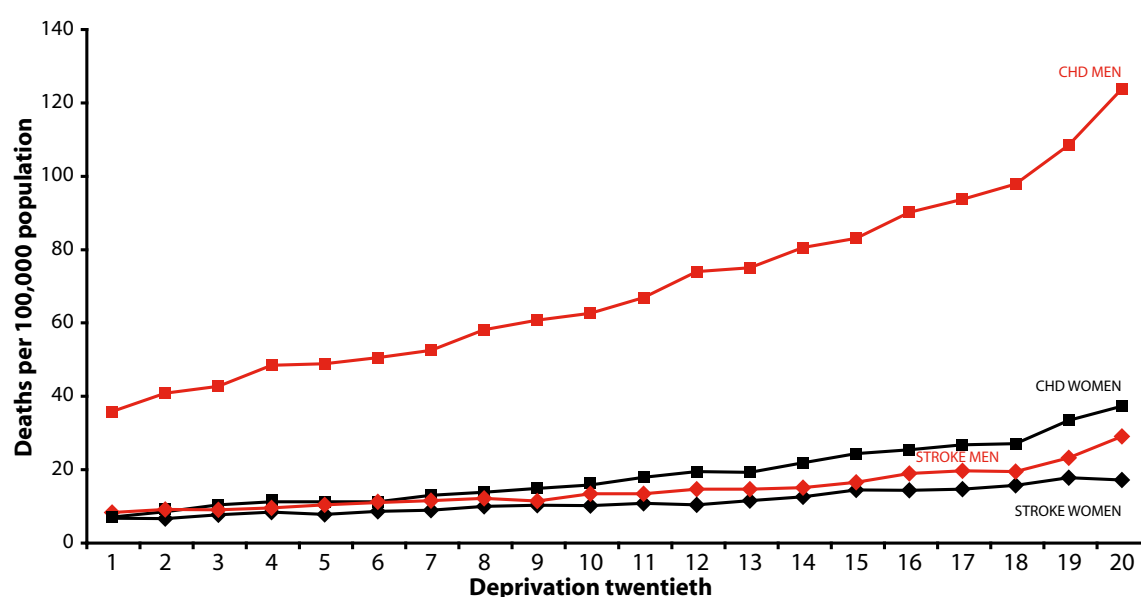


Table 1.10 *CHD and stroke death rates per 100,000, by country of birth, adults aged 30 to 69, 1999 to 2003, England and Wales*

		CHD		Stroke	
	Population	Deaths	Rate	Deaths	Rate
MEN					
England and Wales	11,325,598	74,951	132.6	15,256	26.8
Jamaica	48,674	402	107.4	204	51.0
Other Carribean	35,727	236	85.9	115	40.9
West Africa	66,526	145	83.0	123	70.9
East Africa	99,207	558	176.4	119	36.3
India	160,662	1,770	190.8	328	35.2
Pakistan	102,401	1,017	255.3	170	42.3
Bangladesh	43,305	474	279.3	147	83.5
Scotland	282,524	2,406	166.3	501	34.8
Northern Ireland	73,068	627	160.0	137	35.0
Republic of Ireland	146,708	2,187	191.9	501	44.8
Italy	35,183	226	106.2	48	22.3
Spain	11,531	55	98.3		
France	14,828	48	140.3		
Poland	6,135	92	260.9		
Hungary	4,245	91	198.9		
WOMEN					
England and Wales	11,582,990	23,464	39.2	12,186	20.6
Jamaica	59,323	200	48.1	153	36.9
Other Carribean	45,102	125	41.3	90	31.4
East Africa	95,959	140	56.4	79	26.6
India	168,387	659	72.0	236	26.1
Pakistan	96,584	326	95.9	124	35.0
Scotland	265,548	742	54.5	379	27.8
Northern Ireland	75,004	222	54.1	105	26.1
Republic of Ireland	168,995	722	51.7	349	26.3
Italy	30,167	89	37.0	40	19.0

Notes: Rates are age adjusted to the Europe 2000 population
Blank cells refer to number of deaths <40

Source: Harding S, Rosato M, Teyhan A. Trends for coronary heart disease and stroke mortality among migrants in England and Wales, 1979-2003: slow declines notable for some groups *Heart* published online 3 Sep 2007; doi:10.1136/hrt.2007.122044

Figure 1.10a Standardised mortality ratios for CHD by country of birth, adults aged 30 to 69, 1999 to 2003, England and Wales

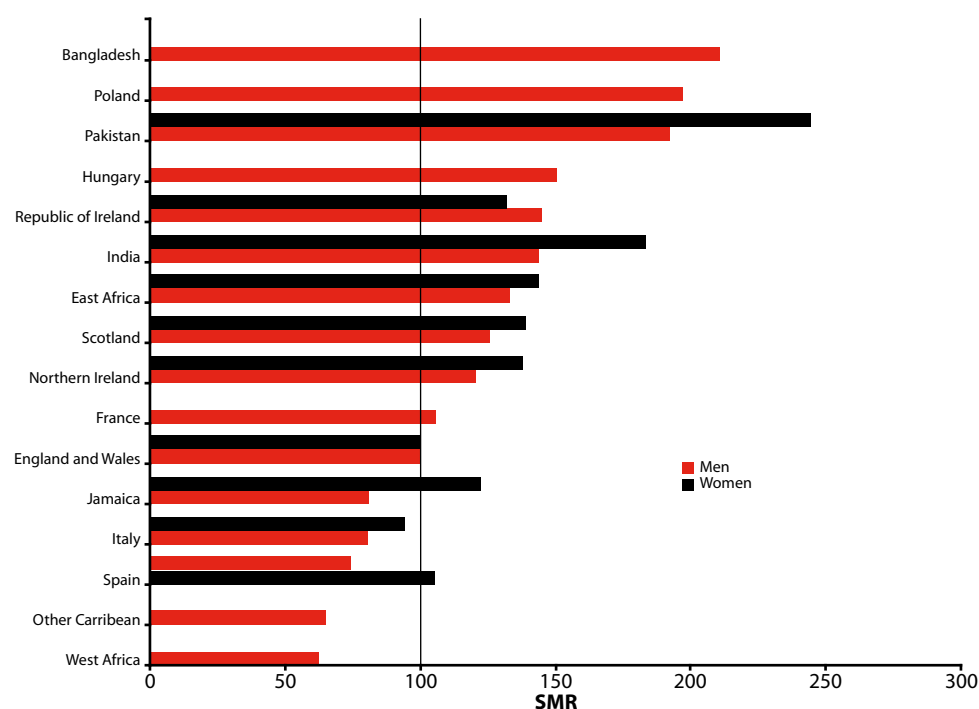


Figure 1.10b Standardised mortality ratios for stroke by country of birth, adults aged 30 to 69 years, 1999 to 2003, England and Wales

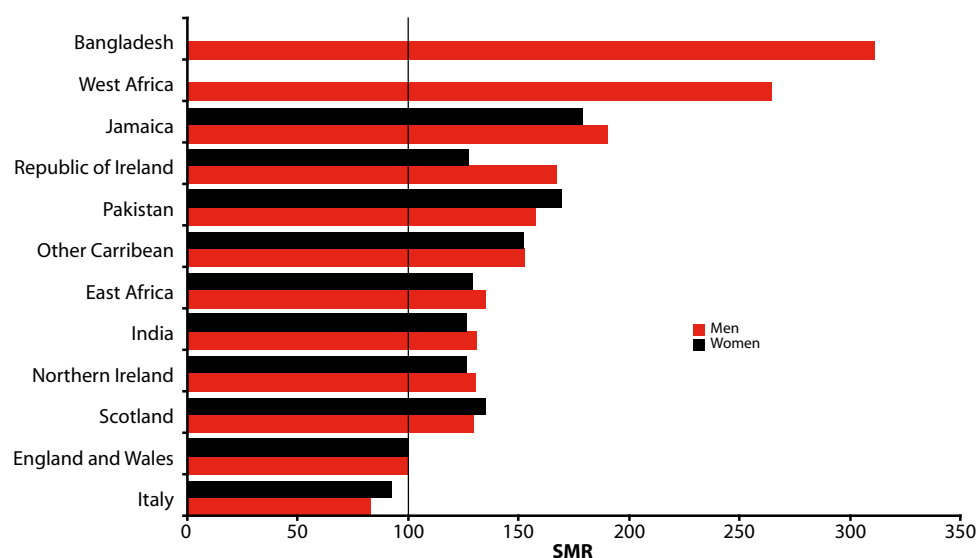


Table 1.11 Deaths from CHD by sex, age and month, 2004/05, England and Wales

	MEN					WOMEN					ALL				
	0-64	65-74	75-84	85+	Total	0-64	65-74	75-84	85+	Total	0-64	65-74	75-84	85+	Total
August 2004	817	927	1,468	708	3,920	201	446	1,163	1,253	3,063	1,018	1,373	2,631	1,961	6,983
September 2004	754	878	1,423	734	3,789	169	440	1,200	1,331	3,140	923	1,318	2,623	2,065	6,929
October 2004	823	1,051	1,593	803	4,270	218	435	1,287	1,442	3,382	1,041	1,486	2,880	2,245	7,652
November 2004	803	930	1,491	808	4,032	199	451	1,190	1,394	3,234	1,002	1,381	2,681	2,202	7,266
December 2004	862	1,162	1,801	944	4,769	231	535	1,485	1,645	3,896	1,093	1,697	3,286	2,589	8,665
January 2005	902	1,128	1,854	1,030	4,914	253	499	1,497	1,742	3,991	1,155	1,627	3,351	2,772	8,905
February 2005	757	1,035	1,667	925	4,384	182	483	1,373	1,556	3,594	939	1,518	3,040	2,481	7,978
March 2005	884	1,113	1,718	923	4,638	212	471	1,461	1,659	3,803	1,096	1,584	3,179	2,582	8,441
April 2005	802	975	1,602	827	4,206	205	421	1,194	1,456	3,276	1,007	1,396	2,796	2,283	7,482
May 2005	799	935	1,523	847	4,104	217	420	1,222	1,405	3,264	1,016	1,355	2,745	2,252	7,368
June 2005	760	855	1,414	749	3,778	171	384	1,130	1,296	2,981	931	1,239	2,544	2,045	6,759
July 2005	740	866	1,385	749	3,740	188	389	1,065	1,261	2,903	928	1,255	2,450	2,010	6,643
Total	9,703	11,855	18,939	10,047	50,544	2,446	5,374	15,267	17,440	40,527	12,149	17,229	34,206	27,487	91,071

Source: Office for National Statistics (2006) personal communication.

Figure 1.11 Deaths from CHD by sex and month, 2004/05, England and Wales

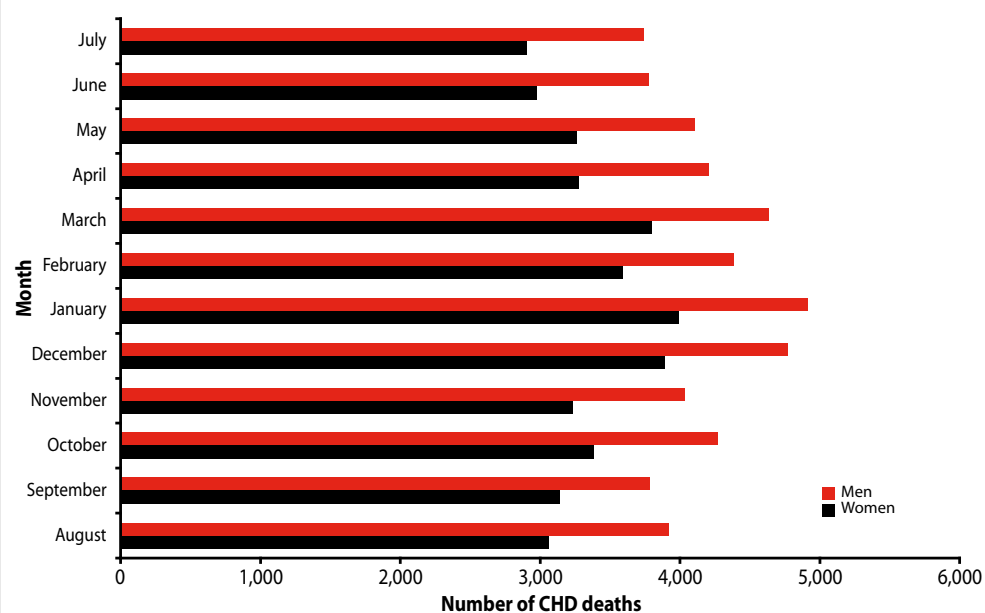


Table 1.12 Excess winter deaths from CHD by sex, age and Government Office Region, 2004/05, England and Wales

		TOTAL	MEN	WOMEN	Excess winter deaths index Persons
ENGLAND and WALES	0-64	350	260	90	8.9
	65-74	1,020	730	300	19.0
	75-84	2,180	1,090	1,090	20.4
	85+	1,890	710	1,180	22.2
	All ages	5,450	2,790	2,660	19.1
North East	0-64	10	0	0	2.4
	65-74	50	20	30	13.0
	75-84	120	30	90	19.3
	85+	70	20	50	18.2
	All ages	240	70	170	15.1
North West	0-64	40	40	0	6.9
	65-74	220	160	60	26.0
	75-84	380	170	210	25.8
	85+	190	60	130	16.3
	All ages	830	430	400	20.3
Yorkshire and the Humber	0-64	80	70	20	19.9
	65-74	100	60	50	18.4
	75-84	240	90	140	20.7
	85+	220	90	130	27.0
	All ages	640	310	330	21.9
East Midlands	0-64	20	10	10	5.2
	65-74	120	100	20	27.6
	75-84	150	80	70	16.7
	85+	160	40	130	26.2
	All ages	450	220	230	19.6
West Midlands	0-64	80	60	20	17.9
	65-74	100	80	20	17.1
	75-84	280	150	130	27.5
	85+	180	70	110	24.0
	All ages	640	350	280	22.9
East	0-64	-30	-30	0	-7.1
	65-74	130	100	30	25.0
	75-84	230	170	60	20.7
	85+	210	80	130	23.1
	All ages	540	320	230	18.9
London	0-64	40	30	10	10.0
	65-74	40	20	20	6.9
	75-84	230	130	100	22.6
	85+	240	80	160	28.5
	All ages	550	260	290	19.2
South East	0-64	50	40	10	9.7
	65-74	110	70	40	15.9
	75-84	250	150	100	16.4
	85+	300	140	160	20.9
	All ages	710	400	310	17.1
South West	0-64	40	30	10	14.3
	65-74	110	90	20	22.9
	75-84	150	60	100	14.0
	85+	200	90	120	19.2
	All ages	510	270	240	17.3
Wales	0-64	20	10	10	7.1
	65-74	70	50	20	16.7
	75-84	150	60	90	20.3
	85+	120	50	70	20.9
	All ages	350	170	180	18.0
England	0-64	340	250	90	9.2
	65-74	970	690	280	19.4
	75-84	2,030	1,030	1,000	20.5
	85+	1,770	660	1,110	22.3
	All ages	5,110	2,630	2,480	19.3

Notes: Excess winter deaths are defined by the Office for National Statistics as the difference between the number of deaths during the four winter months (December to March) and the average number of deaths during the preceding autumn (August to November) and the following summer (April to July).

The number of deaths have been rounded to the nearest 10.

The excess winter deaths index is calculated as excess winter deaths divided by the average non-winter deaths, expressed as a percentage.

Source: Office for National Statistics (2006) personal communication.

2. Morbidity

Morbidity statistics are much harder to collect than mortality statistics. Sources of morbidity data include routinely collected national data, national studies and local studies. Each source has its pros and cons. Most sources only provide data on one or two aspects of morbidity from CHD and related conditions. Not all sources supply data for all ages or even both sexes. Data are collected in different ways with different degrees of validity and reliability. Sample sizes vary considerably as do sampling methods.

In this section we present data and calculate UK estimates from studies which give the widest coverage in terms of age, sex, geographical location, etc. and which used valid and reliable methods of data collection. More detailed statistics on CHD morbidity and explanations of the strengths and weaknesses of the data sources on which estimates are calculated can be found in the *Coronary heart disease statistics Morbidity supplement*¹, available on the www.heartstats.org website.

Public health targets

There are no morbidity targets for England, Wales, Scotland or Northern Ireland.

Incidence

a) Myocardial infarction

The incidence of myocardial infarction (MI) or heart attack varies around the UK and between men and women. A conservative estimate for the incidence of MI can be gained by applying the incidence rates for specific age groups observed in the Oxford Record Linkage Study (ORLS) to UK population estimates for 2006. This procedure gives an estimate of 67,000 heart attacks per year in all men and 46,000 in women giving a total of 113,000 heart attacks. This is almost certainly an underestimate as we would expect the incidence of heart attacks to be lower in Oxfordshire than in most other regions of the UK.

An alternate method to calculate MI incidence is to apply case fatality rates calculated by the ORLS to mortality data for the UK. Table 2.1 shows that the age-specific incidence rate of heart attack for those aged 35 and over is up to four and a half times the mortality rate. Using 2006 CHD mortality data we estimate there are about 87,000 heart attacks in men of all ages and about 59,000 in women every year, giving a total of about 146,000.

The incidence rate of heart attack is higher in men than in women and increases with age³. It is highly likely that incidence rates, like mortality rates, are higher in Scotland, Northern Ireland and the North of England than in the South of England and Table 2.1 suggests such a trend.

The World Health Organization MONICA (monitoring trends and determinants in cardiovascular disease) Project collected data on the incidence of heart attack in 35 populations in 21 countries during the mid-1980s until the mid-1990s. Results showed that incidence rates in the two

UK populations included in the study, Belfast and Glasgow, were among the highest in the world, particularly in women².

b) Angina

Different studies give different estimates of the incidence of angina. Using data from the Scottish Continuous Morbidity Study we estimate that there are about 52,000 new cases per year of angina in all men living in the UK and about 43,000 in women giving a total of about 96,000³. The incidence of angina is higher in men than women and increases with age (Table 2.2).

c) Heart failure

Studies of the incidence of heart failure are scarce and different studies use different methods, particularly for diagnosing the condition. The Hillingdon Heart Failure Study used a combination of clinical assessment, echocardiography and radiography to diagnose heart failure in the study population and adhered to European Society of Cardiology guidelines for its definition of heart failure. The study found a crude incidence rate of 140 per 100,000 for men and 120 per 100,000 for women (Table 2.3).

From the age-specific incidence rates we estimate that there are about 38,000 new cases of heart failure in men in the UK each year and about 30,000 in women giving a total of about 68,000³.

The incidence of heart failure increases steeply in the elderly and is more common in men than in women (Table 2.3).

Prevalence

a) Myocardial infarction

Different studies give different estimates for the prevalence of a previous heart attack (Tables 2.4 and 2.5). The most recent Health Survey for England suggests that 4% of men and 0.5% of women have had a heart attack (Table 2.5).

From the combined age-specific prevalence rates we estimate that there are about 673,000 men aged between 35 and 75 living in the UK who have had a heart attack and about 178,000 women giving a total of about 851,000³.

We estimate that for all people older than 35 there are about 970,000 men living in the UK who have had a heart attack and about 439,000 women giving a total of more than 1.4 million³.

Prevalence of heart attack increases with age and is higher in men than in women (Tables 2.4 and 2.5).

b) Angina

In general different studies on the prevalence of angina in the UK give similar prevalence rates, although the rate appears to be higher in Scotland than in England (Table 2.6).

Figures from the 2006 Health Survey for England suggest that about 8% of men and 3% of women aged 55 to 64 and about 14% of men and 8% of women aged 65 to 74 have or

have had angina (Table 2.6). From these prevalence rates we estimate that there are about 619,000 men aged between 55 and 75 living in the UK who have or have had angina and about 336,000 women giving a total of just over 955,000³.

From the combined age-specific prevalence rates (Table 2.5) we estimate that there are about 726,000 men aged between 35 and 75 living in the UK who have had angina and about 393,000 women giving a total of over 1.1 million³.

We estimate that for all people older than 35 there are about 1,132,000 men living in the UK who have had a angina and about 849,000 women giving a total of more than 1.98 million³.

c) Heart failure

Different studies on the prevalence of heart failure in the community give similar estimates of prevalence (Table 2.7).

A recent General Practice Study collected patient data for all men and women aged over 45 years registered at GP practices from 26 general practices across Kent, Surrey and Sussex which shows that prevalence of heart failure increases with age.

The Heart of England study screened patients in the West Midlands using a combination of echocardiography and clinical examination, and European Society of Cardiology criteria for the diagnosis of heart failure were applied. Over 2% of patients (3% of men and 1.7% of women) screened had definite heart failure (Table 2.7). Probable heart failure was seen in around a further 1% of patients, which suggests that more than 3% of people aged 45 and over in the UK have definite or probable heart failure.

From these prevalence rates we estimate that there are about 393,000 men aged 45 and over living in the UK with definite heart failure, and 314,000 women, giving a total of around 707,000³.

Prevalence of heart failure increases steeply with age, so that while around 1% of men and women aged under 65 have heart failure, this increases to between 6 and 7% of those aged 75 to 84 and between 12 and 22% of those aged 85 and over (Table 2.7).

d) All coronary heart disease

Data from the 2006 Health Survey for England suggest the prevalence of CHD in England was 6.5% in men and 4.0% in women. Prevalence rates increase with age, with more than 1 in 3 men and around 1 in 4 women aged 75 and over living with CHD (Table 2.10).

Overall we estimate that there are 970,000 men and 439,000 women aged 35 and over living in the UK who have had a heart attack. We further estimate there are just over 1.1 million men and 850,000 women aged 35 and over living in the UK who have had angina. From self reported doctor diagnosed CHD (angina or heart attack) we estimate that there are 1.5 million men and 1 million women aged 35 or over living in the UK with CHD (Table 2.10).

Data from the General Household Survey allow comparisons to be made between the prevalence of cardiovascular diseases (CVD) and conditions with that of other diseases and conditions.

In 2006, CVD was the second most commonly reported longstanding illness in Great Britain (after musculoskeletal conditions) (Table 2.8 and Figure 2.8).

The Quality and Outcomes Framework (QOF) became part of general practice contracts on 1 April 2004 and provides information on the registrations for a number of different diseases. A very high proportion of practices (>98%) participate in the scheme making the register a good measure of prevalence for particular diseases in the population. Table 2.9 shows that the prevalence of CHD in Britain was 3.7% of all GP registrations. The prevalence of CHD was higher in Scotland (4.6%) than in Wales (4.3%) or England (3.5%). Within countries there is wide variation in the prevalence of CHD. In England the prevalence ranged from 2.3% in London to 4.9% in the North East of England. In Scotland the prevalence was generally higher ranging from 3.9% in Lothian and Orkney to 8.4% in Shetland (Table 2.9).

Data from Key Health Statistics from General Practice on the prevalence of treated CHD (heart attack and angina) suggest that the prevalence of all CHD was higher in the North of England and in Wales than it was in the South of England, and was also higher in lower socio-economic groups¹.

The 2004 Health Survey for England, which focused specifically on the health of minority ethnic groups, suggests that the prevalence of heart attack and angina was higher in Indian and Pakistani men, who were just under twice as likely to have experienced these conditions as men in the general population. The prevalence of all CHD in Black Caribbean and Chinese men was much lower than in the general population. In women there was less ethnic variation in the prevalence of all CHD, with only Chinese women having levels of all CHD which were lower than those found in women in the general population⁵.

Temporal trends

Self reported prevalence of CHD or stroke was measured in the 1994, 1998, 2003 and 2006 Health Surveys for England. Overall, between 1994 and 2006, the prevalence of CHD increased from 6.0% to 6.5% in men and remained stable for women (from 4.1% to 4.0% in women). An increase in the prevalence of CHD or stroke was also observed in the Health Survey for England, increasing from 7.1% to 8.1% in men and from 5.2% to 5.6% in women between 1994 and 2006 (Table 2.10 and Figure 2.10). These increases were found in the majority of age groups in both men and women, with the most consistent increase in trend found in the oldest age group (75 years and over).

Longitudinal data from the General Household Survey show that since 1988 there has been no marked change in the overall rate of self-reported morbidity from a previous heart attack. However, rates of self-reported longstanding cardiovascular disease have increased in older age groups since 1988; by around 15% in those aged 65 to 74 and 48% for men and 18% for women in those aged 75 and over (Table 2.11 and Figure 2.11).

In summary, the surveys which have looked at morbidity most reliably and/or most frequently, i.e. the Health Survey for England and the General Household Survey, suggest that, whereas mortality from CHD is falling, morbidity, particularly in older age groups, appears to be rising.

1. Rayner M, Petersen S, Moher M, Wright L and Lampe, F (2001) *Coronary heart disease statistics: morbidity supplement*. British Heart Foundation: London. See also www.heartstats.org
2. Tunstall-Pedoe H, Kuulasmaa K, Mahonen M, Tolonen H, Ruokokoski E, Amouyel P, for the WHO MONICA Project (1999). Contribution of trends in survival and coronary-event rates to changes in coronary heart disease mortality: 10-year results from 37 MONICA Project populations. *Lancet* 353; 1547-1557.
3. These estimates are derived from applying age-specific rates to the UK population estimates for 2006, and supersede our estimates in previous publications (e.g. Allender S, Peto V, Scarborough P, Rayner M (2007) *Coronary heart disease statistics*. British Heart Foundation: London). Totals may not sum due to rounding. For this calculation the age group <45 included those aged 35 to <45
4. Volmink JA, Newton JN, Hicks NR, Sleight P, Fowler GH, Neil HAW, on behalf of the Oxford Myocardial Infarction Incidence Study Group (1998) Coronary event and case fatality rates in an English population: results of the Oxford myocardial infarction incidence study. *Heart* 80; 40-44. See Table 1.1a *Coronary heart disease statistics: morbidity supplement* (above).
5. Department of Health (2005). *Health Survey for England. The health of minority ethnic groups 2004*. The Stationery Office: London.

Table 2.1 *Incidence of myocardial infarction, adults, latest available year, UK studies compared*

Study	Setting	Sex	Age group	Incidence/ 100,000	Mortality/ 100,000	Incidence/ mortality
Oxford Record Linkage Study (Goldacre M, 2001)	Oxfordshire, 1994/98	Men	35-39	22	6	3.67
			40-44	48	14	3.43
			45-49	95	31	3.06
			50-54	159	58	2.74
			55-59	265	101	2.62
			60-64	425	201	2.11
			65-69	656	368	1.78
			70-74	915	572	1.60
			75-79	1,353	931	1.45
			80-84	1,812	1,374	1.32
			85+	2,212	1,812	1.22
		Women	35-39	2	1	2.00
			40-44	9	2	4.50
			45-49	16	6	2.67
			50-54	27	9	3.00
			55-59	74	22	3.36
			60-64	151	68	2.22
			65-69	282	154	1.83
			70-74	456	275	1.66
			75-79	741	506	1.46
			80-84	1,091	854	1.28
			85+	1,528	1,294	1.18
Oxford Myocardial Infarction Incidence Study (Volmink et al, 1998)	Oxfordshire, 1994/95	Men	30-69	292	120	2.43
		Women	30-69	94	44	2.14
WHO MONICA Project (Tunstall-Pedoe et al, 1999)	Glasgow, 1985/94	Men	35-64	777	365	2.13
		Women	35-64	265	123	2.15
	Belfast, 1983/93	Men	35-64	695	279	2.49
		Women	35-64	188	79	2.38
British Regional Heart Study (Lampe et al, 2000)	Great Britain, 1983/85	Men	45-59	950	426	2.23

Notes: See sources for methods and definitions.

Source: Goldacre M (2001) Myocardial infarction: an investigation of measures of mortality incidence and case fatality. Personal communication.

Lampe FC, Morris RW, Whincup PH, Walker M, Ebrahim S and Shaper AG (2000) Is the prevalence of coronary heart disease falling in British men? The British Regional Heart Study, 1978 to 1996. Poster at Cardiovascular Disease Prevention V conference, 4th-7th April, Kensington Town Hall, London.

Tunstall-Pedoe H, Kuusasmaa K, Mahonen M, Tolonen H, Ruokokoski E, Amouyel P, for the WHO MONICA Project (1999). Contribution of trends in survival and coronary-event rates to changes in coronary heart disease mortality: 10 year results from 37 WHO MONICA Project populations. *Lancet* 353; 1547-1557.

Volmink JA, Newton JN, Hicks NR, Sleight P, Fowler GH, Neil HAW, on behalf of the Oxford Myocardial Infarction

Incidence Study Group (1998) Coronary event and case fatality rates in an English population: results of the Oxford myocardial infarction incidence study. *Heart* 80; 40-44.

Table 2.2 *Incidence of angina, adults, latest available year, UK studies compared*

Study	Setting	Sex	Age group	Incidence/ 100,000
Scottish Continuous Morbidity Study (Murphy et al, 2006)	Scotland, 2001/02	Men	<45	10
			45-54	240
			55-64	490
			65-74	650
			75-84	610
			>85	310
			Total	180
		Women	<45	10
			45-54	150
			55-64	300
			65-74	440
			75-84	580
			>85	320
			Total	140
4th National Study of Morbidity Statistics from General Practice (Royal College of General Practitioners, 1995)	England and Wales, 1991/92	Men	<25	0
			25-44	90
			45-64	1,080
			65-74	2,250
			75-84	2,730
			>85	2,020
			Total	550
		Women	<25	0
			25-44	40
			45-64	660
			65-74	1,760
			75-84	2,240
			>85	2,150
			Total	490
Southampton Chest Pain Clinic Survey (Gandhi et al, 1995)	Southampton, 1990/92	Men	31-40	40
			41-50	63
			51-60	147
			61-70	262
			Total	113
		Women	31-40	6
			41-50	47
			51-60	85
			61-70	91
			Total	53

Notes: Incidence of angina from Scottish Continuous Morbidity Study (SCMS) relates to first ever diagnosis of angina. Total population for SCMS was 362,155; total number of cases was 570 (315 for men and 255 for women). Total population for Southampton Chest Pain Clinic Survey was 191,677; total number of cases were 110 (70 for men and 40 for women).

Source: Murphy NF, Simpson CR, MacIntyre K, McAlister FA, Chalmers J, McMurray JJV (2006) Prevalence, incidence, primary care burden and medical treatment of angina in Scotland: age, sex and socioeconomic disparities: a population-based study. *Heart*; 92: 1047-1054.

Gandhi MM, Lampe FA, Wood DA (1995) Incidence, clinical characteristics, and short term prognosis of angina pectoris. *British Heart Journal*; 73: 193-198.

Royal College of General Practitioners, the Office of Population Censuses and Surveys and the Department of Health (1995) *Morbidity Statistics from General Practice, Fourth National Study 1991-1992*. HMSO:London.

Table 2.3 Incidence of heart failure, adults, 1995/96, Hillingdon, England

Study	Setting	Sex	Age group	Incidence/ 1,000
Hillingdon Heart Failure Study (Cowie et al, 1999)	Hillingdon, London, 1995/96	Men	25-34	0.0
			35-44	0.2
			45-54	0.3
			55-64	1.7
			65-74	3.9
			75-84	9.8
			85+	16.8
			Total	1.4
		Women	25-34	0.0
			35-44	0.2
			45-54	0.1
			55-64	0.7
			65-74	2.3
			75-84	5.9
			85+	9.6
			Total	1.2

Notes: Estimates are based on a population of 50,293 men and 51,592 women aged 25 and over in Hillingdon district of West London. 118 cases of heart failure were observed in men and 102 cases were observed in women.

Source: Cowie MR, Wood DA, Coats AJS, Thompson SG, Poole-Wilson PA, Suresh V and Sutton GC (1999) Incidence and aetiology of heart failure. A population-based study. *European Heart Journal* 20; 421-428.

Table 2.4 *Prevalence of myocardial infarction, adults aged between 55 and 74, latest available year, UK studies compared*

Study	Setting	Sex	Age group	Prevalence %
Health Survey for England 2006 (Joint Health Surveys Unit, 2008)	England, 2006	Men	55-64	6.3
			65-74	14.4
		Women	55-64	1.6
			65-74	3.3
Scottish Health Survey 2003 (Scottish Executive, 2005)	Scotland, 2003	Men	55-64	9.1
			65-74	13.6
		Women	55-64	3.6
			65-74	7.1
Health Survey for England 2003 (Joint Health Surveys Unit, 2004)	England, 2003	Men	55-64	6.7
			65-74	12.1
		Women	55-64	2.1
			65-74	4.2
Health Survey for England 1998 (Joint Health Surveys Unit, 1999)	England, 1998	Men	55-64	8.4
			65-74	11.6
		Women	55-64	2.4
			65-74	5.5
ASSIST (Personal communication)	Warwickshire, 1997/98	Men	55-64	4.7
			65-74	7.8
		Women	55-64	0.9
			65-74	2.7
4th National Study of Morbidity Statistics from General Practice (Royal College of General Practitioners, 1995)	England and Wales, 1991/92	Men	45-64	0.7
			65-74	1.6
		Women	45-64	0.2
			65-74	0.7
British Regional Heart Study (Personal communication)	Great Britain, 1992	Men	55-64	8.0
			65-74	13.1

Notes: See sources for details on methods.

Source: Joint Health Surveys Unit (2008) *Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*
 Scottish Executive (2005) *The Scottish Health Survey 2003. Cardiovascular disease and associated factors. Blackwells: Edinburgh.*
 Department of Health (2004) *Health Survey for England 2003. The Stationery Office: London.*
 Department of Health (1999) *Health Survey for England 1998. The Stationery Office: London.*
 M Moher on behalf of the ASSIST trial team, Department of Primary Health Care, University of Oxford, personal communication.
 Royal College of General Practitioners, the Office of Population Censuses and Surveys and the Department of Health (1995).
 Morbidity Statistics from General Practice, Fourth National Study 1991-1992. HMSO: London.
 F Lampe on behalf of the BRHS team, Department of Primary Care and Population Sciences, Royal Free and University College Medical School, London, personal communication.

Table 2.5 *Percentage who have experienced cardiovascular conditions (ever and recently) by sex and age, 2006, England*

	All ages %	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %
MEN								
Ever experienced								
Angina	4.8	0.1	0.1	0.3	2.4	8.0	14.2	22.7
Myocardial infarction	4.1	-	0.2	0.6	2.1	6.3	14.4	16.6
Heart murmur	2.8	2.5	2.3	2.0	2.6	2.5	4.3	6.5
Abnormal heart rhythm	5.2	1.1	2.7	3.1	5.7	6.3	9.8	15.5
Stroke	2.4	-	-	0.5	1.2	3.0	7.1	13.1
Recently experienced (in last 12 months)								
Angina	2.3	-	0.1	0.2	1.2	4.4	7.3	8.5
Myocardial infarction	0.3	-	-	-	0.2	0.5	1.2	0.6
Heart murmur	1.0	0.4	0.6	0.4	1.1	1.0	2.1	2.5
Abnormal heart rhythm	2.7	0.7	1.2	1.6	2.7	2.7	6.3	7.9
Stroke	0.6	-	-	0.2	0.2	0.4	2.1	3.9
<i>Unweighted base</i>	5,625	650	862	1,183	1,050	1,126	437	317
<i>Weighted base</i>	6,854	1,041	1,129	1,356	1,123	1,015	694	496
WOMEN								
Ever experienced								
Angina	3.3	0.1	0.1	0.2	1.2	3.2	8.3	15.9
Myocardial infarction	1.7	-	-	0.1	0.7	1.6	3.3	9.1
Heart murmur	3.9	2.7	2.7	3.1	3.3	4.6	5.8	6.4
Abnormal heart rhythm	5.8	2.2	2.6	4.1	5.7	7.3	8.3	13.5
Stroke	2.2	0.2	0.1	0.4	0.9	2.3	4.2	10.7
Recently experienced (in last 12 months)								
Angina	1.7	-	0.1	0.1	0.5	2.0	3.9	8.3
Myocardial infarction	0.2	-	-	0.1	0.3	0.3	-	1.0
Heart murmur	1.4	0.5	0.9	0.9	1.3	2.2	1.8	3.2
Abnormal heart rhythm	3.1	1.1	1.4	1.9	3.2	4.0	4.6	7.5
Stroke	0.4	-	0.1	0.1	0.1	0.5	0.6	2.1
<i>Unweighted base</i>	6,925	794	1,148	1,494	1,279	1,269	470	471
<i>Weighted base</i>	7,310	1,014	1,160	1,379	1,141	1,050	768	798

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 2.6 *Prevalence of angina, adults, latest available year, UK studies compared*

Study	Setting	Sex	Age group	Prevalence %
Health Survey for England 2006 (Joint Health Surveys Unit, 2008)	England, 2006	Men	55-64	8.0
			65-74	14.2
		Women	55-64	3.2
			65-74	8.3
Scottish Health Survey 2003 (Scottish Executive, 2005)	Scotland, 2003	Men	55-64	11.2
			65-74	20.8
		Women	55-64	7.4
			65-74	14.8
Health Survey for England 2003 (Joint Health Surveys Unit, 2004)	England, 2003	Men	55-64	7.5
			65-74	17.4
		Women	55-64	5.0
			65-74	7.9
Health Survey for England 1998 (Joint Health Surveys Unit, 1999)	England, 1998	Men	55-64	10.5
			65-74	15.6
		Women	55-64	5.5
			65-74	9.9
ASSIST (Personal communication)	Warwickshire, 1997/98	Men	55-64	6.5
			65-74	11.5
		Women	55-64	2.5
			65-74	6.2
4th National Study of Morbidity Statistics from General Practice (Royal College of General Practitioners, 1995)	England and Wales, 1991/92	Men	45-64	2.6
			65-74	5.8
		Women	45-64	1.3
			65-74	3.6
British Regional Heart Study (Personal communication)	Great Britain, 1992	Men	55-64	9.2
			65-74	16.2

Notes: See sources for details on methods.

Source: Joint Health Surveys Unit (2008) *Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Scottish Executive (2005) *The Scottish Health Survey 2003.* <http://www.scotland.gov.uk/Publications/>

Department of Health (1999) *Health Survey for England 1998.* The Stationery Office: London.

Department of Health (2004) *Health Survey for England 2003.* The Stationery Office: London.

M Moher on behalf of the ASSIST trial team, Department of Primary Health Care, University of Oxford, personal communication.

Royal College of General Practitioners, the Office of Population Censuses and Surveys and the Department of Health (1995) *Morbidity Statistics from General Practice, Fourth National Study 1991-1992.* HMSO: London.

Gill D, Mayou R, Dawes M, Mant D (1999) *Presentation, management and course of angina and suspected angina in primary care.* *Journal of Psychosomatic Research*; 40; 349-358.

F Lampe on behalf of the BRHS team, Department of Primary Care and Population Sciences, Royal Free and University College Medical School, London, personal communication.

Table 2.7 *Prevalence of heart failure, adults, latest available year, UK studies compared*

Study	Setting	Sex	Age group	Prevalence %
General Practice Study (Majeed et al, 2005)	Kent, Surrey and Sussex, 2002/03	Men	0-34	0.0
			35-44	0.0
			45-54	0.1
			55-64	0.6
			65-74	2.4
			75-84	6.8
			85+	12.6
			All ages	0.7
		Women	0-34	0.0
			35-44	0.0
			45-54	0.1
			55-64	0.3
			65-74	1.5
			75-84	6.1
			85+	12.5
			All ages	1.0
Heart of England Screening Study (Davies et al, 2001)	West Midlands, 1995/99	Men	45-54	0.3
			55-64	2.7
			65-74	4.2
			75-84	7.3
			85+	22.0
		Women	45-54	0.0
			55-64	0.9
			65-74	1.7
			75-84	6.6
			85+	12.0
Key Health Statistics from General Practice (Office for National Statistics, 2000)	England and Wales, 1998	Men	45-54	0.3
			55-64	1.4
			65-74	4.5
			75-84	10.9
		Women	45-54	0.2
			55-64	0.9
			65-74	3.6
			75-84	9.9
Small General Practice Study (Mair et al, 1996)	Liverpool, 1994	Men	55-64	2.7
			65-74	5.3
			75+	10.4
		Women	55-64	1.2
			65-74	5.1
			75+	13.3
WHO MONICA Project (McDonagh et al, 1997)	Glasgow, 1992	Men	55-64	2.5
			65-74	3.2
		Women	55-64	2.0
			65-74	3.6
4th National Study of Morbidity Statistics from General Practice (Royal College of General Practitioners, 1995)	England and Wales, 1991/92	Men	45-64	0.5
			65-74	3.2
			75-84	8.0
		Women	45-64	0.4
			65-74	2.3
			75-84	7.1

Notes: See sources for details on methods.

Source: Majeed A, Williams J, de Lusignan S, Chan T (2005) Management of heart failure in primary care after implementation of the National Service Framework for Coronary Heart Disease: a cross-sectional study. *Public Health* 119: 105-111.
 Royal College of General Practitioners, the Office of Population Censuses and Surveys and the Department of Health (1995) *Morbidity Statistics from General Practice, Fourth National Study 1991-1992*. HMSO: London.
 Mair FS, Crowley T, Bundred P (1996) Prevalence, aetiology and management of heart failure in general practice. *British Journal of General Practice*; 46: 77-79.
 McDonagh TA, Morrison CE, Lawrence A, Ford I, Tunstall-Pedoe H, McMurray JJV (1997) Symptomatic and asymptomatic left ventricular systolic dysfunction in an urban population. *The Lancet* 350: 829-833.
 Office for National Statistics (2000) *Key Health Statistics from General Practice*. The Stationery Office: London.
 Davies MK, Hobbs FDR, Davis RC, Kenkre JE, Roalfe AK, Hare R, Wosornu D, Lancashire RJ (2001) Prevalence of left-ventricular systolic dysfunction and heart failure in the Echocardiographic Heart of England Screening study: a population based study. *The Lancet* 358:439-444.

Table 2.8 *Percentage reporting longstanding illness by sex, age and condition, 2006, Great Britain*

		All ages	16-44	45-64	65-74	75+
Heart and circulatory system	Men	12.0	1.3	15.9	35.5	38.4
	Women	11.5	2.3	12.8	29.0	33.3
	Total	11.8	1.8	14.3	32.1	35.3
Heart attack	Men	2.0	0.2	2.4	6.4	7.2
	Women	1.5	0.1	1.2	3.9	6.5
Other heart complaints	Men	3.7	0.4	4.5	10.8	14.2
	Women	2.8	0.8	2.7	7.3	8.3
Hypertension	Men	4.5	0.5	6.9	12.8	11.0
	Women	5.8	1.0	7.5	14.5	14.1
Stroke	Men	0.9	0.1	0.7	3.2	3.5
	Women	0.6	0.1	0.5	1.7	2.1
Other blood vessel/embolic disorders	Men	0.7	0.1	1.1	1.9	2.2
	Women	0.7	0.3	0.6	1.3	1.9
Musculoskeletal system	Men	12.6	6.0	16.4	25.1	26.1
	Women	18.3	6.6	22.6	36.1	42.8
	Total	15.6	6.3	19.5	3.9	36.1
Arthritis and rheumatism	Men	5.2	1.1	6.7	14.4	15.3
	Women	9.5	1.7	11.6	22.9	25.9
Back problems	Men	3.6	2.4	5.3	4.4	3.0
	Women	4.0	3.0	5.7	4.5	3.0
Other bone and joint problems	Men	3.9	2.5	4.5	6.3	7.8
	Women	4.9	1.9	5.3	8.7	13.9
Respiratory system	Men	6.6	5.3	6.0	10.6	12.1
	Women	6.3	4.8	7.1	9.3	8.4
	Total	6.4	5.0	6.5	9.9	9.9
Asthma	Men	4.2	4.4	3.8	4.2	4.6
	Women	4.8	4.2	5.2	6.1	4.9
Bronchitis and emphysema	Men	0.7	0.0	0.6	2.7	3.6
	Women	0.6	0.1	0.7	1.4	1.4
Hay fever	Men	0.4	0.5	0.3	0.1	0.1
	Women	0.1	0.1	0.2	0.1	0.1
Other respiratory complaints	Men	1.2	0.4	1.3	3.6	3.8
	Women	0.9	0.4	0.9	1.7	2.1
Endocrine and metabolic	Men	4.8	1.2	7.0	9.6	13.4
	Women	6.9	2.5	9.0	14.7	13.0
	Total	5.8	1.9	8.0	12.3	13.2
Digestive system	Men	2.4	1.0	3.4	4.7	5.4
	Women	3.5	1.8	4.8	6.2	5.4
	Total	3.0	1.4	4.1	5.5	5.4
Nervous system	Men	2.7	1.7	3.7	3.6	3.6
	Women	3.3	2.4	4.1	4.6	3.8
	Total	3.0	2.0	3.9	4.1	3.8
Any longstanding illness	Men	33.0	21.0	45.0	63.0	70.0
	Women	34.0	23.0	44.0	63.0	70.0
	Total	33.0	22.0	45.0	63.0	70.0
Weighted base (000s)	Men	22,779	11,681	7,142	2,294	1,662
	Women	24,129	11,716	7,361	2,553	2,499
Unweighted base	Men	8,681	3,921	2,943	1,041	776
	Women	9,533	4,300	3,125	1,153	955

Notes: Data are weighted for non-response.

Source: Office for National Statistics (2008) Results from the 2006 General Household Survey. www.ons.gov.uk/ghs

Figure 2.8 *Percentage reporting longstanding illness by sex and condition, 2006, Great Britain*

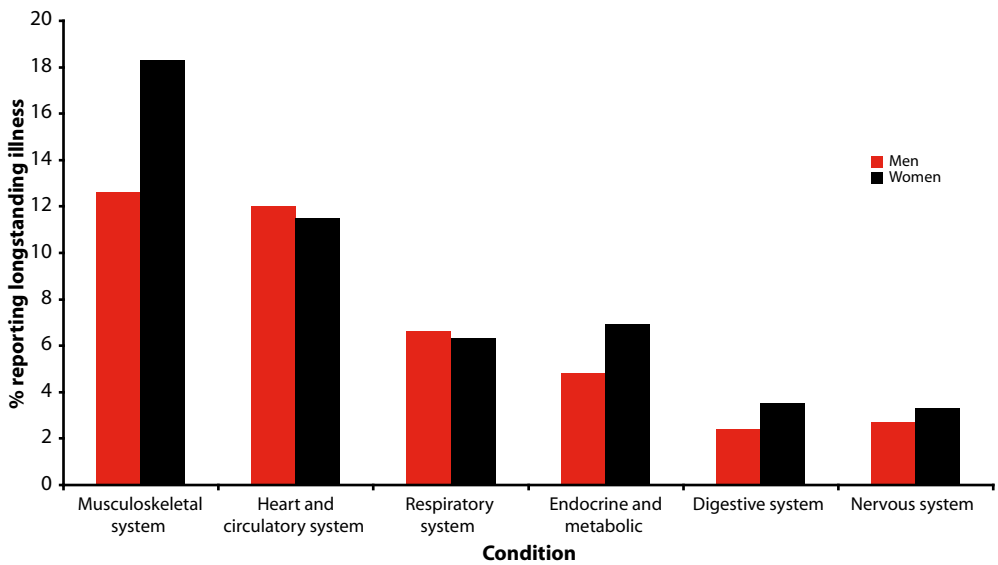


Table 2.9 Prevalence of disease 2006/07, England, Scotland and Wales

	Number of practices	List size	Coronary Heart Disease		Stroke	Hypertension		Stroke	Hypertension		Diabetes	
			Register count	Prevalence (%)		Register count	Prevalence (%)		Register count	Prevalence (%)	Register count	Prevalence (%)
England, Scotland and Wales	9,886	61,660,614	2,253,633	3.7	1,020,280	1.7	7,764,315	12.6	2,264,552	3.7		
England	8,372	53,681,098	1,898,565	3.5	862,873	1.6	6,705,899	12.5	1,961,976	3.7		
East Midlands	633	4,472,025	167,951	3.8	74,563	1.7	580,888	13.0	174,117	3.9		
East of England	795	5,819,581	194,712	3.3	89,178	1.5	737,162	12.7	202,796	3.5		
London	1,569	8,440,321	192,730	2.3	85,508	1.0	870,445	10.3	300,567	3.6		
North East	403	2,654,901	129,478	4.9	55,828	2.1	374,297	14.1	101,690	3.8		
North West	1,291	7,258,903	311,011	4.3	130,803	1.8	929,658	12.8	279,253	3.8		
South Central	505	4,203,341	125,465	3.0	61,082	1.5	488,814	11.6	134,723	3.2		
South East Coast	648	4,469,810	149,759	3.4	72,579	1.6	570,523	12.8	152,785	3.4		
South West	738	5,318,586	195,786	3.7	100,348	1.9	717,178	13.5	189,694	3.6		
West Midlands	977	5,695,387	204,697	3.6	94,644	1.7	767,046	13.5	226,863	4.0		
Yorkshire and the Humber	813	5,348,243	226,976	4.2	98,340	1.8	669,888	12.5	199,488	3.7		
Scotland	1,017	4,861,443	221,461	4.6	95,959	2.0	613,740	12.6	171,457	3.5		
Ayrshire & Arran	59	351,692	19,220	5.5	7,713	2.2	47,802	13.6	13,115	3.7		
Borders	24	102,784	5,051	4.9	2,410	2.3	13,874	13.5	3,843	3.7		
Dumfries & Galloway	35	146,991	7,863	5.3	3,344	2.3	20,718	14.1	5,958	4.1		
Fife	58	324,854	14,852	4.6	6,607	2.0	42,843	13.2	12,047	3.7		
Forth Valley	57	278,258	13,933	5.0	5,121	1.8	36,197	13.0	10,561	3.8		
Grampian	84	445,792	18,396	4.1	7,667	1.7	53,797	12.1	14,905	3.3		
Greater Glasgow & Clyde	271	1,255,740	56,320	4.5	24,806	2.0	153,309	12.2	42,717	3.4		
Highland	102	305,366	13,741	4.5	6,507	2.1	41,907	13.7	10,521	3.4		
Lanarkshire	99	548,560	25,904	4.7	10,312	1.9	69,374	12.6	20,404	3.7		
Lothian	122	677,599	26,247	3.9	12,234	1.8	77,345	11.4	21,892	3.2		
Orkney	14	9,054	350	3.9	137	1.5	1,196	13.2	321	3.5		
Shetland	10	1,023	86	8.4	34	3.3	282	27.6	62	6.1		
Tayside	71	408,012	19,209	4.7	8,949	2.2	54,189	13.3	14,914	3.7		
Western Isles	11	5,718	289	5.1	118	2.1	907	15.9	197	3.4		
Wales	497	3,118,073	133,607	4.3	61,448	2.0	444,676	14.3	131,119	4.2		
North Wales		694,514	31,030	4.5	13,710	2.0	99,996	14.4	27,279	3.9		
Mid and West Wales		1,053,774	48,006	4.6	22,933	2.2	155,334	14.7	47,219	4.5		
South East Wales		1,369,785	54,571	4.0	24,805	1.8	189,346	13.8	56,621	4.1		

Notes: England - QMAS database - 2006/07 data as at end of March 2007

Stroke refers to Stroke and Transient Ischaemic Attack

List size is the number of patients registered with the practice

Source: England - QMAS database - 2006/07 data as at end of March 2007

Stroke refers to Stroke and Transient Ischaemic Attack

Wales - QOF database as at end of March 2007- <http://www.statistics.wales.gov.uk/TableViewer/tableView.aspx?ReportId=4111>

Prevalence (unadjusted) = (number on disease register / list size) * 100

Prevalence estimates for Shetland are relatively unstable, due to their being based on a smaller number of patients

www.isdscotland.org/qof for further information and explanation of Scottish figures

Scotland - Quality & Outcomes Framework (QOF) for April 2006 - March 2007, Scotland

<http://www.isdscotland.org/isd/5057.html>

Figure 2.9 Prevalence of disease 2006/07, England, Scotland and Wales

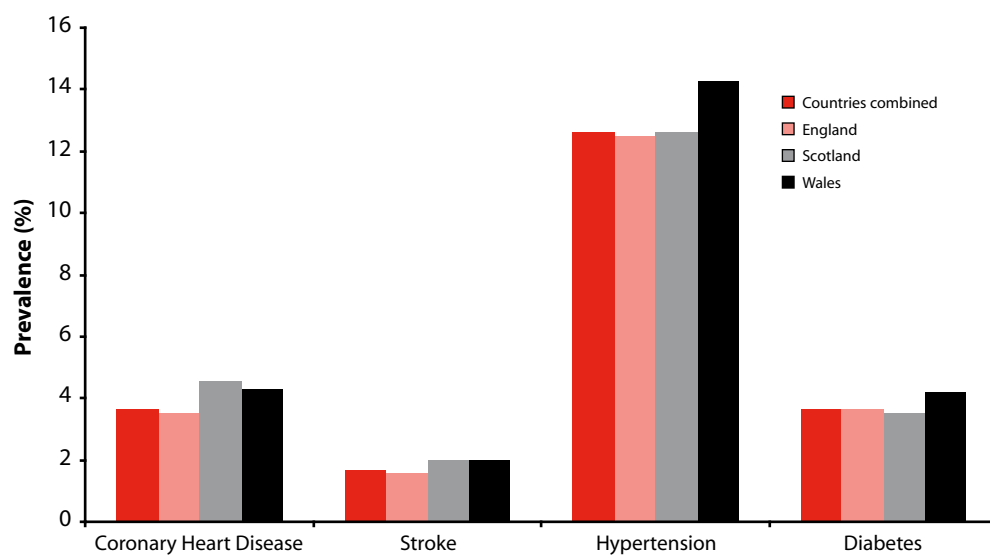


Table 2.10 Prevalence of CHD, stroke and CHD or stroke by sex and age, 1994 to 2006, England

Condition	Year	Total	16-24	25-34	35-44	45-54	55-64	65-74	75+
MEN									
CHD	1994	6.0	-	0.3	0.5	3.0	10.3	21.0	22.7
	1998	7.1	0.1	0.4	0.9	4.3	13.6	20.2	23.4
	2003	7.4	-	-	0.9	3.5	11.1	21.5	26.4
	2006	6.5	0.1	0.2	0.6	3.6	10.6	20.8	28.6
Stroke	1994	1.8	-	0.1	0.1	0.3	2.9	6.5	8.6
	1998	2.3	0.1	-	0.4	1.2	3.3	6.2	10.3
	2003	2.7	0.1	0.4	0.3	1.2	2.2	7.6	13.3
	2006	2.4	-	-	0.5	1.2	3.0	7.1	13.1
CHD or stroke	1994	7.1	-	0.3	0.6	3.2	12.3	25.0	27.7
	1998	8.5	0.2	0.4	1.3	5.1	15.4	24.2	29.9
	2003	9.1	0.1	0.4	1.2	4.2	12.6	25.7	34.0
	2006	8.1	0.1	0.2	1.0	4.6	12.5	25.1	37.1
WOMEN									
CHD	1994	4.1	0.2	0.1	0.3	2.3	5.9	10.5	15.9
	1998	4.6	-	0.3	0.6	1.8	6.3	12.5	18.4
	2003	4.5	0.2	-	0.4	2.0	5.9	9.7	18.4
	2006	4.0	0.1	0.1	0.3	1.3	3.5	10.0	19.3
Stroke	1994	1.6	-	0.2	0.3	0.6	1.8	3.5	7.5
	1998	2.1	0.4	0.4	0.6	0.7	2.2	5.0	8.8
	2003	2.3	0.2	0.3	0.6	0.9	2.5	5.4	8.9
	2006	2.2	0.2	0.1	0.4	0.9	2.3	4.2	10.7
CHD or stroke	1994	5.2	0.2	0.3	0.5	2.8	7.5	13.4	20.2
	1998	6.2	0.4	0.7	1.2	2.6	8.1	15.6	24.7
	2003	6.3	0.4	0.3	0.9	2.9	7.8	13.9	25.0
	2006	5.6	0.3	0.3	0.6	2.1	5.0	12.6	27.9
Bases									
<i>Men</i>	1994	7,177	968	1,434	1,329	1,127	1,001	877	441
	1998	7,193	875	1,338	1,305	1,289	987	837	562
	2003	6,602	746	1,025	1,263	1,101	1,103	807	557
	2006	5,625	650	862	1,183	1,050	1,126	437	317
<i>Women</i>	1994	8,627	1,080	1,723	1,520	1,300	1,059	1,120	825
	1998	8,715	1,006	1,630	1,573	1,484	1,148	967	907
	2003	8,234	890	1,285	1,618	1,279	1,307	952	903
	2006	6,925	794	1,148	1,494	1,279	1,269	470	471

Notes: Adults aged 16 and over.
Unweighted data for all years.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors.
The Information Centre: Leeds; and previous editions.

Figure 2.10 Changes in prevalence rates in CHD, stroke and CHD or stroke by sex, 1994 to 2006, England

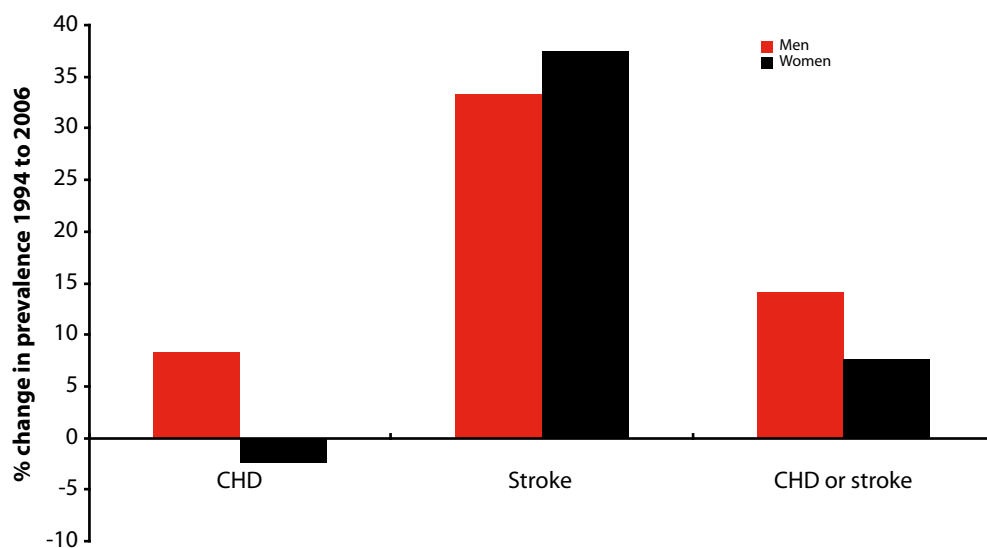


Table 2.11 Rates per 1,000 population reporting longstanding diseases of the circulatory system by sex and age, 1988 to 2005, Great Britain

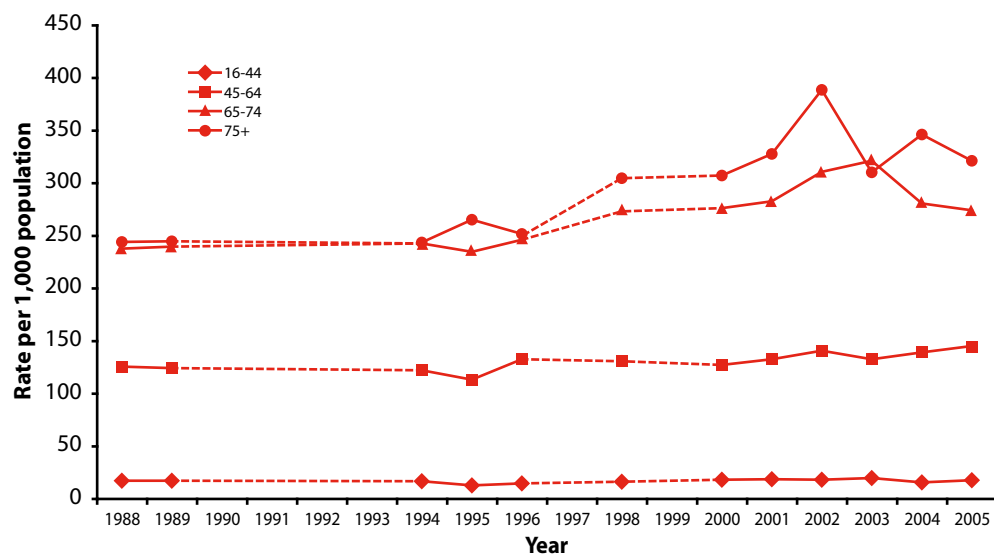
	Year	All ages	16-44	45-64	65-74	75+
MEN						
Heart attack	1988	22	2	47	75	82
	1989	23	2	46	100	79
	1994	23	1	31	66	81
	1995	25	1	34	92	54
	1996	23	1	30	66	75
	1998	32	3	40	89	111
	2000	25	1	31	86	94
	2001	25	1	32	75	113
	2002	24	1	26	70	118
	2003	23	2	22	87	80
	2004	23	0	26	84	83
	2005	21	1	30	62	65
	1988	8	0	10	39	38
	1989	7	0	10	30	48
Stroke	1994	9	1	10	30	37
	1995	6	0	6	20	31
	1996	10	1	9	27	43
	1998	8	1	8	26	30
	2000	10	1	11	36	36
	2001	8	2	11	18	23
	2002	9	1	8	26	39
	2003	8	1	9	20	37
	2004	8	1	8	17	54
	2005	8	1	10	18	35
	1988	73	17	143	247	223
	1989	69	12	133	259	221
	1994	93	16	138	246	236
	1995	93	12	129	272	238
All diseases of the circulatory system	1996	99	14	141	268	249
	1998	113	19	155	281	310
	2000	107	18	137	290	308
	2001	110	22	150	313	333
	2002	119	17	152	330	398
	2003	113	17	147	345	317
	2004	111	14	146	295	373
	2005	114	15	167	288	329
WOMEN						
Heart attack	1988	17	1	20	67	66
	1989	17	1	24	64	65
	1994	21	1	20	59	73
	1995	18	1	17	45	73
	1996	24	1	28	65	83
	1998	22	0	18	65	86
	2000	20	1	18	54	78
	2001	15	0	16	39	53
	2002	20	0	15	58	90
	2003	17	1	13	63	52
	2004	18	0	18	51	67
	2005	17	0	14	48	70
	1988	6	1	4	24	30
	1989	6	1	4	15	40
Stroke	1994	8	2	5	18	36
	1995	7	0	5	19	35
	1996	6	0	5	17	22
	1998	8	1	5	15	41
	2000	8	1	7	17	33
	2001	9	0	7	20	39
	2002	9	1	8	22	37
	2003	6	0	4	19	26
	2004	6	0	5	12	28
	2005	6	1	4	15	30
	1988	77	17	108	228	265
	1989	77	22	115	220	268
	1994	92	17	106	239	251
	1995	87	13	97	197	292
All diseases of the circulatory system	1996	95	15	124	224	254
	1998	99	13	106	268	299
	2000	104	18	117	262	306
	2001	102	15	115	252	322
	2002	119	19	129	291	379
	2003	109	22	118	297	303
	2004	110	17	132	266	319
	2005	108	20	123	260	313

Notes: From 2000 data are weighted for non-response. See source for details.

Source: Office for National Statistics (2006) 2005 General Household Survey www.ons.gov.uk/gbs.

Office for National Statistics (2004) *Living in Britain. Results from the 2002 General Household Survey*. The Stationery Office: London and previous editions.

Figure 2.11 Rate of reporting longstanding cardiovascular disease by age, 1988 to 2005, Great Britain



3. Treatment

National Service Framework for Coronary Heart Disease in England

The National Service Framework for Coronary Heart Disease¹ was announced in March 2000, and sets national standards for the prevention, diagnosis and treatment of CHD in England (Table 3.1).

Prescriptions

The rapid increase in the number of prescriptions for the treatment and prevention of CVD that began in the late 1980s shows no signs of slowing. In 2006, around 235 million prescriptions were issued for diseases of the circulatory system in England, over four times as many as issued in 1986, and an increase of 8% on the number of prescriptions in 2005 (Table 3.2).

Since 1990, the number of prescriptions for antiplatelet drugs has increased steadily, and there are now over 30 million prescriptions for antiplatelet drugs in England every year. The increase in the number of prescriptions of lipid lowering drugs was slow until the late 1990s, but since then has been very rapid. The number of prescriptions for lipid lowering drugs is thirteen times higher than a decade ago (Table 3.2 and Figure 3.2).

The cost of prescriptions for antihypertensive therapy increased by 8% between 2005 and 2006, to just over £500 million. The cost of prescriptions for all circulatory diseases is approximately £1.9 billion². Given the rapid increases in prescriptions for lipid lowering drugs, antiplatelets and antihypertensive therapy it is likely that this cost will continue to increase in the coming years (Figure 3.2).

Operations

The number of operations carried out to treat CHD has increased. The amount of coronary artery bypass surgery (CABG) has increased six fold since 1980 and by around a third between 1993 and 2003. Just under 29,000 operations for CABG were carried out in the UK in 2003 (Table 3.3). The number of percutaneous coronary interventions (PCI) is increasing at an even faster rate than for CABG and over 73,000 are now carried out annually in the UK, nearly four times more than a decade ago. The number of PCIs are currently increasing at a rate of 5% per year (Table 3.4 and Figure 3.4).

Rates of CABG and PCI vary substantially across the UK. Maps of coronary revascularisation rates for men and women by local authority in England in 2002 show a greater than six fold difference between the lowest and highest rates³. More recently, rates of operations for CHD have been shown to vary greatly around England for both men and women, with high operation rates found in urban and metropolitan areas, and in rural areas in the North and South West of England⁴. These maps and associated tables are available at www.heartstats.org/publications.

Inpatient hospital cases

Overall, there were around 428,000 inpatient cases treated for CHD in National Health Service hospitals in 2006/07 in England, and a further 49,000 in Scotland (Table 3.5). These represent 4% of all inpatient cases in men and 2% in women in England (5% and 3% for men and women respectively in Scotland) (Figures 3.5a, 3.5b, 3.5c and 3.5d). The number of inpatient cases treated for CHD has increased by over 13% in the last six years⁵.

Medical risk factors for CHD, such as diabetes and obesity, also result in a sizeable burden to the National Health Service. In 2006/07 there were around 74,000 inpatient days for diabetes, and over 4,000 inpatient days for obesity in England (Table 3.5).

Staffing levels

In 2002, a report on the provision of services for patients with heart disease in the UK claimed a shortage of all types of health care professionals involved in cardiovascular care⁶. However, since then the numbers of consultant cardiologists and cardiothoracic surgeons have increased considerably. As of September 2005 there were 755 cardiologists working in England, 78 in Scotland, 43 in Wales and 25 in Northern Ireland (which equates to around 15 per million in each population). This level of staffing was 50% higher than in 1999⁷. It is estimated that between 1,200 and 1,500 consultant cardiologists will be needed by 2010⁶.

International differences

Rates of hospitalisations for CVD vary considerably across Europe. For example, the hospitalisation rate in Belarus is four times higher than in Portugal. In general, high hospitalisation rates for CVD, CHD and stroke are found in Eastern European and Scandinavian countries (Tables 3.6, 3.7 and 3.8).

Temporal trends in hospitalisation rates reflect those seen for mortality rates across Europe. Rates in some Eastern European and former Soviet countries have increased rapidly since 1995, whereas rates in Western European countries have remained relatively stable. For example, the rate of hospitalisations for CHD in Ukraine has nearly trebled since 1995, whereas the United Kingdom rate has changed little over this time period (Tables 3.6, 3.7 and 3.8, and Figures 3.7 and 3.8).

National Service Framework priorities

The National Service Framework (NSF) outlined a series of priorities, milestones and goals to be achieved to improve service quality, tackle variations in care and reduce the number of deaths over a ten-year period.

The NSF for CHD set three immediate priorities to be achieved by April 2001. These were the introduction of specialist smoking cessation clinics by health authorities to help 150,000 people quit smoking; the setting up of 50 rapid-access chest pain clinics to assess people with new symptoms for angina within two weeks of referral; and the reduction of call-to-needle times for thrombolysis for heart attacks, by improving ambulance response times and increasing the proportion of accident and emergency (A&E) departments able to provide thrombolysis.

Over 600,000 people in England and more than 13,000 in Northern Ireland attended National

Health Service smoking cessation services in 2006/07. Of these, 53% reported that they were not smoking four weeks after their quit date. That represents a huge increase since 2000/01, when only 130,000 people attended the smoking cessation services and only 39% reported continued abstinence after four weeks (Table 3.9)⁸.

The NSF target regarding rapid-access chest pain clinics was easily achieved. By June 2001, 150 rapid-access chest pain clinics were open across England⁹.

In 2000/01, of the 32 ambulance services in England, just three achieved the goal set in the NSF, that is 75% of category A (immediately life threatening) calls responded to within 8 minutes¹⁰. By 2006/07, 19 out of 28 reporting ambulance services (68%) had achieved this goal (Table 3.10).

The NSF further outlined a number of priorities to be achieved by April 2002. These were to increase to 75% the proportion of heart attack patients receiving thrombolysis within 30 minutes of arriving at hospital; to improve the use of effective medicines after heart attack so that 80 to 90% of people discharged from hospital following a heart attack are prescribed aspirin, beta-blockers and statins; and to increase the total number of revascularisation procedures by 3,000.

Data from the National Audit of Myocardial Infarction Project (MINAP) show that by April 2002, 59% of eligible heart attack patients were receiving thrombolysis within 30 minutes of arriving in hospital. By the end of 2003 this had risen to 81% of eligible heart attack patients, and by 2006/07, the level in England was approximately 84% and 70% in Wales (Table 3.11). MINAP data further show that in 2006/07, at least 96% of people discharged from hospital following a heart attack in England were prescribed secondary prevention medicine (Table 3.10)¹¹.

The NSF also outlined the importance of cardiac rehabilitation. It set an overall goal that in every hospital over 85% of people discharged with a primary diagnosis of heart attack or after coronary revascularisation should be offered cardiac rehabilitation. Data from the British Association of Cardiac Rehabilitation show that the current rate of provision is well below the goal set by the NSF. In 2004, only three in ten people discharged from hospital in the United Kingdom after a heart attack or coronary revascularisation received cardiac rehabilitation¹².

In 2005 the Healthcare Commission published a national review of the NSF¹³. This concluded that at the half way point in its implementation, the NSF for Coronary Heart Disease has led to significant improvements. These include faster treatment of heart attack patients, higher numbers of revascularisation operations performed with shorter waiting times, and the setting up of rapid access chest pain clinics across the country to improve the speed with which people with suspected angina can be assessed. However, the review acknowledges that there are a number of standards where progress has been slower. Three particular areas are highlighted as needing further attention: preventing heart disease, the treatment and care of patients with heart failure and cardiac rehabilitation. The Healthcare Commission will be developing indicators in these areas to measure future progress.

1. Department of Health (2000) *National Service Framework for Coronary Heart Disease*. The Stationery Office: London.
2. Office for National Statistics (2006). *Prescriptions dispensed in the community. Statistics for 1995 to 2005*: England. The Information Centre: London.
3. Otreba P, Rayner M, Hill A, Goldacre M (2003) *An atlas of coronary heart disease mortality, hospital admissions and coronary revascularisations in South East England*. SEPHO: Oxford. This publication contains maps of CHD mortality, hospital admissions and coronary revascularisations by local authority across England as well as the South East Region. See www.heartstats.org/chd_atlas
4. Scarborough P, Allender S, Peto V, Rayner M (2008). *Regional and social differences in Coronary Heart Disease 2008*. British Heart Foundation: London. This publication contains maps of mortality, morbidity and treatment rates for coronary heart disease, and local estimates of the prevalence of behavioural risk factors for CHD. See www.heartstats.org/publications.
5. In 2000/2001, the number of inpatient cases for CHD was 378,532 in National Health Service hospitals in England. See Table 3.5 in Petersen S, Peto V and Rayner M (2003) *Coronary heart disease statistics*. British Heart Foundation: London.
6. Hall R, More R, Camm J et al (2002). *Fifth report on the provision of services for patients with heart disease*. *Heart*; 88 (Suppl III): iii1-iii59.
7. Boon N, Norell M, Hall J, Jennings K, Penny L, Wilson C, Chambers J, Weston R (2006). *National variations in the provision of cardiac services in the United Kingdom*. *Heart*; 92: 873-878.
8. *Four week self-reported quit rates only give an indication of the true short-term quit rates achieved by smoking cessation services. In 2003/04, carbon monoxide (CO) validation was offered to clients of smoking cessation services as a tool to aid smoking cessation. Around 70% of those who reported having successfully quit smoking at the 4-week follow-up had the level of carbon monoxide in their bloodstream measured. In 88% of cases this test confirmed they were not smoking at 4-weeks. Longer term success rates are currently unknown.*
9. Department of Health Heart Team, personal communication.
10. Department of Health Statistical Bulletin (2005) *Ambulance services, England: 2004-2005*. See www.dh.gov.uk
11. For more results from the MINAP project, including hospital level data, see Royal College of Physicians (2007) *How the NHS Manage Heart Attacks. Sixth Public Report of the Myocardial Infarction National Audit Project*. Royal College of Physicians: London. Also available at www.rcplondon.ac.uk/pubs.
12. Bethell H, Evans J, Turner S, Lewin R (2007). *The rise and fall of cardiac rehabilitation in the United Kingdom since 1998*. *Journal of Public Health*, 29(1): 57-61.
13. Commission for Healthcare Audit and Inspection (2005) *National service framework report. Getting to the heart of it. Coronary heart disease in England: a review of progress towards national standards. Summary report*. Healthcare Commission: London.

Table 3.1 National Service Framework (NSF) for Coronary Heart Disease: Standards and Quality Requirements, England

NSF Area	NSF Standard/Quality Requirement
Reducing heart disease in the population	<ol style="list-style-type: none"> 1. <i>The NHS and partner agencies should develop, implement and monitor policies that reduce the prevalence of coronary risk factors in the population, and reduce inequalities in risks of developing heart disease.</i> 2. <i>The NHS and partner agencies should contribute to a reduction in the prevalence of smoking in the local population.</i>
Preventing CHD in high risk patients	<ol style="list-style-type: none"> 3. <i>General practitioners and primary care teams should identify all people with established cardiovascular disease and offer them comprehensive advice and appropriate treatment to reduce their risks.</i> 4. <i>General practitioners and primary care teams should identify all people at significant risk of cardiovascular disease but who have not developed symptoms and offer them appropriate advice and treatment to reduce their risks.</i>
Heart attack and other acute coronary symptoms	<ol style="list-style-type: none"> 5. <i>People with symptoms of a possible heart attack should receive help from an individual equipped with and appropriately trained in the use of a defibrillator within 8 minutes of calling for help, to maximise the benefits of resuscitation should it be necessary.</i> 6. <i>People thought to be suffering from a heart attack should be assessed professionally and, if indicated, receive aspirin. Thrombolysis should be given within 60 minutes of calling for professional help.</i> 7. <i>NHS Trusts should put in place protocols/systems of care so that people admitted to hospital with a proven heart attack are appropriately assessed and offered treatments of proven clinical and cost effectiveness to reduce their risks of disability and death.</i>
Stable angina	<ol style="list-style-type: none"> 8. <i>People with symptoms of angina or suspected angina should receive appropriate investigation and treatment to relieve their pain and reduce their risk of coronary events.</i>
Revascularisation	<ol style="list-style-type: none"> 9. <i>People with angina that is increasing in frequency or severity should be referred to a cardiologist urgently or, for those at greatest risk, as an emergency.</i> 10. <i>NHS Trusts should put in place hospital-wide systems of care so that patients with suspected or confirmed coronary heart disease receive timely and appropriate investigation and treatment to relieve their symptoms and reduce their risk of subsequent coronary events.</i>
Heart failure	<ol style="list-style-type: none"> 11. <i>Doctors should arrange for people with suspected heart failure to be offered appropriate investigations (e.g. electrocardiography, echocardiography) that will confirm or refute the diagnosis. For those in whom heart failure is confirmed, its cause should be identified – treatments most likely to both relieve their symptoms and reduce their risk of death should be offered.</i>

Cardiac rehabilitation	12. <i>NHS Trusts should</i> put in place agreed protocols/systems of care so that, prior to leaving hospital, people admitted to hospital suffering from coronary heart disease have been invited to participate in a multidisciplinary programme of secondary prevention and cardiac rehabilitation receive appropriate investigation and treatment to relieve their pain and reduce their risk of coronary events. The aim of the programme will be to reduce risk of subsequent cardiac problems and to promote their return to a full and normal life.
Arrhythmias and sudden cardiac death	13. <i>People with arrhythmias should</i> receive timely and high quality support and information, based on an assessment of their needs. People presenting with arrhythmias, in both emergency and elective settings, should receive timely assessment by an appropriate clinician to ensure accurate diagnosis and effective treatment and rehabilitation. When sudden cardiac death occurs, NHS services should have systems in place to identify family members at risk and provide personally tailored, sensitive and expert support, diagnosis, treatment, information and advice to close relatives.

Notes: An extra chapter on arrhythmias and sudden cardiac death was added to the National Service Framework in 2005. This outlined three quality requirements for improving care in this area. Chapters in the original NSF document had outlined standards rather than quality requirements. This table combines the two.

Source: Department of Health (2000) Coronary Heart Disease National Service Framework. The Stationery Office: London.
 Department of Health (2005) Coronary Heart Disease National Service Framework. Chapter Eight. Arrhythmias and Sudden Cardiac Death. The Stationery Office: London.

Table 3.2 *Prescriptions used in the prevention and treatment of all diseases of the circulatory system, 1981 to 2006, England*

<i>Prescriptions (thousands)</i>	1981	1986	1991	1996	2000	2001	2002	2003	2004	2005	2006
Digoxin and other positive inotropic drugs (2.1)	4,243	3,722	3,822	3,871	3,983	4,031	4,029	4,043	4,088	4,103	4,126
Diuretics (2.2)	20,678	21,996	22,195	23,106	27,738	30,203	32,185	34,432	36,546	37,619	37,582
Anti-arrhythmic drugs (2.3)	232	334	532	840	1,214	1,292	1,338	1,343	1,325	1,292	1,265
Beta-adrenoreceptor blocking drugs (2.4)	9,827	12,525	14,282	14,375	18,321	20,439	22,439	24,336	26,361	27,460	27,378
Antihypertensive therapy (2.5)	4,912	4,424	6,431	12,125	21,075	25,047	29,591	33,788	38,580	42,865	47,742
Nitrates, calcium blockers and potassium activators (2.6)	5,156	10,314	16,718	21,971	25,394	26,814	27,994	29,156	30,715	32,309	34,707
Sympathomimetics (2.7)	15	6	19	7	3	2	2	3	4	4	5
Anticoagulants and protamine (2.8)	629	900	1,356	2,609	4,152	4,609	4,975	5,389	5,871	6,294	6,790
Antiplatelet drugs (2.9)	281	1,058	3,619	9,002	16,552	18,891	21,601	24,428	27,356	30,218	32,779
Anti-fibrinolytic drugs and haemostatics (2.11)					267	282	289	300	310	311	327
Lipid regulating drugs (2.12)	295	247	1,066	3,138	10,331	13,523	17,604	22,655	29,444	35,568	42,098
Local sclerosants (2.13)					1	1	0	0	0	0	0
All prescriptions for disease of the circulatory system	46,267	55,526	70,041	91,044	129,030	145,134	162,046	179,872	200,598	218,043	234,798

Notes: BNF codes in parentheses.

The data up to 1990 are not consistent with data from 1991 onwards. Figures up to 1990 are based on fees and on a sample of 1 in 200 prescriptions dispensed by community pharmacists and appliance contractors only. Figures from 1991 are based on items and cover all prescriptions dispensed by community pharmacists, appliance contractors, dispensing doctors and prescriptions submitted by prescribing doctors for items personally administered.

Source: Office for National Statistics (2007). Prescriptions dispensed in the community. Statistics for 1996 to 2006; England. Leeds: The Information Centre, and previous editions.

Figure 3.2 Prescriptions used in the prevention and treatment of CVD, selected BNF paragraphs, 1981 to 2006, England

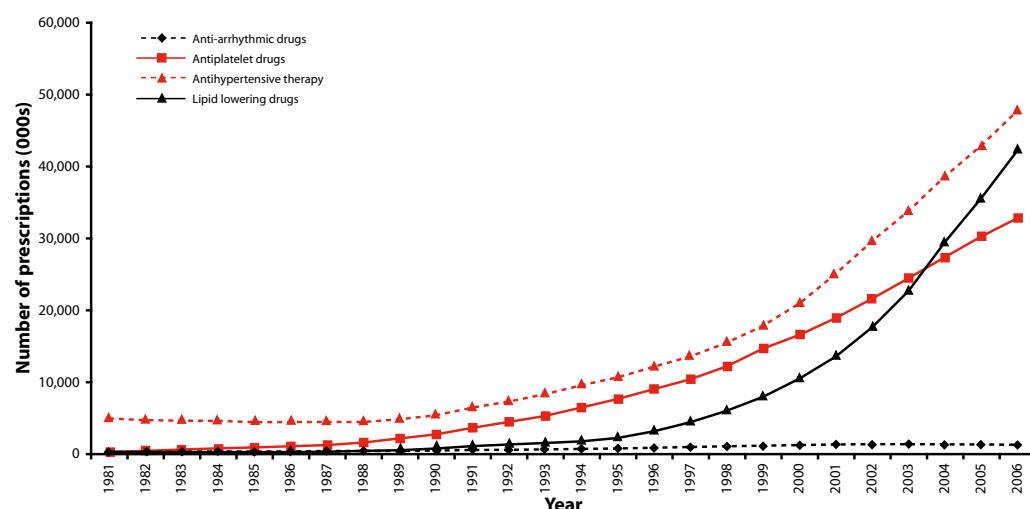


Table 3.3 Operations for CHD, 1977 to 2003, United Kingdom

	Coronary artery bypass surgery (CABG)	CABG with another procedure	Procedure without CABG	Total	Total annual % increase	Total mortality (%)
1977	2,297	584	159	3,040	9.3	
1978	2,653	537	155	3,345	10.0	7.5
1979	2,918	620	150	3,688	10.3	8.4
1980	4,057	802	152	5,011	35.9	6.1
1981	5,130	839	154	6,123	22.2	5.8
1982	6,008	1,224	171	7,403	20.9	5.2
1983	8,332	1,111	174	9,617	29.9	4.8
1984	9,433	1,120	170	10,723	11.5	3.6
1985	10,667	1,133	220	12,020	12.1	3.8
1986	10,767	1,243	244	12,254	1.9	3.8
1987	11,521	1,299	283	13,103	6.9	3.6
1988*	11,113	1,306	235	12,654	-3.4	3.8
1989	12,648	1,342	197	14,187	12.1	3.4
1990	14,431	1,536	178	16,145	13.8	3.7
1991	15,659	1,710	169	17,538	8.6	3.9
1992	19,241	1,963	194	21,398	22.0	3.5
1993	21,031	2,037	206	23,274	8.8	3.4
1994/95	22,056	2,282	175	24,513	5.3	3.5
1995/96	22,475	2,362	123	24,960	1.8	4.3
1996/97**	22,160	2,078	361	24,599	-1.4	3.8
1997/98	25,639	2,433	126	28,198	14.6	3.3
1998/99	25,083	2,568	613	28,264	0.2	3.1
1999/00	24,733	2,641	462	27,836	-1.5	3.0
2000/01	25,127	2,881	447	28,455	2.2	3.1
2002/03	25,277	3,333	374	28,984	0.9	2.8

Notes: No data have been published for 2001/02.

*One centre did not make a return this year.

** Two centres did not make a return this year.

Data are from the UK Cardiac Surgical Register, collected by the Society of Cardiothoracic Surgeons of Great Britain and Ireland.

Operations performed within the private sector are not included.

Source: Society of Cardiothoracic Surgeons of Great Britain and Ireland (2006) <http://www.scts.org>.

Table 3.4 *Percutaneous coronary interventions, 1991 to 2006, United Kingdom*

	Number of intervention centres	Total PCI interventions	Rate per million	Annual increase %	Success (%)	Mortality (%)
1991	52	9,933	174	86	0.48	
1992	52	11,575	203	16.5	88	0.71
1993	53	12,937	227	11.8	89	0.59
1994	54	14,624	256	13.0	90	0.60
1995	54	17,344	304	18.6	89	0.69
1996	53	20,511	359	18.1	90	0.72
1997	58	22,902	402	11.7	92	0.89
1998	61	24,899	437	8.7	92	0.80
1999	63	28,133	494	13.0	90	0.61
2000	66	33,652	590	20.0	92	0.70
2001	64	38,992	664	12.5	94	0.75
2002	64	44,913	759	14.3	92	0.54
2003	73	53,261	894	17.8	92	0.53
2004	77	62,780	1,050	17.4	94	0.56
2005	83	70,142	1,165	11.0	90	0.59
2006	91	73,692	1,216	4.4	96	0.74

Source: British Cardiovascular Intervention Society (2008) www.bcis.org.uk

Figure 3.4 *Number of coronary artery bypass operations and percutaneous coronary interventions per year, 1980 to 2006, United Kingdom*

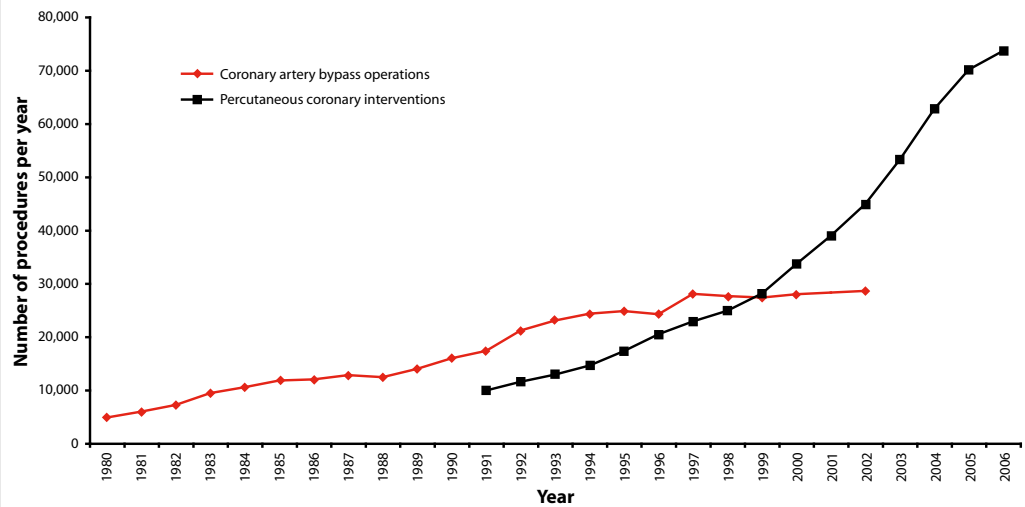


Table 3.5 *Inpatient cases by main diagnosis and sex, National Health Service hospitals, 2006/07, England and Scotland*

	ENGLAND		SCOTLAND	
	Men	Women	Men	Women
All diagnoses	6,483,429	6,940,203	603,757	676,463
All diseases of the circulatory system (I00-I99)	705,822	549,768	75,155	62,882
Coronary heart disease (I20-I25)	276,900	151,013	30,223	18,351
Angina pectoris (I20)	71,343	52,446	6,600	5,026
Acute myocardial infarction (I21)	70,404	42,757	9,654	6,412
Other coronary heart disease (I25)	135,153	55,810	13,969	6,913
Heart failure (I50)	51,541	8,941	5,392	5,196
Stroke (I60-I69)	84,271	92,181	9,483	10,648
Diabetes (E10-E14)	41,182	32,423	3,334	2,795
Obesity (E66)	1,123	2,959	N/A	N/A
All cancer (C00-D48)	765,755	796,330	83,153	98,651
Colo-rectal cancer (C18-C21)	94,730	67,430	12,925	9,776
Lung cancer (C33-C34)	59,638	41,443	9,353	7,867
Breast cancer (C50)	793	156,971	155	25,797
Bladder cancer (C67)	63,823	20,573	3,815	1,598
All diseases of the nervous system (G00-G99)	141,949	162,716	13,521	15,305
All diseases of the respiratory system (J00-J99)	478,460	458,357	48,813	51,850
All diseases of the digestive system (K00-K93)	794,543	822,623	82,927	88,682
All diseases of the genitourinary system (N00-N99)	369,424	561,442	31,867	48,614
Injury and poisoning (V00-Y98)	516,591	479,617	56,874	50,730
All other diagnoses	2,668,580	3,073,968	208,113	256,954

Notes: Finished consultant episodes; ordinary admissions and day cases combined. Pregnancy cases are not included.
ICD codes (10th revision) in parentheses.

Source: Department of Health (2008) Hospital Episode Statistics 2006/07. www.hesonline.nhs.uk
Information Services Division Scotland (2008) Main diagnosis discharges from hospital 2006/07. www.isdscotland.org

Figure 3.5a Inpatient cases by main diagnosis, men, National Health Service hospitals, 2006/07, England

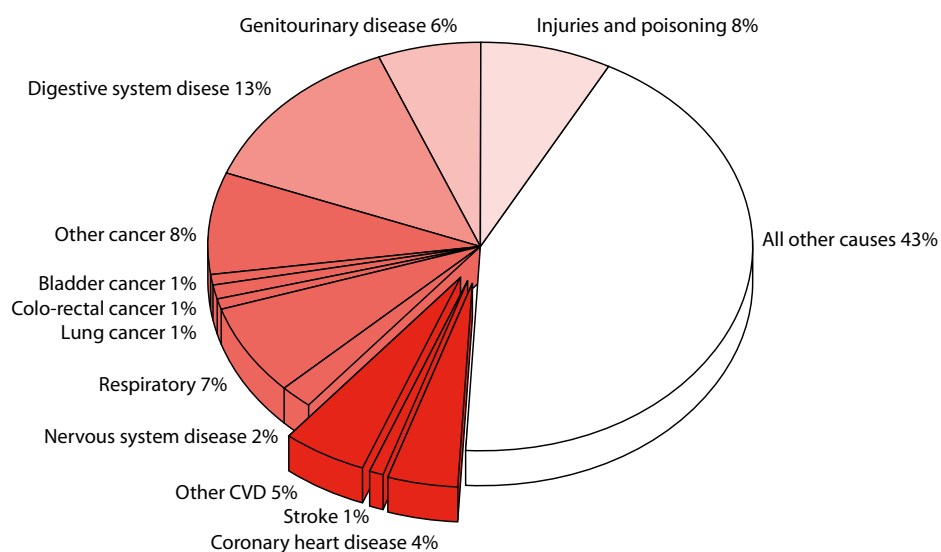


Figure 3.5b Inpatient cases by main diagnosis, women, National Health Service hospitals, 2006/07, England

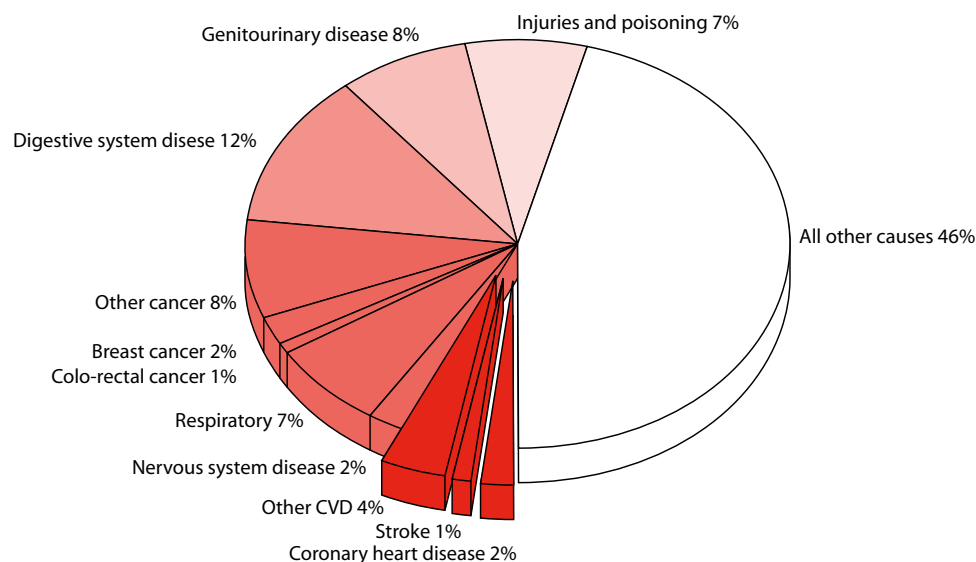


Figure 3.5c Inpatient cases by main diagnosis, men, National Health Service hospitals, 2006/07, Scotland

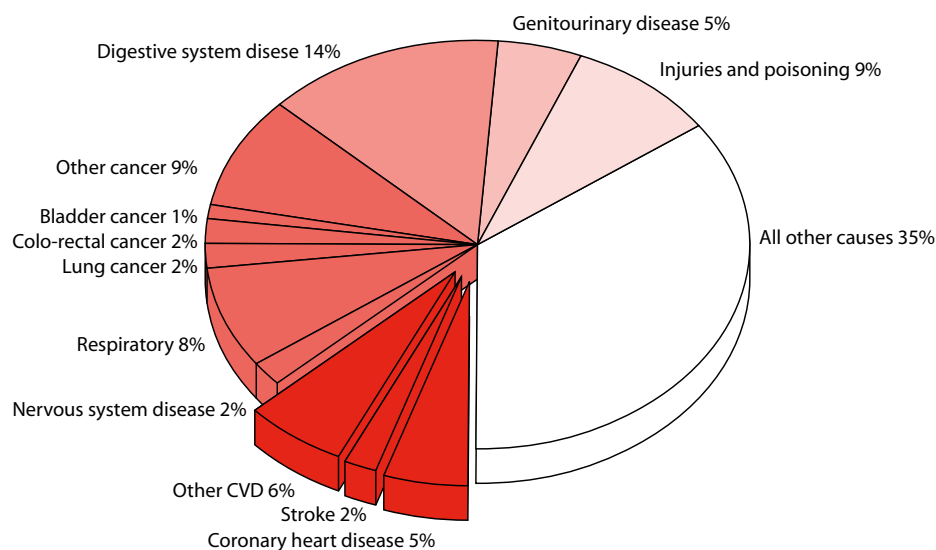


Figure 3.5d Inpatient cases by main diagnosis, women, National Health Service hospitals, 2006/07, Scotland

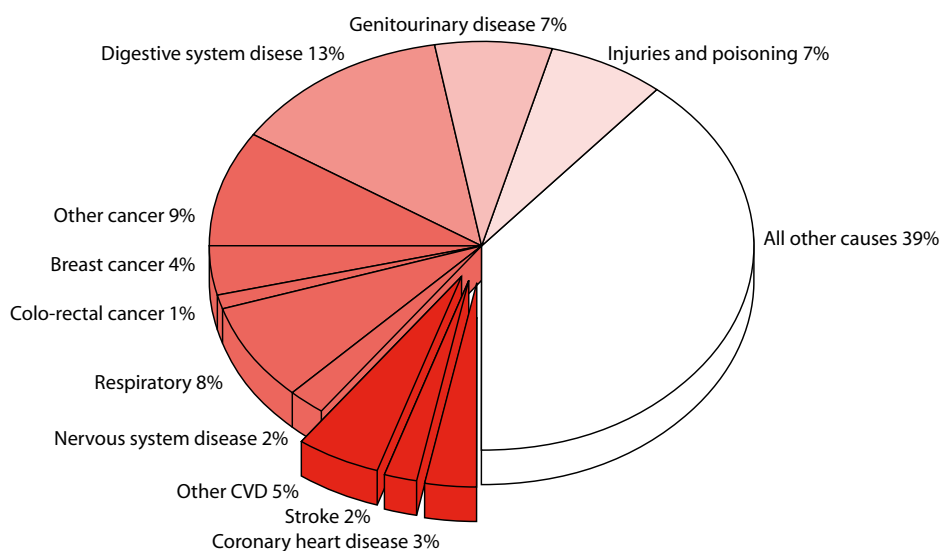


Table 3.6 Rates of hospital discharges from CVD, 1970 to 2005, Europe

	Discharges per 100,000											
	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005
Albania						417	540	520	614	665	646	623
Andorra							586	610	799	799	729	727
Armenia			1,092	1,236	1,225	762	639	599	676	786	833	931
Austria					3,253	3,589	4,074	3,938	4,036	4,009	4,061	
Azerbaijan					1,481	595	472	484	515	541	570	572
Belarus						3,415	4,577	4,749	5,049	5,226	5,309	5,165
Belgium						2,235	2,377	2,352	2,324	2,275	2,303	
Bosnia and Herzegovina			964	905								
Bulgaria			1,451	1,790	1,779	1,774	1,869	2,013	2,292	2,600	2,911	2,840
Croatia				1,136	1,265	1,232	1,760	1,692	1,730	1,781	1,798	1,850
Cyprus			607	690	809	549	818	927	837	820	840	738
Czech Republic						3,051	3,379	3,431	3,495	3,592	3,635	3,743
Denmark					2,292	2,201	2,543	2,546	2,574	2,514	2,558	2,559
Estonia					2,338	2,664	3,239	3,237	3,168	3,309	3,387	
Finland					3,293	3,858	3,785	3,654	3,646	3,662	3,670	3,121
France							2,263	2,260	2,254	2,218	2,233	
Georgia					1,642	543	451	412	520	531	635	632
Germany						2,955	3,267	3,305	3,300	3,237	3,125	
Greece	778	978	1,191	1,404	1,593	2,010	2,309	2,432				
Hungary						3,171	4,239	4,039	4,248	4,448	4,949	4,977
Iceland					1,935		1,863	1,919	1,878	1,819	1,710	
Ireland						1,440	1,466	1,540	1,486	1,496	1,444	1,316
Israel					1,754	2,241	2,076	2,072	1,996	1,894		
Italy					2,128	2,349	2,582	2,572	2,552	2,444		
Kazakhstan					1,597	1,207	1,314	1,389	1,519	1,638	1,785	1,805
Kyrgyzstan			1,158	1,217	1,257	903	1,041	1,036	975	1,000	1,004	1,130
Latvia			1,898	2,423	2,445	2,598	3,144	3,137	3,175	3,289	3,399	3,636
Lithuania		1,634	1,978	2,628	2,687	3,201	4,102	4,164	4,231	4,369	4,483	4,570
Luxembourg							2,612	2,364	2,439	2,433	2,407	
Macedonia, TFYR				759		1,184	1,267	1,398	1,424	1,266	1,477	1,556
Malta							666	665	592	741	835	727
Moldova			1,316	1,626	1,727	1,580	1,315	1,311	1,558	1,983	2,032	2,023
Montenegro					1,059	1,249	1,325	1,448	1,585	1,759	1,733	1,636
Netherlands					1,420	1,589	1,409	1,374	1,416	1,456	1,549	
Norway						2,194	2,349	2,366	2,388	2,500	2,480	2,469
Poland			1,344	1,530	1,814	2,052				2,880	2,931	
Portugal						944	1,125	1,164	1,213	1,221	1,248	1,240
Romania			1,784	1,914	1,737	2,024	2,422	2,741	2,965	2,798	2,882	
Russian Federation					2,226	2,255	2,763	3,020	3,020	3,108	3,267	3,414
Serbia								1,590	1,571	1,691	1,798	1,796
Slovakia						2,534	2,443	2,569	2,539	2,501	2,564	2,679
Slovenia			1,286	1,391	1,424	1,560	1,685	1,738	1,718	1,745	1,792	
Spain					780	1,108	1,374	1,387	1,406	1,413		
Sweden					2,796	2,996	2,639	2,585	2,538	2,505	2,481	2,458
Switzerland									1,879	1,800	1,829	
Tajikistan					939	653	533	561	622	678	735	771
Turkey			270	390	531	896	909	962	1,051	1,153	1,220	
Turkmenistan						821					1,385	
Ukraine			2,119	2,601	2,792	2,568	2,612	2,791	2,964	3,105	3,280	3,462
United Kingdom							1,471	1,448	1,462	1,452		
Uzbekistan						1,217	959	1,059	1,178	1,234	1,269	1,394
European average					2,088	2,187	2,430	2,516	2,554	2,575	2,634	2,676
EU					1,977	2,194	2,411	2,435	2,463	2,444	2,458	2,454

Notes: Blank cells indicate that insufficient data were available for an estimate.

Source: World Health Organization (2007) European Health for all statistical database. [Http://www.who.dk/hfadb](http://www.who.dk/hfadb) Accessed August 2007.

Table 3.7 Rates of hospital discharges from CHD, 1970 to 2005, Europe

	Discharges per 100,000											
	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005
Albania						121	157	146	172	191	195	187
Andorra								126	142	186	156	124
Armenia			334	437	521	318	282	258	288	324	350	382
Austria					785	917	924	960	981	992	1,035	
Azerbaijan					499	201	154	162	155	166	184	175
Belarus						1,621	2,212	2,296	2,278	2,452	2,541	2,569
Belgium						689	742	720	716	711	722	
Bosnia and Herzegovina			181	139								
Bulgaria			460	524	545	553	542	542	489	579	663	722
Croatia				295	334	309	495	457	458	490	491	503
Cyprus			223	293	339	222	332	360	293	248	269	253
Czech Republic						1,223	1,101	1,107	1,087	1,126	1,071	1,063
Denmark					700	684	790	803	844	817	831	823
Estonia					936	990	1,117	1,093	1,033	1,038	1,047	
Finland					1,153	1,369	1,160	1,140	1,128	1,138	1,091	923
France							497		510	513	514	
Georgia					680	194	193	186	236	263	307	308
Germany						947	1,060	1,011	1,003	960	916	
Greece	191	241	296	412	521	722	777	829				
Hungary						961	1,113	943	879	895	1,040	998
Iceland					790		724	763	769	738	639	
Ireland						477	480	504	495	504	465	451
Israel					834	1,012	872	857	814	747		
Italy					493	520	600	593	606	599		
Kazakhstan					522	436	419	519	521	552	583	606
Kyrgyzstan			324	321	365	156	322	324	307	328	367	385
Latvia			849	1,094	1,163	1,166	1,263	1,278	1,269	1,342	1,339	1,381
Lithuania				1,283	1,327	1,526	1,415	1,371	1,374	1,387	1,388	1,397
Luxembourg							819	868	907	931	865	
Macedonia, TFYR				141		321	480	573	623	579	789	909
Malta							184	204	185	260	304	271
Moldova			508	689	665	562	419	373	444	571	578	547
Montenegro						342	398	458	488	559	595	541
Netherlands					546	614	526	512	523	524	555	
Norway						890	876	944	938	981	971	953
Poland			332	397	541	59			8	958	889	
Portugal						225	277	274	285	283	285	277
Romania						637	752	809	848	723	649	
Russian Federation					888	936	1,103	1,168	1,178	1,201	1,258	1,313
Serbia												
Slovakia						1,089	955	954	917	874	861	884
Slovenia			309	313	349	347	366	381	394	401	392	
Spain					202	285	363	361	365	362		
Sweden					868	959	905	912	878	856	818	783
Switzerland									567	535	540	
Tajikistan						174	122	136	169	176	195	217
Turkey			38	56	99	144	206	216	239	277	289	
Turkmenistan						269					37	
Ukraine			614	719	728	665	1,197	1,284	1,380	1,450	1,555	1,646
United Kingdom							547	540	545	533		
Uzbekistan						321	300	347	392	398	444	443
European average					669	711	817	834	843	848	867	883
EU					581	657	714	707	711	701	688	686

Notes: Blank cells indicate that insufficient data were available for an estimate.

Source: World Health Organization (2007) European Health for all statistical database. [Http://www.who.dk/bfadb](http://www.who.dk/bfadb) Accessed August 2007.

Figure 3.7 Rates of hospital discharge for CHD, 1980 to 2005, selected European countries

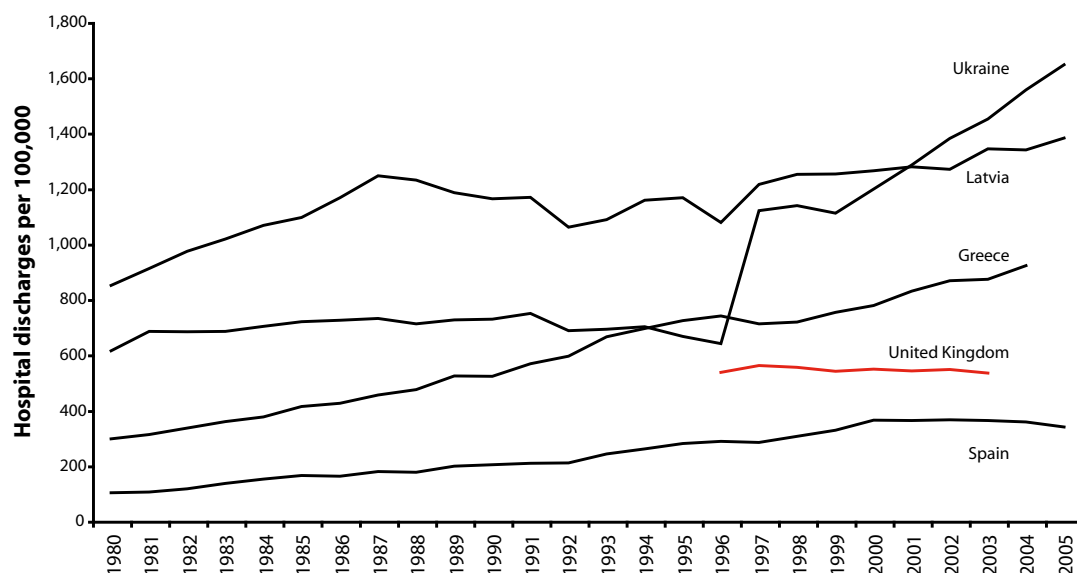


Table 3.8 Rates of hospital discharges from stroke, 1970 to 2005, Europe

	Discharges per 100,000											
	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005
Albania						45	80	82	80	91	91	94
Andorra								107	123	113	101	121
Armenia			101	128	194	132	130	129	147	163	161	172
Austria					646	680	847	639	654	617	629	
Azerbaijan					113	53	45	48	53	48	52	52
Belarus						564	896	912	949	1,037	1,083	1,063
Belgium						362	394	394	391	377	379	
Bosnia and Herzegovina			131	119								
Bulgaria			134	268	293	323	426	468	586	666	717	593
Croatia				233	297	281	411	394	396	392	383	409
Cyprus			116	131	143	89	140	149	137	146	149	109
Czech Republic						558	629	625	639	638	626	647
Denmark					430	394	452	435	424	411	404	384
Estonia					380	497	502	499	535	570	608	
Finland					681	820	638	661	645	646	633	561
France							216		215	213	218	
Georgia					193	58	74	72	79	80	93	95
Germany						487	462	464	462	453	422	
Greece	117	190	230	256	274	330	404	424				
Hungary						598	832	845	969	1,082	1,325	1,395
Iceland					244		237	228	206	254	206	
Ireland						234	251	259	252	248	253	170
Israel					203	288	295	293	283	285		
Italy					394	436	489	494	503	491		
Kazakhstan					176	169	210	234	278	293	321	351
Kyrgyzstan			91	107	145	124	153	155	142	142	149	174
Latvia			282	383	445	542	638	669	695	713	732	795
Lithuania				408	512	671	780	825	912	956	1,013	1,055
Luxembourg							233	184	164	164	175	
Macedonia, TFYR				121		199	251	240	224	221	250	269
Malta							79	77	65	73	61	54
Moldova			181	230	293	270	271	247	328	418	429	475
Montenegro						163	160	174	195	201	197	197
Netherlands					175	194	185	186	193	201	213	
Norway						382	320	321	328	353	345	342
Poland			130	159	191	232				370	418	
Portugal						287	336	345	350	338	336	329
Romania						280	328	404	442	461	516	
Russian Federation					370	458	595	653	668	684	720	760
Serbia												
Slovakia						491	452	473	475	465	473	518
Slovenia			219	268	249	255	230	230	222	225	228	
Spain					117	198	249	261	266	268		
Sweden					613	617	446	418	422	417	418	417
Switzerland									214	212	207	
Tajikistan					109	31	38	44	52	42	47	56
Turkey			27	50	71	106	148	158	166	184	202	
Turkmenistan						82					169	
Ukraine												
United Kingdom			244	358	486	467	540	585	629	671	723	770
Uzbekistan							213	218	227	225		
						112	79	94	99	102	105	116
European average					343	379	428	446	460	468	484	495
EU					319	351	373	378	389	390	398	397

Notes: Blank cells indicate that insufficient data were available for an estimate.

Source: World Health Organization (2007) European Health for all statistical database. [Http://www.who.dk/hfadb](http://www.who.dk/hfadb) Accessed August 2007.

Figure 3.8 Rates of hospital discharges from stroke, 1980 to 2005, selected European countries

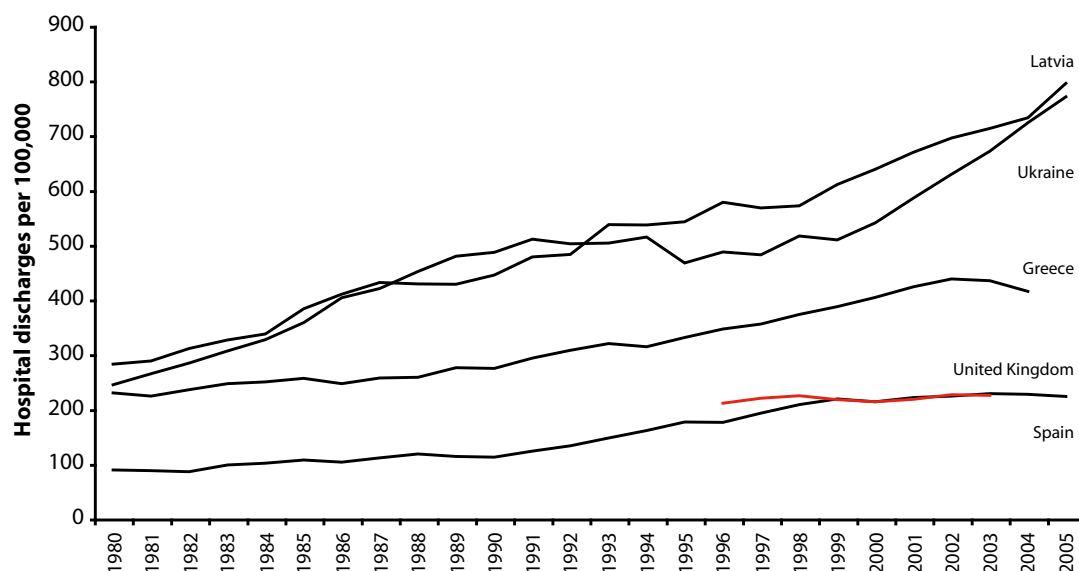


Table 3.9 Outcome at 4 weeks and use of free Nicotine Replacement Therapy in people using National Health Service smoking cessation services, 1999/00 to 2006/07, England and Northern Ireland

	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
ENGLAND								
Total number setting a quit date	14,600	132,500	227,335	234,858	361,224	529,567	602,820	600,410
Number who had successfully quit at 4 week follow-up (self report)	5,800	64,600	119,834	124,082	204,876	298,124	329,681	319,720
% who had successfully quit at 4 week follow-up (self report)	39%	49%	53%	53%	57%	56%	55%	53%
NORTHERN IRELAND								
Total number setting a quit date						7,369	8,702	13,795
Number who had successfully quit at 4 week follow-up (self report)						3,771	4,119	7,150
% who had successfully quit at 4 week follow-up (self report)						51%	47%	52%

Notes: A client is counted as having successfully quit smoking at the 4 week follow-up if he/she has not smoked at all since two weeks after the quit date.

Source: Health and Social Care Information Centre (2007) Statistics on NHS stop smoking services in England, April 2006 to March 2007. Leeds: Information Centre and previous editions.

Northern Ireland Statistics & Research Agency (2007) Statistics on smoking cessation services in Northern Ireland: 2006/07. Belfast: Department of Health, Social Services and Public Safety.

Table 3.10 *Emergency calls: responses within 8 minutes by Ambulance Service, 1999/00 to 2006/07, England*

<i>Ambulance Service</i>	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
	%	%	%	%	%	%	%	%
Rural Services								
Cumbria Ambulance NHS Trust	61.6	69.2	72.6	76.6	76.7	75.0	74.4*	70.7
North East Ambulance NHS Trust	50.1	50.8	72.3	76.6	75.6	77.4	75.3	81.4
Tees, East & North Yorkshire Ambulance NHS Trust	55.5	52.8	71.9	73.4	73.7	77.1	75.0	76.2
East Midlands Ambulance NHS Trust	37.8	49.0	73.1	73.2	75.0	75.4	75.3	76.7
Lincolnshire Ambulance NHS Trust	58.3	64.8	77.5	76.4	75.7	77.0	76.0	76.4
East Anglian Ambulance NHS Trust	-	53.0	63.8	75.2	76.1	76.5	75.9	70.9
Bedfordshire & Hertfordshire Ambulance NHS Trust	-	48.9	69.5	76.2	75.3	75.2	77.1	79.2
Essex Ambulance NHS Trust	61.8	72.4	78.1	67.3	75.7	77.3	77.1	78.4
Sussex Ambulance NHS Trust	56.5	61.3	71.8	72.4	71.8	73.4	75.5	76.4
Kent Ambulance NHS Trust	40.3	45.1	69.7	72.9	74.3	75.8	76.6	68.8
Dorset Ambulance NHS Trust	57.7	70.3	76.1	71.9	75.4	76.9	78.0	78.5
Hampshire Ambulance NHS Trust	-	-	66.9	73.0	74.1	75.6	75.6	72.0
Wiltshire Ambulance NHS Trust	-	59.8	73.6	71.4	55.7	68.0	71.2	-
Isle of Wight Ambulance (NHS Trust)	-	55.8	69.4	73.3	76.5	77.2	75.7	76.6
Royal Berkshire Ambulance NHS Trust	63.2	72.3	76.4	76.4	76.1	76.6	77.2	78.9
The Two Shires Ambulance NHS Trust	60.7	65.0	73.9	76.0	76.6	76.0	72.6	72.4
Oxfordshire Ambulance NHS Trust	-	50.9	71.3	75.2	75.4	77.9	81.6	85.3
West Country Ambulance NHS Trust	39.2	43.3	58.1	72.2	75.4	75.1	75.3*	71.3
Gloucestershire Ambulance NHS Trust	49.6	58.3	71.2	71.5	73.3	71.2	69.0	-
Hereford & Worcester Ambulance NHS Trust	-	57.3	76.7	77.8	75.3	75.0	75.2	76.5
Shropshire Ambulance NHS Trust	52.8	53.7	76.2	78.0				
Staffordshire Ambulance NHS Trust	87.4	87.4	87.5	86.4	86.6	88.3	87.5	79.5
Coventry & Warwickshire Ambulance NHS Trust	68.3	73.5	76.8	76.8	75.7	75.6	78.1	82.6
Lancashire Ambulance NHS Trust	68.6	77.3	78.3	76.7	77.7	76.7	75.5	75.6
Urban Services								
West Yorkshire Metropolitan Ambulance NHS Trust	-	69.5	77.4	72.1	68.4	76.0	67.6*	66.3
South Yorkshire Metropolitan Ambulance NHS Trust	-	58.8	77.2	75.3	71.8	72.5	78.9*	81.1
Surrey Ambulance NHS Trust	-	67.0	76.4	75.0	77.1	74.8	75.8	79.4
London Ambulance NHS Trust	-	41.8	57.2	69.1	76.0	76.6	75.1	75.8
Avon Ambulance NHS Trust	51.3	60.9	71.5	73.2	72.0	75.4	76.8	-
West Midlands Metropolitan Ambulance NHS Trust	64.0	69.5	76.0	78.3	76.4	76.2	74.4*	67.7
Mersey Regional Ambulance NHS Trust	59.9	77.4	75.6	76.7	76.1	73.7	71.2	71.5
Greater Manchester Ambulance NHS Trust	-	51.6	71.9	82.4	82.5	79.6	75.9	76.1
England average			70.8	74.6	75.7	76.2	75.3*	74.8

Notes: From 2003/04 Shropshire Ambulance Services are part of West Midlands Ambulance Service.
Category A emergency incidents only. * indicates that the accuracy of the estimate is uncertain - see source for details.

Source: Office for National Statistics (2007) Ambulance services, England: 2006-07. Leeds: Information Centre, and previous editions

Table 3.11 *Thrombolytic treatment, use of aspirins, beta blockers and statins after a heart attack, 2004/05 to 2006/07, England and Wales*

	Percentage of patients having thrombolytic treatment within 30 mins of arrival at hospital		
	2004/05	2005/06	2006/07
	%	%	%
<i>Target</i>	75	75	75
England National Average	84	83	84
Wales National Average	70	74	70

	Percentage of patients having thrombolytic treatment within 60 mins of calling for help		
	2004/05	2005/06	2006/07
	%	%	%
<i>Target</i>	58	68	68
England National Average	54	58	64
Wales National Average	28	30	41

	Percentage of patients discharged on secondary prevention medication		
	Aspirins	Beta blockers	Statins
	2006/07	2006/07	2006/07
	%	%	%
<i>Target</i>	80	80	80
England National Average	97	91	96
Wales National Average	99	93	85

Notes: Data are from the MINAP project, based at the Royal College of Physicians. For more details of the project see www.rcplondon.ac.uk/index.asp

Source: Royal College of Physicians (2007) Myocardial Infarction National Audit Project. *How the NHS manages heart attacks. Sixth public report 2007.* London: UCL, and previous editions.

4. Smoking

Smoking increases the risk of CHD. The long-term risk of smoking to individuals has been quantified in a 50-year cohort study of British doctors. The study found that mortality from CHD was around 60% higher in smokers (and 80% higher in heavy smokers) than in non-smokers. Observing deaths in smokers and non-smokers over a 50-year period, the study concluded “about half of all regular smokers will eventually be killed by their habit”¹.

Second hand smoke (smoke that has been exhaled by a smoker) is also harmful to cardiovascular health. Regular exposure to second hand smoke increases the risk of CHD by around 25%²⁻⁴.

It is estimated that smoking caused about 25,000 deaths from CVD in 2000 in the UK. Overall, around one in five deaths from CVD were attributable to smoking. For men, the proportion of CVD deaths attributable to smoking fell between 1995 and 2005, from 16% to 11% in England and Wales, and from 22% to 16% in Scotland. For women, the proportion of CVD deaths attributable to smoking remained the same between 1995 and 2005 (12%) in England and Wales, and fell from 19% to 18% in Scotland (Table 4.2). A higher proportion of premature deaths from CVD, around one in five, were attributable to smoking⁵.

Research from the World Health Organization has estimated the impact of smoking on total disease burden (both mortality and morbidity) in terms of disability-adjusted life years (DALYs) lost. The World Health Report 2002 estimated that in developed countries around 12% of all disease burden and over 20% of CVD was due to smoking⁶.

More recently the INTERHEART case-control study estimated that 29% of heart attacks in Western Europe were due to smoking, and that smokers and former smokers were at almost twice the risk of a heart attack compared to never smokers⁷.

A systematic review of the evidence on smoking cessation in patients with CHD concluded that quitting smoking reduces the risk of dying from CHD by 36%⁸.

Public health targets

In England, new targets for smoking were announced in 1998⁹ which were less ambitious than the Health of the Nation targets they replaced¹⁰ (Table 4.1). The Smoking Kills targets for smoking among adults are to reduce rates to 26% by 2005, and 21% by 2010.

The most recent data suggest the 2005 milestone has been met in both men and women, with overall smoking prevalence falling to 23% in 2006. Women have already achieved the 2010 target of 21% (Figure 4.1a)¹¹.

The 2005 target for smoking in children has already been met and boys have already achieved the 2010 target (Figure 4.1b)¹².

In 2000, an inequalities target was added to the general smoking targets in England¹³. This aims to reduce smoking rates among manual groups from 32% in 1998 to 26% in 2010. The latest

smoking figures indicate some progress towards this target, although 29% of men and 27% of women in manual groups currently smoke (Table 4.7). Scotland appears to be making progress towards the target of a reduction in the proportion of adults smoking to 22% by 2010. Smoking prevalence among Scottish adults has reduced from 35% in 1998 to 25% in 2006 (Table 4.6).

Overall prevalence of smoking

In 2006, 23% of men and 21% of women smoked cigarettes in Great Britain (Table 4.3). From the age-specific smoking rates in Table 4.3, we estimate that there are over 12 million adult cigarette smokers in the UK today

Overall, smoking prevalence in 2006 was higher among men than women for all age groups except 16 to 19 years. The greatest difference was found in those aged 25 to 34 years where smoking rates were 33% for men and 26% for women (Table 4.3 and Figure 4.3a).

In both men and women, the percentage of adults who smoked was highest in those aged 20 to 34 years. Rates declined steadily with age and were lowest in those aged 60 and above (13% in men and 12% in women) (Table 4.3). This pattern has only emerged since the mid-1980s – prior to that, smoking prevalence was similar in all but the youngest and oldest age groups. This change reflects an increase in the number of men and women aged 35 and over who have given up smoking.

Young people and smoking

In 2006, just under one in ten young people aged 11 to 15 in England were regular smokers (defined as usually smoking at least one cigarette per week) (Table 4.4). As in previous years, girls were more likely to be regular smokers than boys (10% of girls compared to 7% of boys). The proportion of regular smokers increased sharply with age in young people: 1% of 11 year olds in England smoked regularly compared with 21% of 15 year olds¹⁴. From the age-specific rates in England, we estimate there are over 300,000 regular smokers aged 11 to 15 in the UK today.

Temporal trends

The highest recorded level of smoking among men in the UK was 82%, found in the first national survey of smoking behaviour in 1948. Among women, smoking prevalence remained fairly constant between 1948 and 1970, peaking at 45% in 1966¹⁵.

The 1970s and early 1980s saw a substantial fall in the proportion of adult smokers in Great Britain. This decline in smoking prevalence continued at a slower rate for another decade. Results from the General Household Survey (GHS) show that since the early 1990s the decline in smoking prevalence has levelled off and smoking rates have remained relatively stable. From 2000 to 2006, the rate in men declined from 29% to 23%, and in women from 25% to 21% (Figure 4.1a).

The decline in smoking rates over the last 30 years has been faster in men than in women, resulting in a major narrowing of the gap between the proportions of men and women who smoke cigarettes (Table 4.3 and Figures 4.3a and 4.3b). In 1974, for example, men were much more likely to be smokers than women (51% of men compared to 41% of women). By 1990 the difference in smoking prevalence had reduced to just two percentage points (31% men compared to 29% of women), and since then there has been an excess in male smoking rates of between 1 and 4 percentage points.

The decline in smoking prevalence since the 1970s has not occurred equally across all age groups. Smoking rates have declined most in those aged over 35 and least in younger age groups (Table 4.3).

As well as a decline in the numbers of adults smoking cigarettes there has been an overall decline in the average number of cigarettes smoked by men. This fall in cigarette consumption has occurred mainly in younger smokers. The number of cigarettes smoked by those aged 50 years and over has changed very little since the mid 1970s (Table 4.5).

In teenagers, particularly girls, rates of smoking increased in England during the 1990s, peaking in 1996 (Figure 4.1b). The most recent survey data show the prevalence of regular smoking in young people in England in 2006 was 9%, unchanged from 2003, and down from 10% in 2002 (Table 4.4). In Scotland, the percentage of boys who smoke has declined from 11% in 2002 to 8% in 2006. The percentage of Scottish girls who smoke has declined from 16% in 2002 to 11% in 2006. The most recent data from Northern Ireland show a decline in smoking prevalence in both boys and girls (Table 4.4).

National and regional differences

In 2006, 25% of men and women in Scotland smoked, compared to 27% of men and 25% of women in Northern Ireland, 23% of men and 21% of women in England, and 19% of men and 20% of women in Wales (2004/05). Smoking rates have been consistently higher in Scotland than in the UK for over 25 years (Table 4.6).

Within England, smoking prevalence rates are generally higher in the north of the country, although this pattern is more marked in women than men (Figures 4.6a and 4.6b). In 2006, among men, the highest proportion of smokers was found in the North West (26%) and the lowest in the East Midlands and the South East (21%). Among women, smoking prevalence was highest in the North East (25%) and lowest in the East of England (17%) (Table 4.6 and Figure 4.6).

Socio-economic differences

There is a strong association between cigarette smoking and socio-economic position. Cigarette smoking is more prevalent among manual social groups than among non-manual groups (Table 4.7), and is lowest among higher managerial and professional classes (Table 4.8 and Figure 4.8). In 2006, 29% of men and 27% of women in manual households smoked compared to 18% of men and 16% of women in non-manual households (Table 4.7). This class difference has persisted since the 1990s, and recent data suggest no narrowing of the gap¹⁶.

Ethnic differences

Smoking rates vary considerably between ethnic groups in the UK. In 2004, the rates for men were particularly high in the Bangladeshi communities (40% current smokers). With the exception of Black Caribbean (24%) and Irish women (26%) who had similar rates to women in the general population (23%), smoking rates in ethnic minority women were very low (10% and below) (Table 4.9 and Figure 4.9).

Chewing tobacco is consumed more often among the Bangladeshi community where 16% of Bangladeshi women use this form of tobacco¹⁷.

International differences

Tobacco is used across the world in many forms including cigarettes, chewing tobacco and snuff. In many countries, cigarette smoking is only a small part of tobacco use, and comparable data on tobacco use are not widely available. Recent data from the World Health Organization show the known prevalence of adult smoking varies among men from 65% in Kazakhstan and the Republic of Korea to 6% in Ethiopia, and among women from 57% in Lebanon to less than 1% in Algeria, Ethiopia, Egypt and Morocco (Table 4.10). Smoking rates in the UK are, by international standards, relatively low in men (within the second lowest quintile) and relatively high in women (within the highest quintile) (Figures 4.10a and 4.10b).

Data from the World Health Organization's Europe Region "Health for All Database" show that, in 2004, the overall UK adult smoking rate of 25% was below the average for the European Union (EU-25 30%) and for Europe (2002) as a whole (29%). The decline in smoking prevalence in the UK since the mid 1990s has been slight (2%). Cyprus, Denmark, Kazakhstan, Kyrgyzstan and Switzerland all showed a decline of 10% or more (Table 4.11 and Figure 4.11).

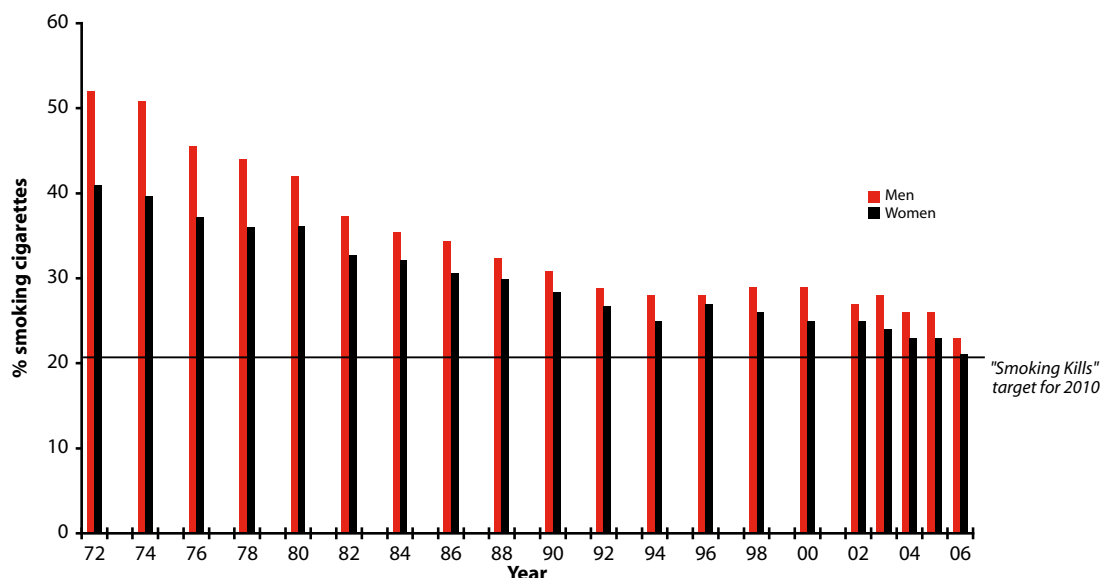
1. Doll R, Peto R, Boreham J, Sutherland I (2004) Mortality in relation to smoking: 50 years' observations on male British doctors. *BMJ*; 328: 1519-27.
2. Law MR, Morris JK, Wald NJ (1997) Environmental tobacco smoke exposure and ischaemic heart disease: an evaluation of the evidence. *BMJ*; 315:973-80.
3. He J, Vupputuri S, Allen K, Prerost M, Hughes J, Whelton P (1999) Passive smoking and the risk of Coronary Heart Disease – a Meta-Analysis of Epidemiological Studies. *New England J Med*; 340: 920-26.
4. For more information and statistics on secondhand smoke, see Chapter 3 in Petersen S and Peto V (2004) *Smoking statistics*. British Heart Foundation: London (also available at www.heartstats.org/smokingstatistics).
5. Data available at www.ctsu.ox.ac.uk/~tobacco. See Table 1.3 in Petersen S and Peto V (2004) *Smoking statistics*. British Heart Foundation: London (also available at www.heartstats.org/smokingstatistics).
6. World Health Organization (2002) *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. World Health Organization: Geneva.
7. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigo J, Lisheng A, on behalf of the INTERHEART Study Investigators (2004) Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART Study): case-control study. *The Lancet*; 364: 937-952.
8. Critchley J, Capewell S (2003) Mortality Risk Reduction Associated With Smoking Cessation in Patients With Coronary Heart Disease: A Systematic Review. *JAMA*; 290: 86-97.
9. Department of Health (1998) *Smoking Kills: A White paper on Tobacco*. The Stationery Office: London.
10. The Health of the Nation outlined four smoking targets: to reduce the prevalence of smoking in adults to 20% by the year 2000 (from a prevalence in 1990 of 31% in men and 28% in women); to reduce the consumption of cigarettes by at least 40% by the year 2000 (from 98 billion manufactured cigarettes per year in 1990 to 59 billion); to reduce smoking prevalence among 11-15 year olds by at least 33% by 1994 (from 8% in 1988 to less than 6%) and for at least a third of women smokers to stop smoking at the start of their pregnancy by the year 2000. Department of Health (1992) *The Health of the Nation*. HMSO: London.
11. Smoking Kills targets were based on un-weighted GHS baseline data, but are currently monitored using weighted data. Because of this methodological change it has been suggested by the Office for National Statistics that these targets be revised upwards by one percentage point.
12. Smoking prevalence in pregnant women is measured every five years in the Infant Feeding Survey. The latest data show the prevalence of smoking in pregnant women fell from 23% in 1995 to 20% in 2000. If this rate of decline continues the Smoking Kills targets for smoking in pregnant women (18% by 2005 and 15% by 2010) should be met. See www.dh.gov.uk/PublicationsAndStatistics
13. Department of Health (2000) *The NHS Cancer Plan*. Department of Health: London.
14. Department of Health (2005) *Smoking, drinking and drug use among young people in England in 2004: Headline Figures*. See www.dh.gov.uk
15. Wald N and Nicolaidis-Bouman A (1991) *UK Smoking Statistics*. 2nd Edition. Oxford University Press: Oxford.
16. Smoking prevalence is also measured in the ONS Omnibus Survey. The most recent data from this source show no narrowing between 2001 and 2002 of the gap between manual and non-manual classes. Office for National Statistics (2004) *Smoking Related Behaviour and Attitudes, 2003*. The Stationery Office: London.
17. Department of Health (2005) *Health Survey for England 2004. The Health of Minority Ethnic Groups - headline tables*. NHS Health and Social Care Information Centre.

Table 4.1 *Smoking targets for the United Kingdom*

England^{1,2,3,4}	
Adults	To reduce adult smoking in all social classes so that the overall rate falls from 28% in 1996 to 21% or less by the year 2010
Pregnant women	To reduce the percentage of women who smoke during pregnancy from 23% in 1995 to 15% by the year 2010
Children	To reduce smoking among children from 13% in 1996 to 9% or less by the year 2010
Inequalities target	To reduce smoking rates among manual groups from 32% in 1998 to 26% by 2010, in order to narrow the health gap
Scotland^{5,6,7}	
Adults	
- Target	To reduce the rate of smoking among adults aged 16+ from 26.5% in 2004 to 22.0% in 2010
- Inequalities target	To reduce the rate of smoking among adults aged 16+, for the most deprived areas of Scotland, from 37.3% in 2004 to 33.2% in 2008
Pregnant women	
- Target	To reduce the proportion of women who smoke during pregnancy from 29% to 23% between 1995 and 2005 and to 20% by 2010
- Inequalities target	To reduce the rate of smoking during pregnancy, for the most deprived communities, from 35.8% in 2003 to 32.2% in 2008
Young people	
- Target	To reduce smoking among young people aged 12-15 years, from 14% to 12% between 1995 and 2005 and to 11% by 2010
Wales⁸	No target set
Northern Ireland⁹	
Adults	To increase the proportion of the adults who do not smoke cigarettes from 73% in 2000/01 to 75% by the year 2006/07
Pregnant women	To increase the proportion of pregnant women who do not smoke from 78% in 2000 to 82% by the year 2005
Children	To increase the proportion of the population aged 11-16 who do not smoke cigarettes from 86.5% in 2000 to 89% by the year 2006
Inequalities target	To increase the proportion of non-smokers in manual groups from 65% in 2000/01 to 69% in 2006/07

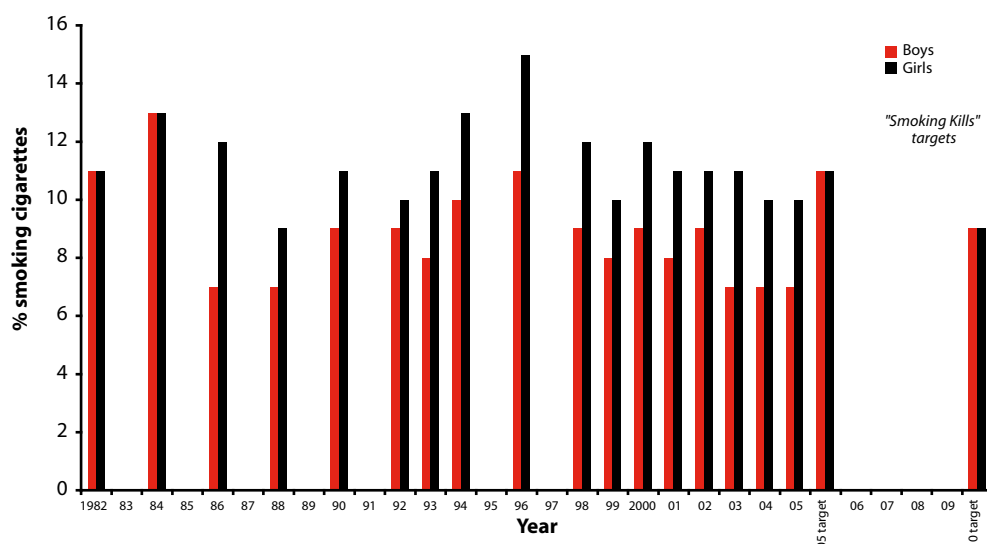
1. HM Treasury (2004) *Spending Review : Chapter Three*. http://www.hm-treasury.gov.uk/spending_review/
2. Department of Health (1998) *Smoking Kills: A White Paper on Tobacco*. HMSO: London.
3. Department of Health (2000) *The NHS Cancer Plan*. Department of Health: London.
4. Department of Health Public Service Agreement (2004) <http://www.dh.gov.uk/>
5. Scottish Executive (2004) *Building a Better Scotland. Spending Proposals 2005-2008: Enterprise, Opportunity and, Fairness*. The Scottish Executive: Edinburgh
6. Scottish Executive (2004) *A Breath of Fresh Air for Scotland. Improving Scotland's Health: the challenge tobacco control action plan*. The Scottish Executive: Edinburgh
7. The Scottish Executive (2008). *Spending Review 2007*. The Scottish Executive: Edinburgh <http://www.scotland.gov.uk/>
8. The Welsh Assembly Government is currently developing new determinants of health indicators. The first stage of this work is underway and includes a focus on CHD. See the Chief Medical Officer Wales website www.cmo.wales.gov.uk/content/work/health-gain-targets/determinants-of-health-e.htm
9. DHSSPSNI (2002) *Investing for Health. A five year tobacco action plan: consultation document*. http://www.dbsspsni.gov.uk/publications/2002/tobacco_plan.pdf

Figure 4.1a Cigarette smoking by sex, adults aged 16 and over, 1972 to 2006, England with “Smoking Kills” national targets



Source: Office for National Statistics (2006) Results from the 2005 General Household Survey. The Stationery Office: London and previous editions.

Figure 4.1b Cigarette smoking by sex, children aged 11 to 15, 1982 to 2005 England, with “Smoking Kills” national targets



Source: Office for National Statistics (2006) Smoking, drinking and drug use among young people in England in 2005. The Stationery Office: London and previous editions.

Table 4.2 *Smoking-attributed deaths by cause, sex and age, 1995 to 2005, England and Wales, and Scotland*

YEAR	AGE	Males			Females		
		All causes	All cancers	Vascular disease	All causes	All cancers	Vascular disease
		%	%	%	%	%	%
England and Wales							
1995	35-69	29	40	23	21	18	22
	70+	24	39	14	14	20	10
	Any age	25	39	16	15	19	12
2000	35-69	25	36	19	20	18	20
	70+	21	36	12	15	21	10
	Any age	21	35	13	15	20	11
2005	35-69	23	33	17	20	18	19
	70+	19	32	9	16	22	11
	Any age	19	32	11	17	21	12
Scotland							
1995	35-69	36	50	31	29	26	31
	70+	29	47	18	21	29	16
	Any age	30	48	22	22	28	19
2000	35-69	30	43	25	29	28	30
	70+	25	42	15	22	29	16
	Any age	26	42	18	23	28	18
2005	35-69	28	43	23	28	27	29
	70+	24	40	13	23	31	17
	Any age	25	41	16	24	30	18

Notes: To be conservative, no deaths before age 35 were attributed to smoking

Source: Personal communication 2008, Clinical Trial Service Unit, Oxford, and www.ctsu.ox.ac.uk/~tobacco.

Table 4.3 Cigarette smoking by sex and age, 1972 to 2006, Great Britain

	1972	1974	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
MEN																					
16-19	43	42	39	35	32	31	29	30	28	28	29	28	26	30	30	25	22	27	23	23	20
20-24	55	52	47	45	44	41	40	41	37	38	39	40	43	42	35	40	37	38	36	34	33
25-34	56	56	48	48	47	40	40	37	37	36	34	34	38	37	39	38	36	38	35	34	33
35-49	55	55	50	48	45	40	39	37	37	34	32	31	30	32	31	31	29	32	31	29	26
50-59	54	53	49	48	47	42	39	35	33	28	28	27	28	27	27	26	27	26	26	25	23
60+	47	44	40	38	36	33	30	29	26	24	21	18	18	16	16	16	17	16	15	14	13
All men	52	51	46	45	42	38	36	35	33	31	29	28	29	28	29	28	27	28	26	25	23
Unweighted base	10,351	9,852	10,888	10,480	10,454	9,199	8,417	8,874	8,673	8,106	8,417	7,642	7,172	6,579	6,593	7,055	6,837	8,097	6,868	10,038	7,677
Weighted base (000s)															20,350	19,913	19,561	19,187	19,561	19,496	19,918
WOMEN																					
16-19	39	38	34	33	32	30	32	30	28	32	25	27	32	31	28	31	29	25	25	26	20
20-24	48	44	45	43	40	40	36	38	37	39	37	38	36	39	35	35	38	34	29	30	29
25-34	49	46	43	42	44	37	36	35	35	34	34	30	34	33	32	31	33	31	28	29	26
35-49	48	49	45	43	43	38	36	34	35	33	30	28	30	28	27	28	27	28	28	26	25
50-59	47	48	46	42	44	40	39	35	34	29	29	26	26	27	28	25	24	23	22	23	22
60+	25	26	24	24	24	23	23	22	21	20	19	17	19	16	15	17	14	14	14	13	12
All women	41	41	38	37	37	33	32	31	30	29	28	26	28	26	25	26	25	24	23	23	21
Unweighted base	12,143	11,480	12,554	12,156	12,100	10,641	9,788	10,304	10,122	9,445	9,764	9,108	8,501	7,830	7,496	8,299	7,951	9,327	8,029	11,627	9,005
Weighted base (000s)															22,044	21,987	22,236	21,842	22,396	22,315	22,721
TOTAL																					
16-19	41	40	37	34	32	30	31	30	28	30	27	27	29	31	29	28	25	26	24	24	20
20-24	51	48	46	44	42	40	38	39	37	38	38	39	39	40	35	37	38	36	32	32	31
25-34	52	51	46	45	45	38	38	36	36	35	34	32	36	35	35	34	34	34	31	31	30
35-49	51	52	47	45	44	39	37	36	36	34	31	30	30	30	29	29	28	30	29	27	25
50-59	50	51	47	45	45	41	39	35	33	29	29	27	27	27	27	26	26	25	24	24	22
60+	34	34	31	30	29	27	26	25	23	21	20	17	18	16	16	17	15	15	14	14	12
All adults	46	45	42	40	39	35	34	33	32	30	28	27	28	27	27	27	26	26	25	24	22
Unweighted base	22,494	21,332	23,442	22,636	22,554	19,840	18,205	19,178	18,795	17,551	18,181	16,750	15,673	14,409	14,089	15,354	14,788	17,424	14,897	21,665	16,682
Weighted base (000s)															42,394	41,899	41,798	41,029	41,957	41,811	42,639

Notes: From 2000 data are weighted for non-response. Pre-2000 data are unweighted. The effect of weighting on smoking data appears slight: it increased the overall prevalence of smoking in 2000 by one percentage point, from 26% to 27%.
 From 2000, the weighted base is the base for percentages. For 1972-1998, the unweighted sample is the base for percentages.
 2005 data includes last quarter of 2004/05 data due to survey change from financial year to calendar year.
 Results for 2006 include longitudinal data (see Appendix B, GHS 2008).

Source: Office for National Statistics (2008) Results from the 2006 General Household Survey (www.ons.gov.uk/gbs) and previous years.

Figure 4.3a Prevalence of cigarette smoking by sex and age, 2006, Great Britain

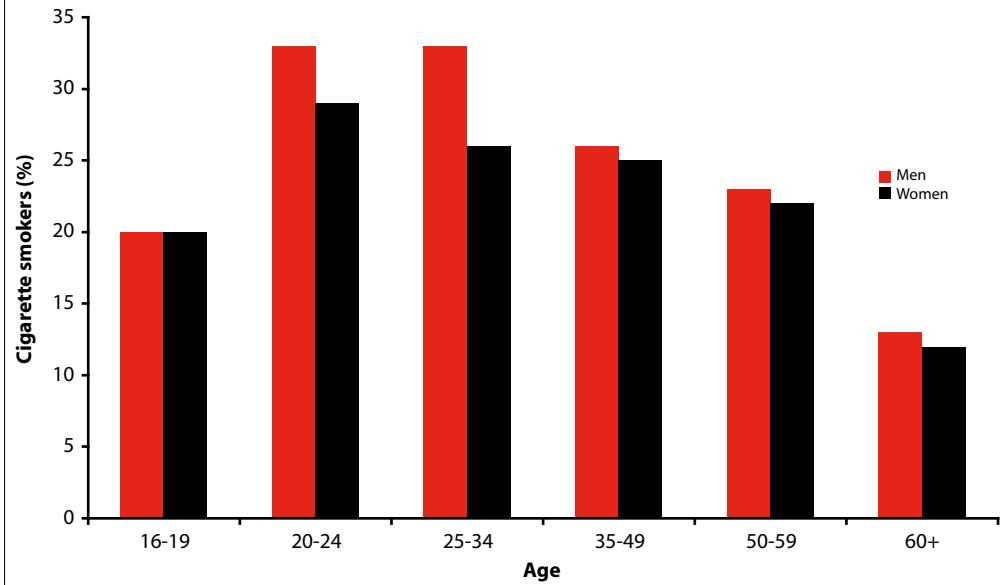


Figure 4.3b Prevalence of cigarette smoking by sex, 1972 to 2006, Great Britain

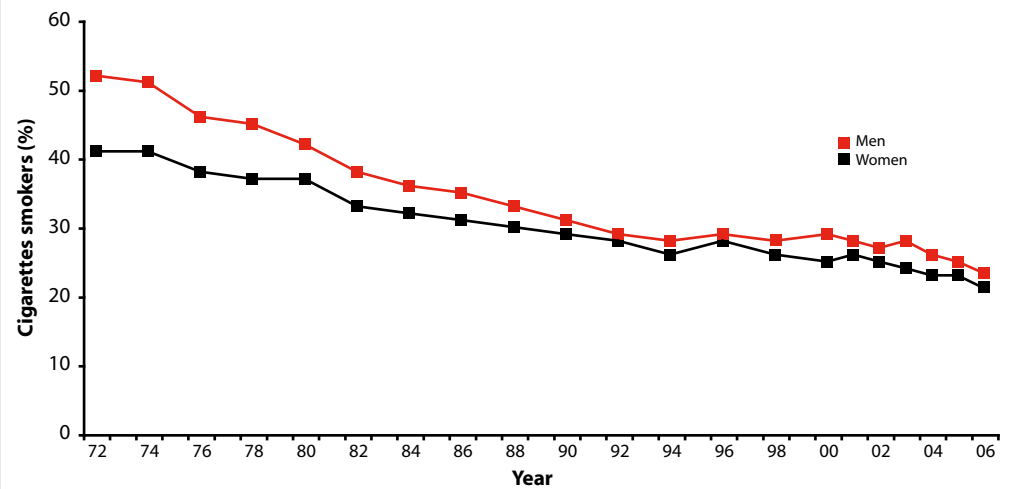


Table 4.4 Regular cigarette smoking in young people aged 11 to 15, by sex, 1982 to 2006, England, Scotland, Wales and Northern Ireland

	1982	1983	1984	1986	1988	1990	1992	1994	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
BOYS																		
England	11		13	7	7	9	9	10	11	9	8	9	8	9	7	7	7	7
Wales				9	8	8	10	8	12	10		10		8		9		
Scotland	15		16	10		11	10	11	14	11		10		11		9		8
Northern Ireland		14		13		12						8						
GIRLS																		
England	11		13	12	9	11	10	13	15	12	10	12	11	11	11	10	10	10
Wales				12	11	12	13	13	16	17		16		14		13		
Scotland	14		17	14		12	13	13	14	13		16		16		16		11
Northern Ireland		12		9		13						10						

Notes: In Scotland, rates are for children aged 12-15 up to 1999, and aged 13-15 from 2000.

Sources: Department of Health (2007) Smoking, drinking and drug use among young people in England in 2006: Headline Figures. See <http://www.ic.nhs.uk/pubs/smokedrinkdrug06/report/file>

Welsh Assembly Government "Healthschool" website (2003) www.healthschool.org.uk/smoking/smoking_data.htm

National Assembly for Wales, Statistics for Wales: personal communication.

National Centre for Social Research and the National Foundation for Educational Research (2001). Smoking, drinking & drug use among young people in Scotland in 2000. The Stationery Office: Edinburgh.

Child and Adolescent Health Research Unit, The University of Edinburgh, (2007) The Scottish Adolescent Lifestyle and Substance Use Survey (Salsus) 2006, and previous surveys. The Stationery Office: Edinburgh

Department of Health and Social Security Northern Ireland (1991) Smoking and Drinking Amongst 11-15 year olds in Northern Ireland in 1990. DHSS NI: Belfast

Northern Ireland Statistics and Research Agency (2002) Young Person's Behaviour and Attitudes Survey . See www.csu.nisra.gov.uk/archiv/surveys/yypbas/results/yypbas%20bulletin.pdf

Table 4.5 *Average daily cigarette consumption per smoker by sex and age, 1974 to 2006, Great Britain*

	1974	1978	1982	1986	1988	1990	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006	Weighted base 2006 (000s)	Unweighted base 2006
MEN																			
16-19	16	14	12	12	12	13	12	10	12	10	12	11	11	13	11	13	10	254	78
20-24	19	17	16	15	16	16	13	13	14	14	12	12	12	12	11	11	12	422	131
25-34	19	19	17	16	17	16	14	15	15	13	13	13	13	13	12	12	13	1,042	349
35-49	20	20	20	19	19	19	19	18	17	17	17	17	17	16	16	15	16	1,468	522
50-59	18	20	18	17	19	17	18	20	17	18	17	18	18	18	18	17	16	746	283
60+	14	15	16	15	15	15	15	14	15	16	15	15	16	15	14	15	18	674	294
All men	18	18	17	16	17	17	16	16	16	16	15	15	15	15	15	14	15	4,605	1,657
WOMEN																			
16-19	12	13	11	11	11	11	10	10	10	10	10	12	12	10	11	10	9	252	81
20-24	14	14	14	12	14	13	13	13	11	12	10	11	10	11	11	11	11	442	145
25-34	15	16	16	14	15	15	14	14	13	12	12	12	12	12	12	11	12	923	357
35-49	15	16	15	16	16	15	16	15	16	15	14	15	15	14	14	14	14	1,568	584
50-59	13	14	14	14	15	15	15	15	16	15	15	15	15	15	15	15	15	786	325
60+	10	11	11	12	12	12	12	13	13	12	12	12	13	13	13	13	13	768	322
All women	13	14	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	4,738	1,814

Notes: From 2000 data are weighted for non-response. Pre-2000 data are unweighted.

From 2000, the weighted base is the base for percentages. Up to 1998, the unweighted bases are the base for percentages. Unweighted bases for earlier years are of similar size to the unweighted sample and can be found in General Household Reports for each year.

2005 data includes last quarter of 2004/5 data due to survey change from financial year to calendar year.

Source: Office for National Statistics (2008) Results from the 2006 General Household Survey (www.ons.gov.uk/gbs) and previous years.

Table 4.6 *Cigarette smoking by sex and country of United Kingdom, 1976 to 2006, and by Government Office Region 1998 to 2006, United Kingdom*

	1976	1978	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005	2006	Weighted (000s)	Unweighted
MEN	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		
England	45	44	42	37	35	34	32	31	29	28	28	29	29	28	27	27	26	25	23	17,162	6,599
North East																					
North West																					
Yorkshire and the Humber																					
East Midlands																					
West Midlands																					
East of England																					
London																					
South East																					
South West																					
Wales	46	44	45	36	42	33	35	30	32	28	28	29	25	27	27	29	24	24	19	1,021	410
Scotland	50	48	46	45	43	37	36	33	34	31	33	35	30	32	29	35	29	28	25	1,735	668
Great Britain	46	45	42	38	36	35	33	31	29	28	29	30	29	28	27	28	26	25	23	19,918	7,677
WOMEN																					
England	37	36	36	32	32	31	30	28	27	25	27	26	25	25	25	24	23	22	21	19,451	7,693
North East																					
North West																					
Yorkshire and the Humber																					
East Midlands																					
West Midlands																					
East of England																					
London																					
South East																					
South West																					
Wales	37	37	39	34	32	30	28	31	33	27	27	26	24	26	27	26	22	21	20	1,152	476
Scotland	43	42	42	39	35	35	37	35	34	29	31	29	30	30	28	28	22	25	25	2,116	836
Great Britain	38	37	37	33	32	31	30	29	28	26	28	26	25	26	25	24	23	23	21	22,719	9,005

Notes: Men and women aged 16 and over.

From 1998 data are unweighted. Pre 1998 data are unweighted. See source for details.

Source: Office for National Statistics (2008) *Living in Britain: Results from the 2006 General Household Survey*, The Stationery Office: London and previous editions.

	1983	1990/1	1992/3	1994/5	1996/7	1998/99	2000/01	2002/03	2004/05	Unweighted base
Northern Ireland										
MEN	39	33	31	29	31	28	26	27	27	1,710
WOMEN	29	31	29	27	27	29	28	26	25	2,328

Notes: Men and women aged 16 and over.

Source: Northern Ireland Statistics and Research Agency Central Survey Unit (2006) *Continuous Household Survey 2004/05*. See www.csu.nisra.gov.uk/

Fig 4.6a *Percentage of men smoking by region, 2004/06, United Kingdom*

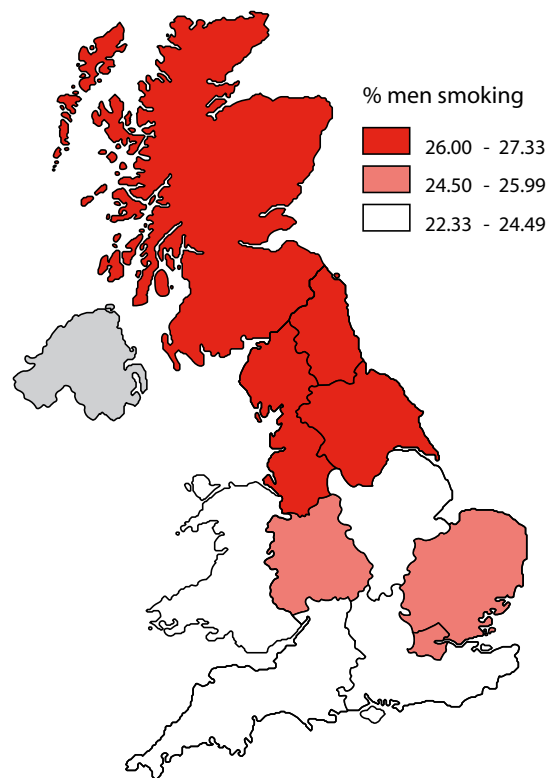


Fig 4.6b *Percentage of women smoking by region, 2004/06, United Kingdom*

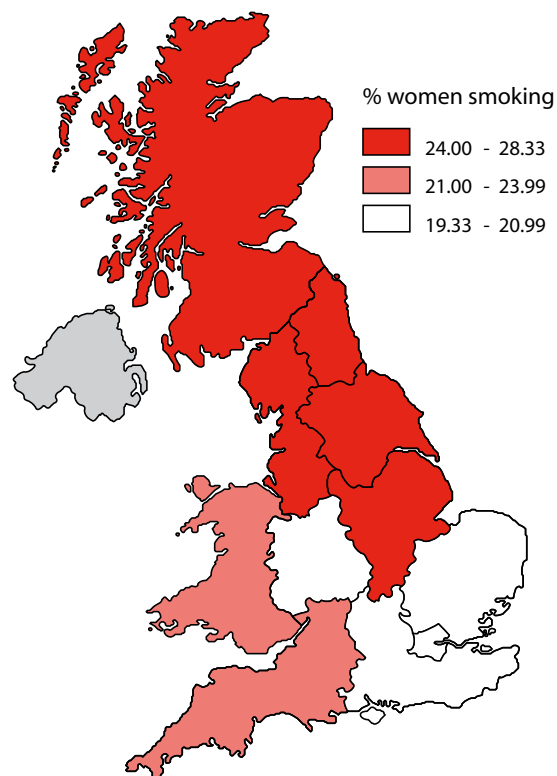


Table 4.7 Cigarette smoking by sex and social class, adults aged 16 and over, 1992 to 2006, England

	Unweighted				Weighted									
	1992	1994	1996	1998	1998	2000	2001	2002	2003	2004	2005	2006	Weighted	Unweighted
	%	%	%	%	%	%	%	%	%	%	%	%	base 2006	base 2006
													(000s)	
MEN														
Total non-manual	22	21	21	21	22	24	22	21	22	22	19	18	9,181	3,657
Total manual	35	34	35	34	35	34	34	32	33	31	31	29	6,976	2,618
Ratio manual:non-manual	1.59	1.62	1.67	1.62	1.59	1.42	1.55	1.52	1.50	1.41	1.63	1.61		
WOMEN														
Total non-manual	23	21	22	21	22	22	20	20	20	19	18	16	10,498	4,275
Total manual	30	30	33	31	31	29	31	30	29	28	28	27	6,949	2,692
Ratio manual:non-manual	1.30	1.43	1.50	1.48	1.41	1.32	1.55	1.50	1.45	1.47	1.56	1.68		

Notes: Adults aged 16 and over

2005 data includes last quarter of 2004/05 data due to survey change from financial year to calendar year.

From 1998 data are weighted for non-response. Pre-1998 data are unweighted. This table shows weighted and unweighted figures for 1998 to give an indication of the effect of the weighting.

Figures for 2001 to 2005 are based on the new NS-SEC classification recoded to produce manual or non-manual socio-economic group and should therefore be treated with caution.

For similar trend data for Great Britain 1972-2002, see www.heartstats.org

Source: Office for National Statistics (2008) Results from the 2006 General Household Survey (www.ons.gov.uk/gbs) and previous years.

Figure 4.7 Cigarette smoking by sex and social class, adults aged 16 and over, 1992 to 2006, England

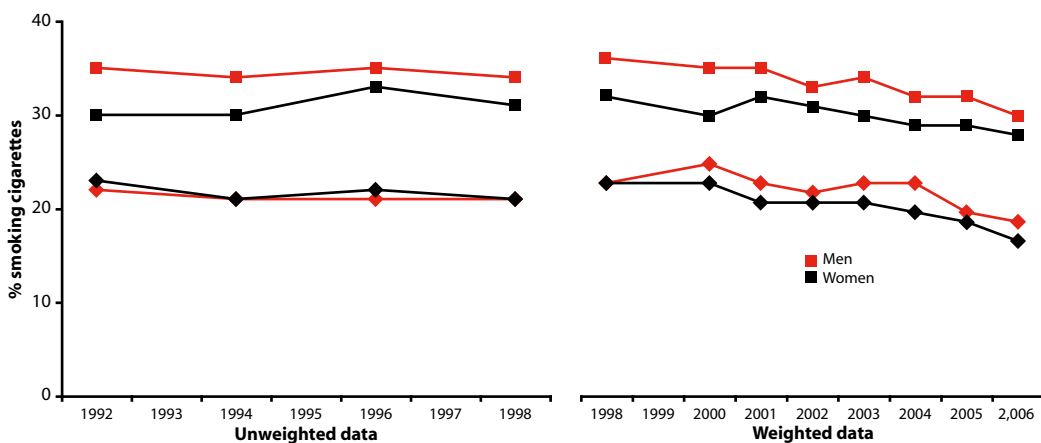


Table 4.8 *Cigarette smoking by sex and socio-economic classification, adults aged 16 and over, 2006, Great Britain*

<i>Socio-economic classification of the household reference person</i>	Men %	Women %	All %
Managerial and professional	17	14	15
Large employers and higher managerial	13	14	14
Higher professional	13	9	11
Lower managerial and professional	20	17	18
Intermediate	21	21	21
Intermediate	22	19	20
Small employers and own account	21	22	22
Routine and manual	31	28	29
Lower supervisory and technical	25	25	25
Semi routine	33	29	31
Routine	35	29	32
Total	23	21	22
<i>Weighted base (000s)</i>	19,919	22,721	42,636
<i>Unweighted base</i>	7,677	9,005	16,682

Source: Office for National Statistics (2008) Results from the 2006 General Household Survey (www.ons.gov.uk/ghs) and previous years.

Figure 4.8 *Cigarette smoking by sex and socio-economic classification, adults aged 16 and over 2006, Great Britain*

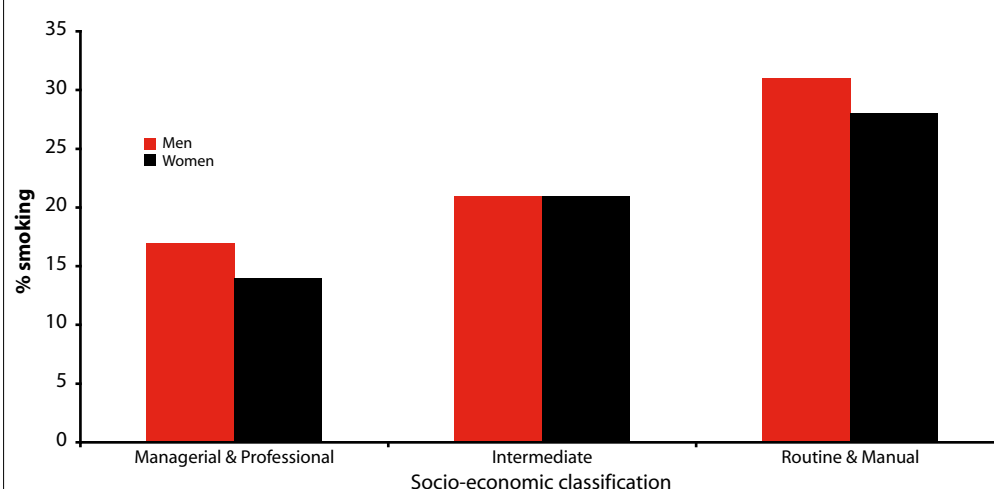


Table 4.9 *Cigarette smoking by sex and ethnic group, adults aged 16 and over, 2004, England*

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
<i>Current cigarette smokers</i>	%	%	%	%	%	%	%	%
MEN	24	25	21	20	29	40	21	30
<i>Base</i>	45,652	472	366	899	412	172	150	1,773
WOMEN	23	24	10	5	5	2	8	26
<i>Base</i>	48,357	658	464	1,061	490	197	162	2,362

Source: Department of Health (2005) *Health Survey for England 2004. The Health of Minority Ethnic Groups*. <http://www.ic.nhs.uk/pubs/hlthsuyeng2004ethnic>

Figure 4.9 *Cigarette smoking by sex and ethnic group, adults aged 16 and over, 2004, England*

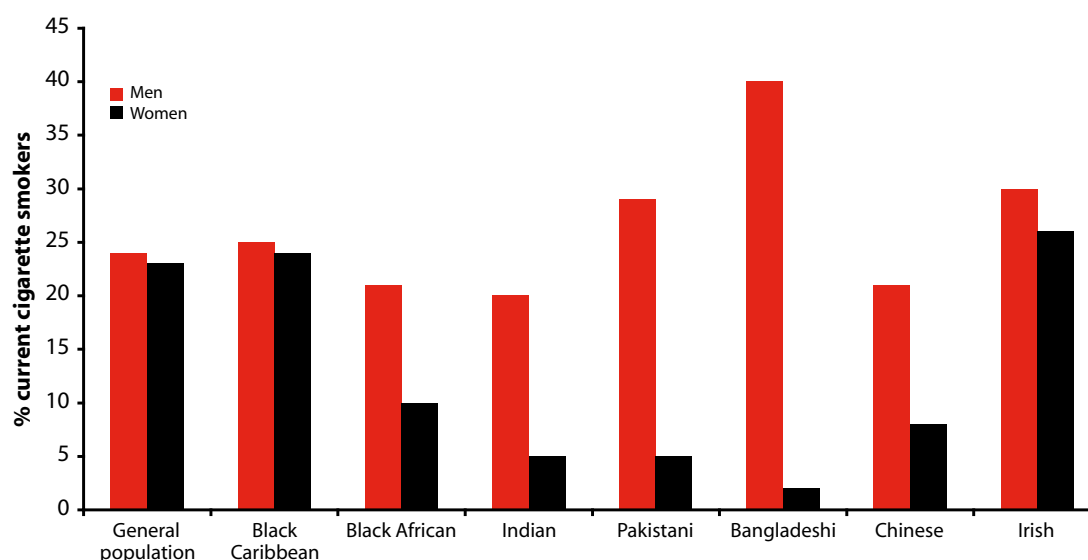


Table 4.10 *Prevalence of smoking, latest available data, 1995 to 2004, all available countries, the World*

Region	Country	Study year	Men %	Women %	Both %
African Region	Algeria	2003	32	<1	13
	Benin	2001		3	
	Burundi	1995	16	11	
	Cameroon	2000	9	1	
	Congo	2004			8
	Eritrea	2004			7
	Ethiopia	2003	6	<1	
	Gambia	1996/1997	39	4	
	Ghana	2003	7	1	
	Kenya	2004	21	1	
	Malawi	2003	21	5	
	Mauritius	2003	32	1	
	Nigeria	2003	1		
	Rwanda	2000		8	
	Sao Tome and Principe	1997	29	14	25
	South Africa	2002/2003	23	8	
	Swaziland	2003	11	3	
	Uganda	2001/2002	25	3	
	United Rep. of Tanzania	1998/1999	23	1	
	Zambia	2001/2002	26	3	
	Zimbabwe	2003	20	2	
Region of the Americas	Argentina	2004	32	25	29
	Bolivia	1998	38	19	27
	Brazil	2003	22	14	
	Canada	2003	19	16	18
	Chile	2003	48	37	42
	Costa Rica	2000	23	8	16
	Cuba	1995	48	26	37
	Dominican Republic	2003	16	11	
	Guatemala	2000	21	2	
	Haiti	2000	16	4	
	Jamaica	1994/1995	38	12	23
	Mexico	2002/2003	13	5	
	Nicaragua	2001		5	
	Paraguay	2003	23	7	
	Peru	2002/2003	53	24	38
	USA	2002/2003	20	16	18
	Uruguay	2003	35	24	
	Venezuela	1997	28	24	26
Eastern Mediterranean Region	Bahrain	2001	15	3	10
	Egypt	2000		<1	
	Iran (Islamic Republic of)	1999/2000	22	2	11
	Jordan	2002	51	8	30
	Kuwait	1996	34	2	17
	Lebanon	1998/2002	61	57	59
	Morocco	2003	29	<1	
	Oman	1995	16	2	
	Saudi Arabia	1995/2000	19	7	13
	Syrian Arabic Republic	2000		8	
	Tunisia	2003	50	2	
	United Arab Emirates	2003	17	1	9
European Region	Albania	2002	46	3	
	Andorra	1997	44	28	36
	Armenia	2001	62	2	
	Austria	1999	34	24	
	Azerbaijan	2001		1	
	Belarus	2001	56	12	
	Belgium	2001	28	20	24
	Bosnia & Herzegovina	2002	49	30	38
	Bulgaria	1997	38	17	
	Croatia	2003	31	20	
	Cyprus	1997			37
	Czech Republic	2003	32	23	27
	Denmark	2003			28
	Estonia	2002	45	18	29

Region	Country	Study year	Men %	Women %	Both %
	Finland	2003	26	19	22
	France	2000	33	21	27
	Georgia	2003	46	4	
	Germany	2000	32	27	
	Greece	2001/2002	47	40	
	Hungary	2003	36	27	
	Iceland	2003			22
	Ireland	2002			27
	Israel	2003			24
	Italy	2002	31	22	27
	Kazakhstan	2001	65	9	
	Kyrgyzstan	2001	51	5	
	Latvia	2002	51	19	33
	Lithuania	2002	44	13	27
	Luxembourg	2003			33
	Macedonia, FYR	1999			36
	Malta	2002	30	6	23
	Netherlands	2001	32	25	29
	Norway	2004	27	25	26
	Poland	2002			32
	Portugal	1999	29	8	21
	Republic of Moldova	2002	36	2	17
	Romania	2003	33	10	21
	Russian Federation	2003	41	7	
	Serbia & Montenegro	2000			40
	Slovakia	2002	36	20	
	Slovenia	2001	28	20	24
	Spain	2001	39	25	
	Sweden	2002/2003	17	19	
	Switzerland	2002	34	25	31
	Turkey	2003	47	15	
	Ukraine	2001	53	11	
	UK	2003	27	24	
	Uzbekistan	2002	24	1	
South-East Asia Region	Bangladesh	2003	55	27	
	India	2003	47	17	
	Indonesia	2003	32	4	17
	Maldives	2001	37	16	
	Myanmar	2003	36	12	
	Nepal	2003	49	24	
	Sri Lanka	2003	23	2	
	Thailand	2001	49	3	26
Western Pacific Region	Australia	2001	25	20	22
	Brunei Darussalam	1997			20
	China	2002	46	2	
	Fiji	2002	26	4	
	Japan	2003	47	15	
	Kiribati	1999	57	32	42
	Lao People's Democratic Rep.	2003	59	13	
	Malaysia	2003	43	2	
	Mongolia	1999	52	8	
	New Zealand	2002/2004	24	22	23
	Niue	2002	38	15	
	Philippines	2003	41	8	
	Republic of Korea	1999	65	4	
	Samoa	1995	60	24	
	Singapore	2001	24	4	14
	Tonga	1998/2000	53	11	
	Vanuatu	1998	49	5	27
	Vietnam	2002/2003	35	2	

Notes: Adults: ages vary between countries, see source for details
Smokers defined: smoker, current smoker, current daily smoker or regular smoker

Source: World Health Organization (2005) *European Health for All* statistical database. <http://www.who.dk.bfadbf>;
World Health Organization (2005) *The Surf Report 2. Surveillance of chronic disease Risk Factors - Country-level data and comparable estimates.*

Figure 4.10a Prevalence of smoking, men, latest available data, 1995-2004, the World

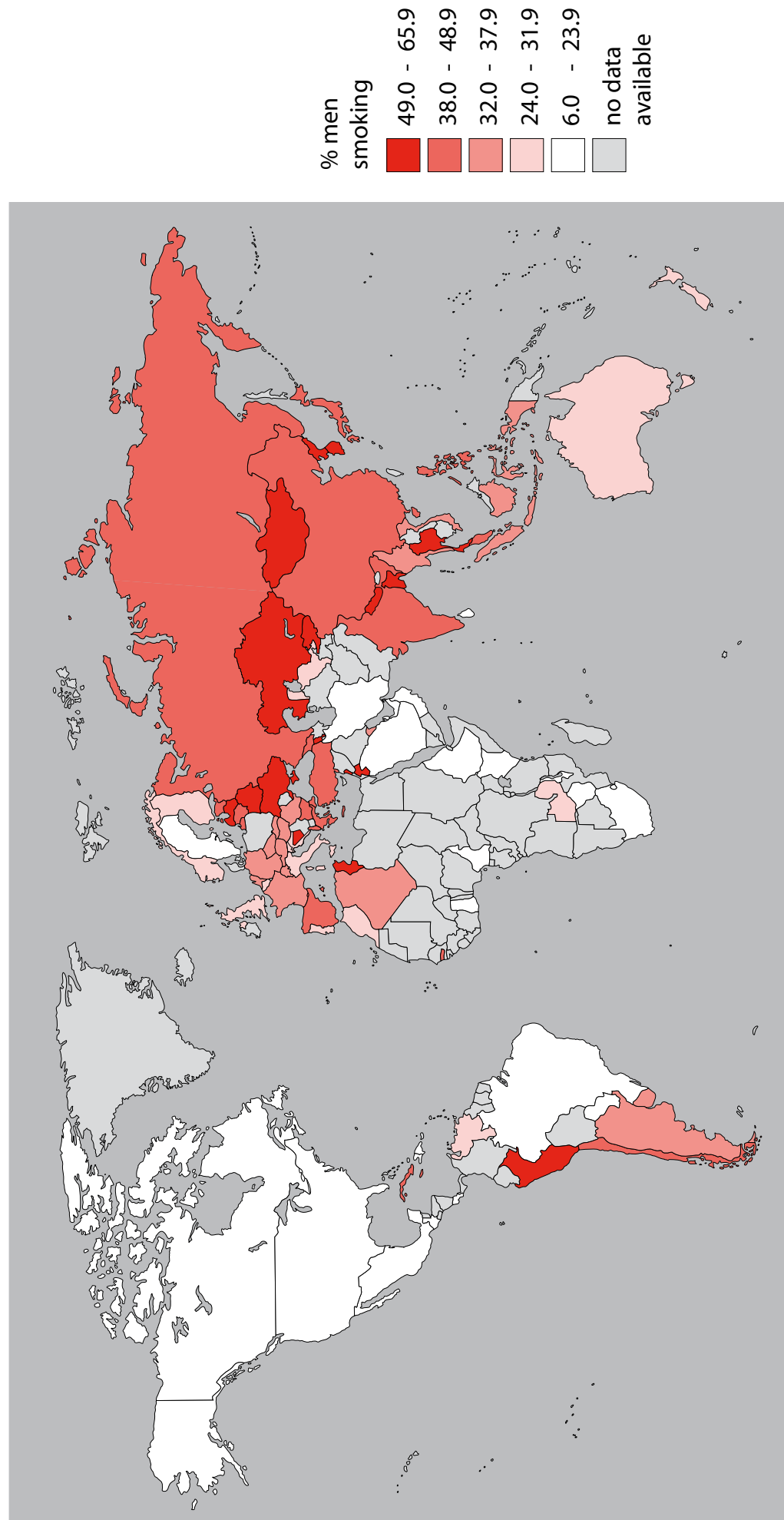


Figure 4.10b Prevalence of smoking, women, latest available data, 1995-2004, the World

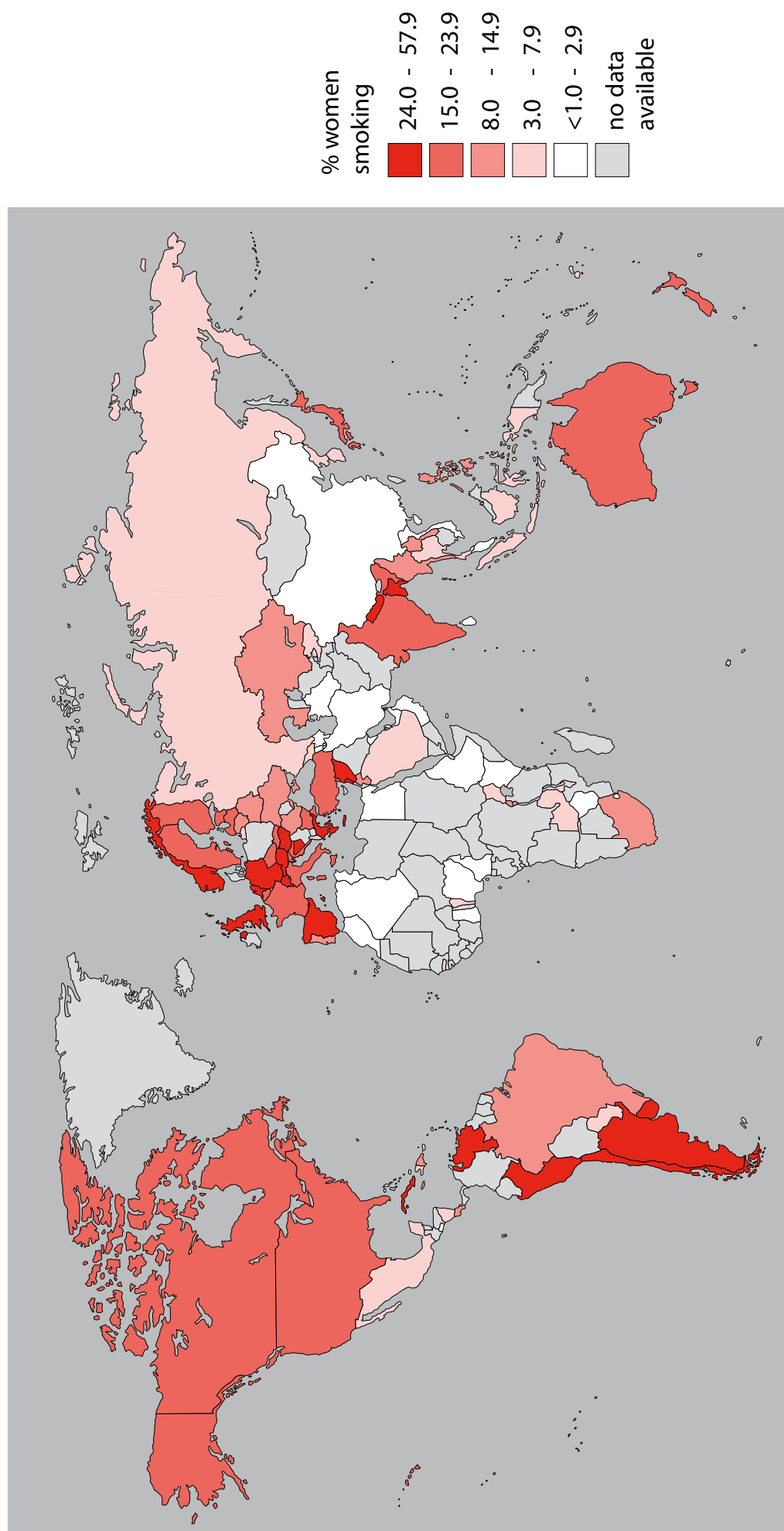


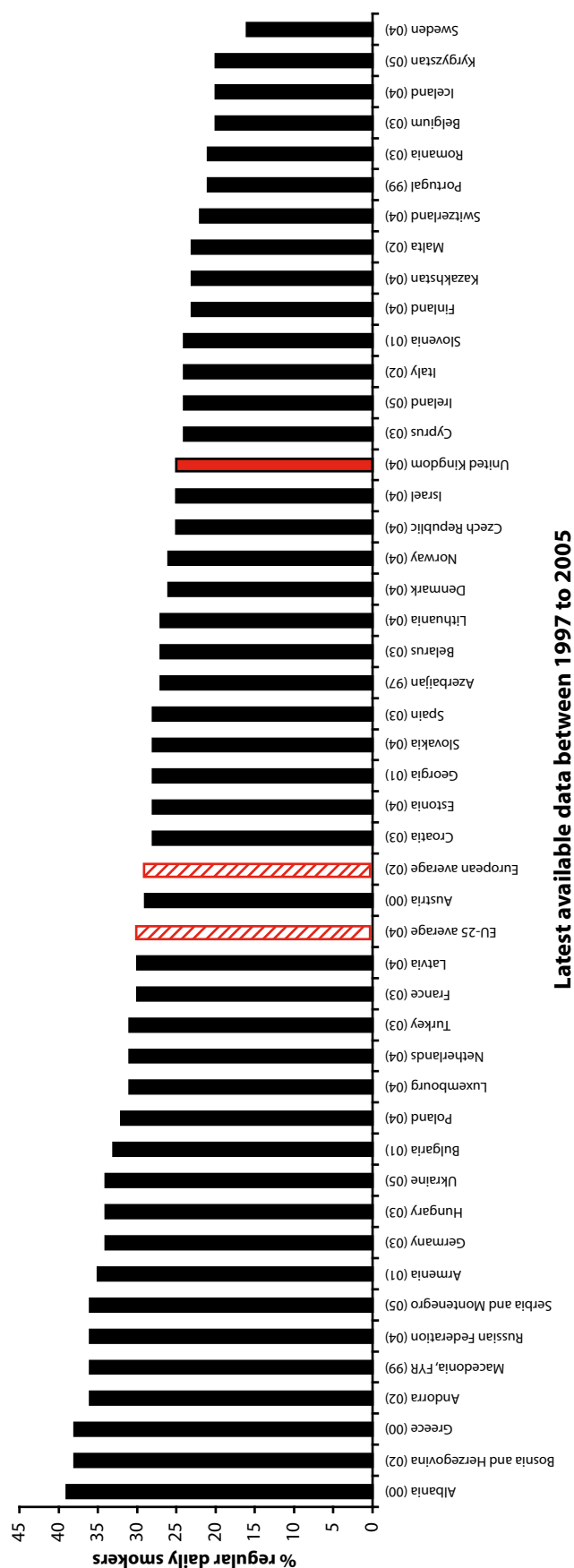
Table 4.11 *Percentage regular daily smokers by country, adults aged 15 and over, 1995 to 2005, selected European countries*

Countries	1995 %	1996 %	1997 %	1998 %	1999 %	2000 %	2001 %	2002 %	2003 %	2004 %	2005 %
Albania						39					
Andorra			36					36			
Armenia				29			35				
Austria	24		24			29					
Azerbaijan			27								
Belarus	28	28	26	27	26	27	26	27	27		
Belgium	28	30	26	27	29	30	28	27	20		
Bosnia and Herzegovina								38			
Bulgaria	34	36					33				
Croatia	33					30			28		
Cyprus			37						24		
Czech Republic		26			24	29	23	24	27	25	
Denmark	36	34	33	33	31	31	30	28	28	26	
Estonia		33		29		29		29		28	
Finland	24	22	24	25	23	23	24	23	22	23	
France		28				27		26	30		
Georgia				33			28				
Germany			37			36			34		
Greece	39					38					
Hungary	37				33	33			34		
Iceland	27	28	27	25	25	23	24	22	22	20	
Ireland	29			31				27		24	24
Israel	28	29	28	29		27		24	24	25	
Italy	26	26	25	25	25	24	24	24			
Kazakhstan		33				28	24			23	
Kyrgyzstan			32		30		25			20	20
Latvia				36	29			33		30	
Lithuania		28		28		32		28		27	
Luxembourg	28			32		30		30	33	31	
Macedonia, FYR					36						
Malta	24							23			
Netherlands	36	36	36	35	34	32	35	34	32	31	
Norway	33	33	33	33	32	31	30	29	26	26	
Poland		34				33		32		32	
Portugal		20			21						
Republic of Moldova						19	18	17	16	15	
Romania						21			21		
Russian Federation				36		35	35			36	
Serbia and Montenegro						40				36	36
Slovakia				32						28	
Slovenia		26			25		24				
Spain	34		33				32		28		
Sweden	23	22	19	19	19	19	19	18	18	16	
Switzerland			33				24	32		22	
Turkey									31		
Ukraine	35					34				26	36
United Kingdom	27	28		27		27	27	26	26	25	
Uzbekistan								13			
European average	31	31	30	30	30	30	30	29			
EU-25 average	30	31	30	30	30	32	31	30	31	30	

Source: World Health Organization (2006) *European Health for All* statistical database. <http://www.euro.who.int/hfad>.

Office for National Statistics (2005) *Living in Britain. Results from the 2004 General Household Survey*. The Stationery Office: London.

Figure 4.11 Percentage regular daily smokers by country, adults aged 15 years and over, latest year between 1997 and 2005, selected European countries



5. Diet

It is now universally recognised that a poor diet increases the risk of chronic diseases – particularly CVD and cancer. These risks are outlined in two World Health Organization reports: *Diet, nutrition and the prevention of chronic diseases*¹ and the more recent *Global strategy on diet, physical activity and health*² which emphasises the need to improve diets in individuals and populations across the world. The impact of poor diets on disease burden is considerable. The World Health Report 2002 estimated that just under 30% of CHD and almost 20% of stroke in developed countries was due to fruit and vegetable consumption levels below 600g/day³. The World Health Organization has yet to calculate the precise proportion of the disease burden due to other dietary factors such as high sodium intake or high saturated fat intake.

Different aspects of the diet impact on cardiovascular health in different ways. Energy imbalance (when total dietary energy intake exceeds the amount of energy expended through metabolism and physical activity, generally as a result of high intakes of fatty or sugary foods) leads to weight gain and consequently obesity. High saturated fat intake can raise cholesterol levels. High salt intakes can raise blood pressure levels. Low intakes of fibre, fruit and vegetables also lead to greater susceptibility to CVD.

Public health targets

The dietary changes which would help to reduce rates of CHD in the UK population were detailed in the 1994 report of the Government's Committee on the Medical Aspects of Food and Nutrition Policy (COMA)⁴. This recommended a reduction in fat intake (particularly saturated fat), sodium intake and an increase in fruit, vegetable and complex carbohydrate intake. In the 2003 report Salt and Health, the Scientific Advisory Committee on Nutrition (SACN) introduced additional guidance on reducing salt intake in children⁵.

The Government's dietary objectives were reiterated in Choosing a Better Diet: a food and health action plan in 2005⁶. In addition the devolved governments in Scotland and Wales issued their own objectives in 2004 and 2003 respectively^{7,8}. No targets have been set specifically for Northern Ireland (Table 5.1). Progress towards the targets for saturated fat, total fat, sugar, fibre and fruit and vegetable consumption has so far been limited, with little change in consumption levels over the last decade (Table 5.2 and Figures 5.2a and 5.2b).

Temporal trends

Data from the National Food Survey (up to 2000) and the more recent Expenditure and Food Survey allow us to look at general trends in the British diet over time. The percentage of total energy derived from total fat in the British diet is decreasing gradually, from around 40% in 1975 to just less than 37% in 2006. The proportion of total energy derived from saturated fat fell from around 19% in 1975 to less than 15% in 2006. Consumption of both non-milk extrinsic sugars (NME sugars)⁹ and fibre has not changed markedly in the last ten years (Table 5.2 and Figure 5.2a).

The trends in fat consumption may be associated with changes in food purchasing patterns.

Since the 1970s there have been falls in the consumption of many different types of foods with a relatively high total fat and saturated fat content, including whole milk and butter. There have also been increases in the consumption of foods which are relatively low in total fat and/or saturated fat such as reduced fat milks and spreads (Table 5.3 and Figures 5.3a and 5.3b).

Data from the Expenditure and Food Survey show that between 1975 and 2006 the combined consumption of fruit and vegetables rose slightly¹⁰. Data from the National Food Survey and the Expenditure and Food Survey suggest that the total consumption of fresh fruit has increased around fourfold since the early 1940s, but total consumption of fresh vegetables has declined (Table 5.3 and Figure 5.3c).

Overall levels of consumption – sex and age differences

The National Diet and Nutrition Survey (NDNS) seven-day food diary 2000/01 suggested that the percentage of food energy derived from fat was around 36% in men and 35% in women (compared to COMA's recommendation of 35%), and was just over 13% from saturated fat for men and women (compared to the recommendation of 11%). Both men and women consumed fewer than three portions of fruit and vegetables a day (Table 5.5). 13% of men and 15% of women consumed the recommended five or more portions of fruit and vegetables a day. Consumption increased with age: none of the men and just 4% of the women aged 19 to 24 years surveyed in the NDNS consumed five or more portions of fruit and vegetables, compared with 24% of men and 22% of women aged 50 to 64 years¹¹.

Data from 2000/01 suggest that the average daily salt intake was 11.0g for men and 8.1g for women (exceeding the SACN target of no more than 6g a day). More recent data from 2006 suggest that daily salt intake levels have decreased to around 10g for men and 7.5g for women. The more recent results should be viewed with caution due to the small sample sizes and low response rates that the surveys achieved (Table 5.4).

Children and young people

The 2006 Health Survey for England suggests that 19% of boys and 22% of girls aged 5 to 15 reported eating the recommended five portions of fruit and vegetables daily, nearly twice as many as in 2001 (Table 5.7).

In the UK school meals contribute significantly to the diets of children. Primary schools meals were found to be broadly in line with the Caroline Walker Trust guidelines¹² but secondary school meals failed to meet the guidelines for fat, saturated fat, non-milk extrinsic sugars and fibre (Table 5.8).

National and regional differences

The 2006 Expenditure and Food Survey shows that people in Northern Ireland, Scotland, Wales and the North of England consumed less fruit and vegetables than those in the South of England. People living in the South West consumed nearly 50% more fruit and vegetables (excluding potatoes) than people living in Northern Ireland. The 2006 Health Survey for England suggests that fruit and vegetable consumption is highest in the South East of England (including London) (Tables 5.6 and 5.9).

Socio-economic differences

The 2006 Expenditure and Food Survey suggests that there was little difference in the fat and saturated fat intake for different income quintiles but that more fruit and vegetables were consumed by those in the highest income quintile. The 2006 Health Survey for England found that the number of individuals consuming five portions of fruit and vegetables a day was over 50% higher in the highest income quintile than the lowest income quintile (Tables 5.6 and 5.10).

Fat and saturated fat levels of men and women on a low income were broadly similar to the general population, but non-milk extrinsic sugar levels were higher in the low income group, and fibre and fruit and vegetables intake levels were lower (Table 5.11).

Ethnic differences

Intake of saturated fat in Asian, Black and Chinese people was lower than for White people in 2006 (around 12% of food energy, compared to 14.5%). Salt consumption was below the target of 6g/day for Asian, Black and Chinese people. The consumption of non-milk extrinsic sugars was lowest in the Asian and Chinese ethnic groups (Table 5.12).

International differences

Data for 2003 from the World Health Organization show that the proportion of energy available from fat varied across European countries from 14% in Azerbaijan to 42% in France. The proportion of energy available from fat in UK diets (just over 35%) was lower than the EU-25 average of 37% but markedly higher than the European average of 32% (Table 5.13 and Figure 5.13a).

The availability¹³ of fruit and vegetables was generally higher in Southern European countries than Northern, Western, Central and Eastern European countries (Table 5.13 and Figure 5.13b).

1. World Health Organization (2003) *Diet, Nutrition and the prevention of chronic diseases. Report of a Joint AHO/FAO Expert Consultation.* World Health Organization: Geneva.
2. World Health Organization (2004) *Global strategy on diet and physical activity.* World Health Organization: Geneva.
3. World Health Organization (2002) *The World Health Report 2002. Reducing Risks, Promoting Healthy Life.* World Health Organization: Geneva.
4. Department of Health (1994) *Nutritional Aspects of Cardiovascular Disease. Report of the Cardiovascular Review Group of the Committee on Medical Aspects of Food Policy.* HMSO: London.
5. Scientific Advisory Committee on Nutrition (2003) *Salt and Health.* The Stationery Office: London. See www.sacn.gov.uk/pdfs/sacn_salt_final.pdf
6. Department of Health (2005) *Choosing a better diet: a food and health action plan.* Department of Health: London. See www.db.gov.uk/assetRoot/04/10/57/09/04105709.pdf
7. The Scottish Executive (2004). *Eating for health. Meeting the challenge.* The Scottish Executive: Edinburgh.
8. Food Standards Agency Wales (2003). *Food and well being: reducing inequalities through a nutrition strategy for Wales.* FSA Wales: Cardiff.
9. *Extrinsic sugars refer to sugars that are not contained within the cell walls of fruit, vegetables and plants. Non-milk extrinsic sugars refer to such sugars that are not naturally present in milk. Almost all sugar added to processed food consists of non-milk extrinsic sugars, which are more strongly associated with dental caries than all other sugars.*
10. *Food purchase data do not accurately describe food consumption patterns as not all food that is bought is consumed due to wastage. Levels of wastage may be different for different food types, so comparisons across food categories are tricky.*
11. Office of National Statistics (2003) *The National Diet and Nutrition Survey: adults aged 19 to 64 years. Volumes 1–4.* The Stationery Office: London.
12. Crawley, H. (2005). *Nutrient-based standards for school food: A summary of the standards and recommendations of the Caroline Walker Trust and the National Heart Forum.* The Caroline Walker Trust: St Austell. See <http://www.cwt.org.uk/pdfs/eatingwell.pdf>
13. *The WHO definition of food availability refers to the amount produced nationally plus imports minus exports.*

Table 5.1 *Selected dietary targets for the United Kingdom*

England¹	
Total fat	To maintain the average total intake of fat at 35% of food energy
Saturated fat	To reduce the average total intake of saturated fat to 11% of food energy
Fruit and vegetables	To increase the average consumption of a variety of fruit and vegetables to at least five portions per day
Fibre	To increase the average intake of dietary fibre to 18 grams per day
Sugar	To reduce the average intake of added sugar to 11% of food energy
Salt	To reduce the average intake of salt to 6 grams per day by 2010
Scotland^{2,3}	
Total fat	Average intake of total fat to reduce to no more than 35% of food energy
Saturated fat	Average intake of saturated fat to reduce to no more than 11% of food energy
Fruit and vegetables	Average intake to double to more than 400g per day
Oily fish	Oil-rich fish consumption to double from 44g per week to 88g per week
Total complex carbohydrates	Increase average non-sugar carbohydrates intake by 25% from 124g per day, through increased consumption of fruit and vegetables, bread, breakfast cereals, rice and pasta and through an increase of 25% in potato consumption
Sugar	Average intake of non-milk extrinsic sugars in adults not to increase Average intake of non-milk extrinsic sugars in children to reduce by half to less than 10% of total energy
Salt	Average intake to reduce to 100mmol per day
Wales⁴	
Total fat	35% of food energy
Saturated fat	10% of total energy
Fruit and vegetables	At least five portions per day
Starchy food	37% of total dietary intake
Sugar	Average intake of non-milk extrinsic sugars not to exceed 60g/day
Salt	Reduce average intake to 6 grams per day
Northern Ireland	
No targets set	

Source:

1. Department of Health (2005) *Choosing a Better Diet: a food and health action plan*. DH: London.
2. The Scottish Executive (2004) *Eating for Health. Meeting the challenge*. The Scottish Executive: Edinburgh
3. The Scottish Executive (2008). *Improving Health in Scotland: The Challenge*. The Scottish Executive: Edinburgh.
4. Food Standards Agency Wales (2003) *Food and well being: reducing inequalities through a nutrition strategy for Wales*. FSA Wales: Cardiff.

Table 5.2 *Consumption of total fat, saturated fat, salt, sugar, fibre and fruit and vegetables, adults aged 16 and over, 1975 to 2006, Great Britain*

<i>Consumption per person per day, total diet (i.e. including alcohol)</i>	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000	2001*	2002*	2003*	2004*	2005*	2006
Energy (kcal)	2,489	2,439	2,208	2,058	2,143	2,241	2,168	2,102	2,056	2,152	2,089	2,099	2,077	2,048	2,082	2,074
Energy (kJ)	10.4	10.3	9.3	8.6	9.0	9.4	9.1	8.8	8.6	9.0	8.8	8.8	8.7	8.6	8.8	8.7
Fat (g)	112	112	102	94	89	94	89	86	83	86	86	85	85	83	85	85
Fat (% total energy)	40.4	41.3	41.6	40.9	37.4	37.6	36.9	36.8	36.2	36.1	36.9	36.6	36.7	36.7	36.7	36.9
Saturated fat (g)	53.4	49.1	43.0	37.2	35.5	36.8	35.4	34.3	32.8	34.6	33.9	33.7	33.6	32.9	33.4	33.4
Saturated fat (% total energy)	19.3	18.1	17.5	16.3	14.9	14.8	14.7	14.7	14.4	14.5	14.6	14.4	14.6	14.5	14.4	14.5
Total sugars (g)	-	-	-	-	129	134	130	125	123	131	122	124	124	123	123	121
Non-milk extrinsic sugars (g)	-	-	-	-	87	91	88	84	82	88	81	82	82	80	79	77
Non-milk extrinsic sugars (% total energy)	-	-	-	-	15.2	15.2	15.2	15.0	15.0	15.3	14.5	14.7	14.7	14.7	14.2	13.9
Non-starch polysaccharide fibre (g)	-	-	-	-	12.8	13.7	13.6	13.4	13.2	13.9	13.3	13.5	13.1	13.2	13.8	13.8
Sodium (g)	-	-	2.8	2.7	2.8	2.9	2.9	2.8	2.8	2.9	2.9	2.8	2.7	2.7	2.7	2.6
Salt (g)	-	-	7.0	6.8	7.0	7.3	7.2	7.0	7.0	7.3	7.2	7.0	6.9	6.8	6.9	6.5
Purchase per person per week																
Fruit and vegetables (excluding potatoes) (g)	1,818	2,059	2,018	2,164	2,254	2,334	2,369	2,329	2,322	2,381	2,248	2,306	2,269	2,274	2,448	2,454

Notes: Data pre-1996 are unadjusted National Food Survey data. 2001/02 data onwards are Expenditure and Food Survey data. 1996 to 2000 data are adjusted estimates from the National Food Survey.

Because of the discontinuity between datasets, these trends need to be interpreted with caution. Consumption assumed from purchase data, and applies to food consumed in the household only.

For years followed by asterisks the data were collected for the financial year starting in the April of the year indicated.

Source: Office for National Statistics (2008) Family Food in 2006. The Stationery Office: London and previous editions.

Department for Environment, Food and Rural Affairs (2003) National Food Survey 2000. The Stationery Office: London and previous editions.

Figure 5.2a Consumption of total fat, saturated fat and NME sugars, adults aged 16 and over, 1975 to 2006, Great Britain, with “Choosing a Better Diet” targets

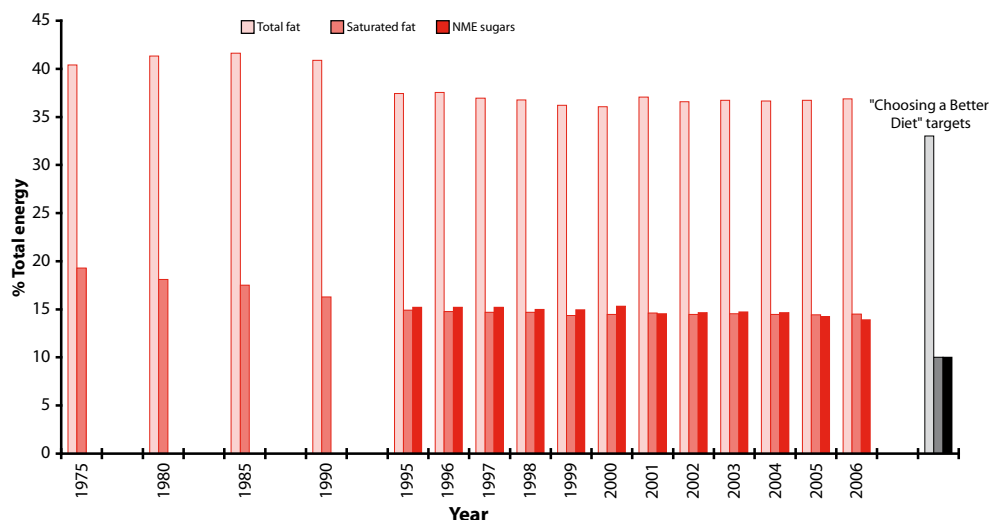


Figure 5.2b Consumption of fruit and vegetables, adults aged 16 and over, 1975 to 2006, Great Britain, with 5-a-day benchmark

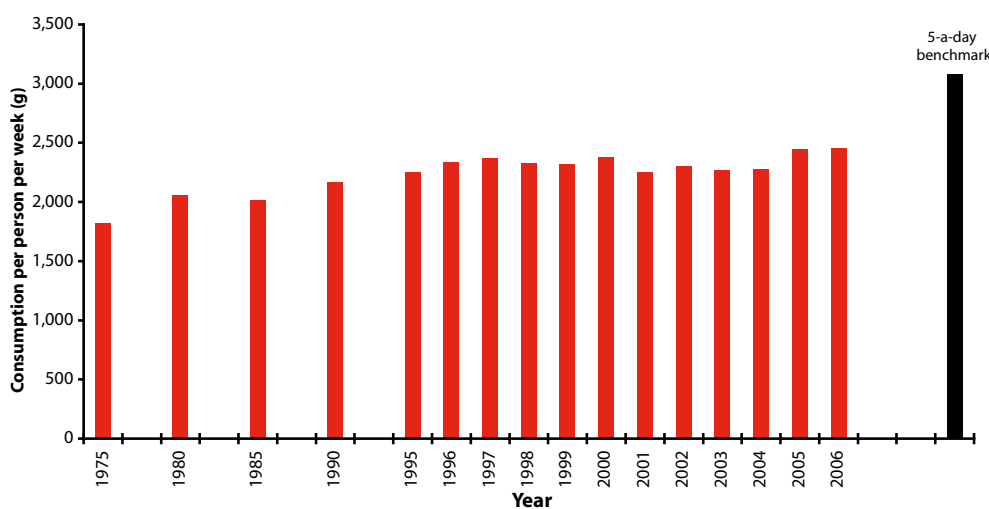


Table 5.3 *Consumption of selected foods, adults aged 16 and over, 1942 to 2006, United Kingdom*

	1942	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2006
<i>Litres per person per week</i>															
Liquid wholemilk	1.98	2.34	2.72	2.73	2.75	2.76	2.63	2.71	2.37	1.90	1.24	0.82	0.68	0.48	0.49
Skimmed milks								0.01	0.02	0.25	0.73	1.12	1.16	1.17	1.14
Yoghurt								0.03	0.06	0.08	0.11	0.15	0.16	0.20	0.20
Total milk and cream	2.14	2.52	2.94	2.89	2.92	2.95	2.89	2.98	2.68	2.41	2.23	2.24	2.16	2.03	2.02
<i>Number per person per week</i>															
Eggs	1.4	3.0	3.5	4.2	4.6	4.8	4.7	3.8	3.4	2.9	2.0	1.7	1.6	1.6	1.5
<i>Grams per person per week</i>															
Natural cheese				70	75	81	92	99	103	103	105	98	97	104	103
Processed cheese				10	11	10	10	8	6	7	9	10	12	12	13
Total cheese	101	71	72	80	86	91	102	107	110	111	113	108	109	116	116
Oranges and other citrus fruits		75	93	108	124	122	142	143	153	119	136	136	137	151	145
Apples and pears			201	190	230	231	234	219	260	235	249	233	235	226	229
Bananas			37	83	96	101	85	85	91	83	130	184	214	225	226
Total fresh fruit	197	318	409	457	522	533	543	511	608	540	624	693	765	856	855
Fruit juice (ml)			7	8	14	19	17	42	97	165	225	272	332	350	366
Other fruit			97	156	162	173	163	185	152	120	113	103	92	86	92
Total fruit	197	318	513	621	698	725	723	738	857	825	962	1,068	1,189	1,292	1,313
Fresh green vegetables	438	517	392	415	430	407	372	341	366	287	287	233	246	235	221
Other fresh vegetables	450	442	433	415	427	406	394	405	466	461	475	486	506	567	566
Total fresh vegetables (excludes potatoes)	888	959	825	830	857	813	766	746	832	748	762	719	752	802	787
All processed vegetables (includes frozen & canned)	136	188	214	224	260	304	382	506	554	625	638	697	671	567	609
Fresh potatoes	1,877	1,863	1,759	1,698	1,588	1,509	1,470	1,257	1,176	1,175	1,008	810	727	587	565
Bread	1,718	1,752	1,637	1,563	1,289	1,151	1,080	1,029	949	947	859	818	782	701	692
Flour	181	176	206	243	192	173	161	156	169	121	95	60	69	60	54
Cakes, buns and pastries			190	158	179	191	161	173	153	141	146	173	187	168	165
Biscuits (includes crispbreads)	74	82	104	145	161	165	163	211	205	198	199	181	189	165	165
Breakfast cereals	23	26	40	48	51	56	78	82	94	109	121	127	135	135	135
Total cereals (excludes breads)	593	672	678	706	711	729	711	649	655	638	692	775	846	865	861
Bread and cereal products	2,310	2,424	2,315	2,269	2,000	1,880	1,791	1,678	1,604	1,585	1,551	1,593	1,628	1,566	1,553
Sugar	238	259	287	500	503	498	480	394	392	294	211	169	130	94	92
Preserves	140	155	179	116	91	85	73	76	63	58	52	43	37	35	34
Tea			61	79	79	74	73	66	62	53	46	42	36	33	30
Coffee			6	10	11	12	16	19	20	21	19	18	16	17	16
Total beverages			77	100	101	98	102	103	99	90	84	74	70	57	55
Fresh white fish			89	90	67	64	50	37	32	28	24	20	15	19	20
Fresh fatty fish			16	11	9	7	6	5	7	7	8	10	11	18	18
Shell fish			3	3	3	2	1	2	3	4	5	6	6	12	13
Takeaway fish			29	23	24	28	29	18	20	16	15	14	7	10	10
Total fish and fish products	187	261	188	169	166	164	152	128	137	140	147	147	144	167	170
Salt					26	25	28	25	32	27	15	13	9	11	8
Butter	56	61	129	127	161	173	170	147	106	74	42	34	37	38	40
Margarine	118	119	112	133	104	86	81	78	115	113	96	43	22	20	18
Low fat spreads										14	27	27	22	16	13
Reduced fat spreads											20	48	50	39	43
Lard 50		43	56	62	58	60	63	62	57	45	25	14	7	4	4
Total fats	245	245	329	337	339	336	339	315	324	293	265	227	193	183	184
Beef and veal	230	179	228	265	248	229	221	215	208	167	134	109	113	120	128
Mutton and lamb	150	173	154	186	188	167	149	119	128	92	82	54	54	53	54
Pork 11		40	9	66	57	79	80	79	118	98	84	71	68	52	55
Bacon and ham	112	100	128	172	175	179	177	137	145	132	115	111	109	112	111
Poultry			10	14	50	100	143	160	170	177	204	217	235	260	255
Sausages	113	110	114	99	103	106	106	99	100	92	74	68	66	64	65
Total meat and meat products	746	746	846	976	1,017	1,066	1,121	1,055	1,160	1,069	999	986	1,014	1,046	1,042
Soft drinks, low calorie (ml)												504	516	442	534
Soft drinks, not low calorie (ml)												1,150	1,184	1,276	1,273
Total soft drinks (ml)												1,654	1,699	1,718	1,807
Chocolate bars												87	113	84	84
Confectionery												125	151	123	123

Notes: Figures differ from actual food and drink consumption for a number of reasons e.g. food may be discarded during food preparation (e.g. vegetable peelings), food may be left on the plate at the end of a meal or food may become inedible before it can be consumed and is therefore thrown away.
Data for 1942 to 1970 from non-adjusted National Food Survey (GB only). Data for 1975 to 1995 from adjusted National Food Survey (GB only).
Data for 1996 to 2000 from adjusted National Food Survey (UK). Data for 2005 onwards from Expenditure and Food Survey (UK). Because of the discontinuity between datasets, these trends need to be interpreted with caution.

Source: Office for National Statistics (2008) Family Food in 2006. The Stationery Office: London and previous editions.
Department for Environment, Food and Rural Affairs (2001) National Food Survey 2000. The Stationery Office: London, and previous editions.

Figure 5.3a Consumption of fats, adults aged 16 and over, 1942 to 2006, United Kingdom



Figure 5.3b Consumption of milk and milk products, adults aged 16 and over, 1942 to 2006, United Kingdom

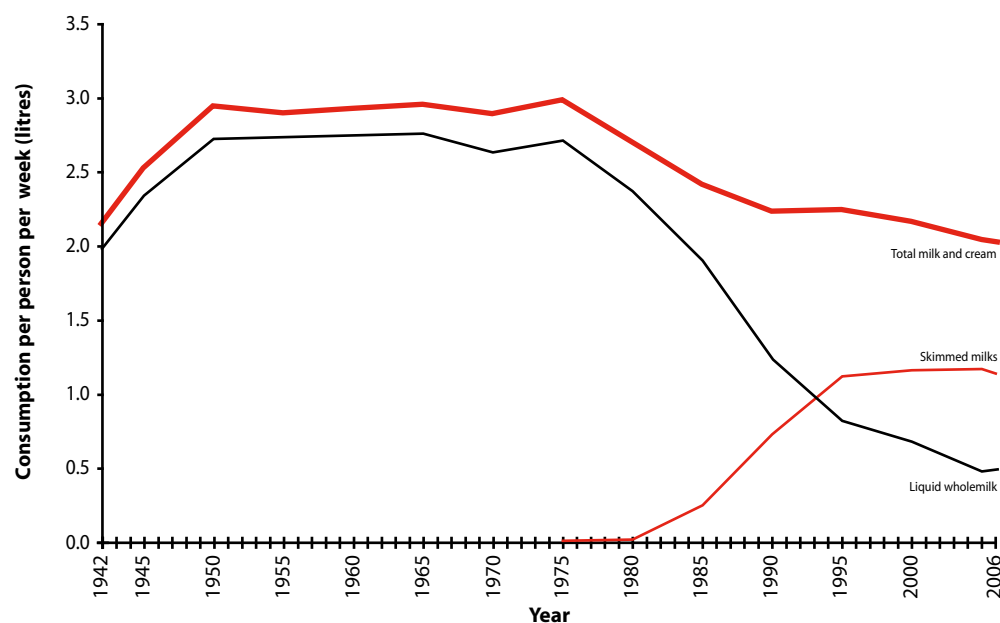


Figure 5.3c Consumption of fresh fruit and vegetables, adults aged 16 and over, 1942 to 2006, United Kingdom

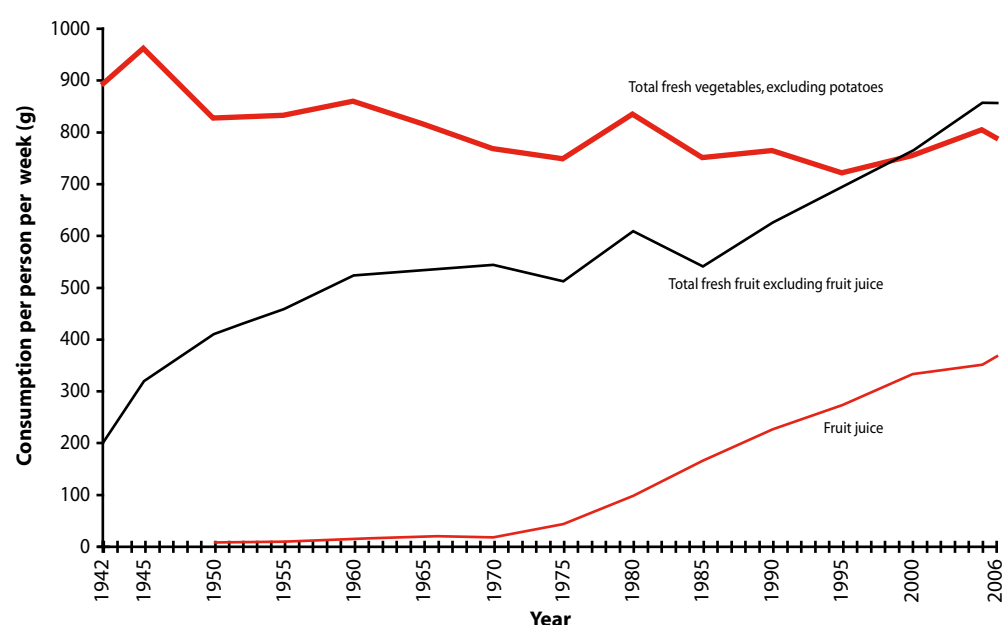


Table 5.4 Consumption of salt, adults aged 16 and over, 2000/01, Great Britain, and 2006, England, Scotland and Wales

	MEN					WOMEN				
	19-24	25-34	35-49	50-64	All ages	19-24	25-34	35-49	50-64	All ages
Great Britain, 2000/01										
Mean salt consumption (g/day)	11.0	11.4	11.1	10.5	11.0	9.1	8.7	8.0	7.5	8.1
% exceeding recommended daily consumption	98	80	87	82	85	83	71	69	62	69
Base	62	152	170	183	567	60	129	203	187	580
England, 2006										
Mean salt consumption (g/day)	11.0	9.9	10.1	10.2	10.2	7.0	8.8	7.9	6.8	7.7
% exceeding recommended daily consumption	100	85	88	89	89	85	84	72	57	70
Base	13	20	67	88	188	6	43	99	112	262
Scotland, 2006										
Mean salt consumption (g/day)	12.0	9.7	11.3	9.6	10.6	7.5	8.1	7.7	7.2	7.6
% exceeding recommended daily consumption	100	78	87	81	85	47	71	63	68	65
Base	5	18	76	96	195	7	22	105	113	247
Wales, 2006										
Mean salt consumption (g/day)	12.4	9.4	9.0	8.6	9.4	6.3	7.8	6.8	6.4	6.8
% exceeding recommended daily consumption	89	83	80	81	82	56	64	60	48	57
Base	6	19	64	66	155	6	38	89	119	252

Notes: The recommended daily consumption of salt for both men and women is 6g per day or less. The 2006 estimates should be viewed with caution due to poor survey response rates.
Salt consumption based on 24 hour urine collection.

Source: Office for National Statistics (2003) *The National Diet and Nutrition Survey: adults aged 19 to 64 years*. The Stationery Office: London.
Joint Health Surveys Unit (2006) *An assessment of dietary sodium levels among adults (aged 19-64) in the general population, based on analysis of dietary sodium in 24 hour urine samples*. Food Standards Agency: London.
Joint Health Surveys Unit (2007) *A survey of 24 hour and spot urinary sodium and potassium excretion in a representative sample of the Scottish population*. Food Standards Agency: London.
Joint Health Surveys Unit (2007) *An assessment of dietary sodium levels among adults (aged 19-64) in the general population in Wales, based on analysis of dietary sodium in 24 hour urine samples*. Food Standards Agency: London.

Table 5.5 *Food energy from fat and saturated fat, and consumption of fruit and vegetables, by sex and age, 2000/01, Great Britain*

	MEN					WOMEN				
<i>Percentage of food energy, total fat</i>	19-24	25-34	35-49	50-64	All	19-24	25-34	35-49	50-64	All
Mean	36.0	35.8	35.9	35.6	35.8	35.5	35.4	34.7	34.5	34.9
% exceeding recommended daily consumption	54	56	60	55	57	51	55	51	44	50
<i>Percentage of food energy, saturated fat</i>										
Mean	13.5	13.2	13.5	13.4	13.4	12.9	13.2	13.2	13.3	13.2
% exceeding recommended daily consumption	86	92	88	87	88	82	84	84	80	83
<i>Daily number of portions of fruit and vegetables consumed</i>										
Mean	1.3	2.2	3.0	3.6	2.7	1.8	2.4	2.9	3.8	2.9
% eating recommended 5 or more portions a day	0	7	14	24	13	4	9	17	22	15
Base	108	219	253	253	833	104	210	318	259	891

Notes: Data are weighted for non-response.

Source: Office for National Statistics (2002) *The National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 1. Types and quantities of foods consumed.* The Stationery Office: London.

Office for National Statistics (2003) *The National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 2. Energy, protein, carbohydrate, fat and alcohol intake.* The Stationery Office: London.

Figure 5.5 *Percentage of adults failing to meet daily recommended consumption targets for fruit and vegetables and saturated fat by sex and age, 2000/01, Great Britain*

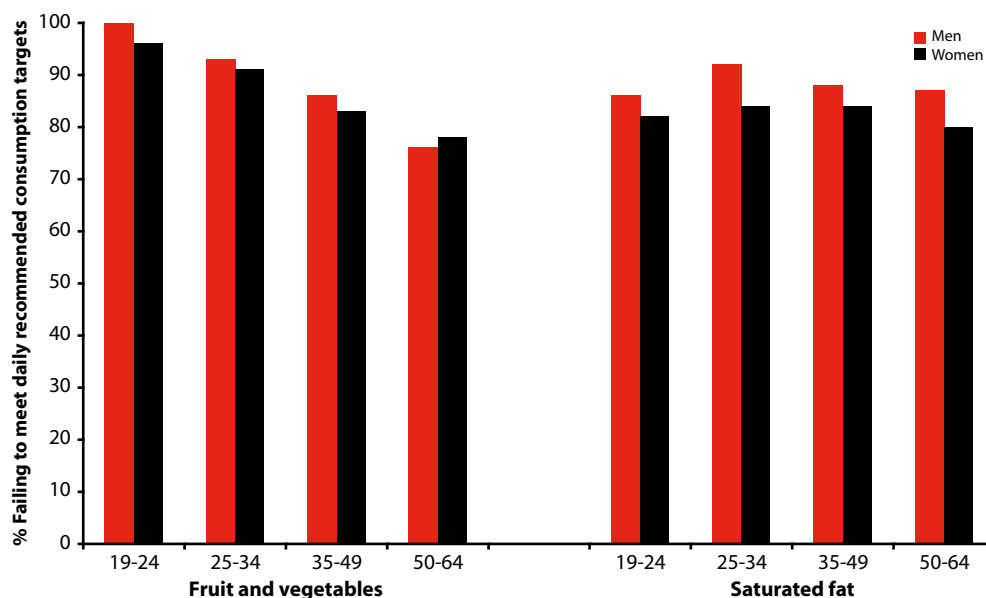


Table 5.6 *Consumption of five portions of fruit and vegetables per day by sex, age, Government Office Region and equivalised household income, adults aged 16 and over, 2006, England*

Consumption of 5 or more portions of fruit and vegetables per day		All ages %	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %	
MEN		28	19	27	29	30	32	31	29	
WOMEN		32	22	31	33	35	39	33	25	
Unweighted base - men		6,321	649	861	1,182	1,050	1,126	852	601	
Unweighted base - women		7,817	794	1,148	1,494	1,279	1,269	933	900	
Consumption of 5 or more portions of fruit and vegetables per day		North East %	North West %	Yorkshire & the Humber %	East Midlands %	West Midlands %	East of England %	London %	South West %	South East %
MEN		25	25	22	28	26	29	38	23	28
WOMEN		23	28	26	32	29	32	42	31	34
Unweighted base - men		334	945	647	618	662	733	735	593	1,054
Unweighted base - women		435	1,152	823	774	869	848	833	790	1,293
Consumption of 5 or more portions of fruit and vegetables per day		Highest income quintile %			2nd quintile %	3rd quintile %	4th quintile %	Lowest income quintile %		
MEN		36			29	25	20	22		
WOMEN		38			36	33	25	23		
Unweighted base - men		1,195			1,141	1,054	933	779		
Unweighted base - women		1,219			1,267	1,296	1,387	1,076		

Notes: Data are weighted for non-response. Weighted bases are available from the original source document.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 5.7 *Consumption of fruit and vegetables by sex and age, children aged 5 to 15, 2001 to 2006, England*

MALES	AGE (YEARS)	5	6	7	8	9	10	11	12	13	14	15	Total
<i>Mean number of portions per day</i>	2001	2.4	2.5	2.1	2.3	2.3	2.4	2.5	2.1	2.3	2.9	2.7	2.4
	2002	2.6	2.4	2.5	2.4	2.4	2.4	2.5	2.7	2.5	2.7	2.5	2.5
	2003	2.7	2.2	2.4	2.2	2.6	2.6	2.3	2.3	2.2	2.4	2.3	2.4
	2004	2.8	2.7	2.4	2.7	2.9	2.5	2.8	2.9	2.4	2.7	3.2	2.7
	2005	3.0	3.0	3.6	2.8	3.1	3.1	2.7	3.4	3.6	2.6	2.7	3.1
	2006	3.6	3.2	3.2	3.0	3.3	3.1	2.9	3.1	3.1	2.9	3.1	3.1
<i>% consuming 5 or more portions per day</i>	2001	9	11	9	8	11	13	12	7	13	15	18	11
	2002	12	10	10	10	9	10	12	15	12	15	14	12
	2003	9	4	11	6	11	14	10	10	9	11	11	10
	2004	9	10	8	7	14	10	13	20	19	8	23	13
	2005	18	18	18	14	23	21	7	20	22	16	13	17
	2006	23	20	20	17	18	18	15	20	21	16	19	19
<i>Unweighted base</i>	2001	139	137	128	138	143	127	143	144	144	124	131	1,498
	2002	287	304	336	317	296	331	322	299	290	309	275	3,367
	2003	105	130	122	119	110	128	110	128	117	116	116	1,301
	2004	56	63	52	61	63	61	43	61	59	52	50	621
	2005	89	83	89	102	115	84	97	96	87	86	80	1,010
	2006	253	208	247	182	265	244	222	231	231	239	214	2,536
FEMALES	AGE (YEARS)	5	6	7	8	9	10	11	12	13	14	15	Total
<i>Mean number of portions per day</i>	2001	2.4	2.4	2.2	2.7	2.4	2.6	2.8	2.9	2.9	2.6	2.8	2.6
	2002	2.6	2.5	2.7	2.5	2.6	2.6	2.7	2.6	2.5	2.9	2.8	2.6
	2003	2.5	2.6	2.4	2.6	2.2	2.3	2.5	2.9	2.6	2.9	2.7	2.6
	2004	2.8	2.9	2.1	3.1	2.7	2.6	2.6	3.0	3.0	2.5	2.4	2.7
	2005	3.4	3.2	2.9	3.3	3.1	2.8	3.1	3.3	3.1	2.6	3.1	3.1
	2006	3.5	3.2	3.3	3.3	3.5	3.3	3.3	3.3	3.2	3.2	3.6	3.4
<i>% consuming 5 or more portions per day</i>	2001	8	8	7	12	9	12	14	13	12	9	13	11
	2002	11	9	13	11	10	11	13	13	11	15	14	12
	2003	13	11	6	14	5	6	12	16	12	19	15	12
	2004	10	9	2	18	9	19	6	19	19	6	12	12
	2005	24	16	10	21	17	12	17	23	15	10	19	17
	2006	19	19	20	19	24	20	21	23	20	25	27	22
<i>Unweighted base</i>	2001	147	125	146	154	146	160	149	128	132	131	142	1,560
	2002	301	296	298	300	300	281	310	304	296	280	270	3,236
	2003	123	112	118	118	126	128	122	128	128	127	112	1,342
	2004	39	48	44	66	35	52	45	57	53	56	56	552
	2005	95	102	93	75	89	97	108	99	81	94	95	1,027
	2006	217	229	263	241	233	224	247	221	234	210	217	2,536

Notes: Data are weighted for child selection, but not for non-response. Comparisons over time should be made with caution, due to the relatively low sample size in 2004.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Updating of trend tables. Leeds: The Information Centre.

Table 5.8 Consumption of energy, fat, saturated fat, sugar, sodium and fibre from school meals in primary and secondary schools, by sex, children aged 4 to 18, 2003 and 2005, England

<i>Nutrient per meal</i>	CHILDREN (AGED 4-12)		BOYS (AGED 11-18)		GIRLS (AGED 11-18)	
	Mean	CWT guideline	Mean	CWT guideline	Mean	CWT guideline
Energy (kcal)	469	489	678	705	596	574
Fat (g)	18.8		32.1		27.9	
Fat (% energy)	35.2	<35.0	41.5	<35.0	40.8	<35.0
Saturated fat (g)	6.6		10.5		9.4	
Saturated fat (% energy)	12.3	<11.0	13.4	<11.0	13.7	<11.0
Non-milk extrinsic sugars (g)	14.1		23.4		21.2	
Non-milk extrinsic sugars (% energy)	11.1	<11.0	13.4	<11.0	13.6	<11.0
Sodium (mg)	699		1059		906	
Non-starch polysaccharide fibre (g)	4.1	3.9	4.0	5.6	3.7	4.6
Unweighted base	3,035		2,534		3,161	

Notes: CWT guidelines refer to the Caroline Walker Trust guidelines for school meals. The guidelines provide figures for the recommended nutrient content of an average school meal provided for children over a one-week period. Data comes from a nationally representative sample of 151 primary schools and 79 secondary schools in England.

Source: Nelson M, Nicholas J, Suleiman S, Davies O, Prior G, Hall L, Wreford S, Poulter J (2006). *School meals in primary schools in England*. Department for Education and Skills: London.

Nelson M, Bradbury J, Poulter J, McGee A, Msebele S, Jarvis L (2004). *School meals in secondary schools in England*. Department for Education and Skills: London.

Table 5.9 *Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, by country of the United Kingdom, and by Government Office Region in England, 2004 to 2006, United Kingdom*

Consumption per person per day	Government Office Region in England													
	UK country	ENGLAND	SCOTLAND	WALES	NORTHERN IRELAND	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East	London	South East	South West
Energy (kcal)	2,352	2,326		2,381	2,387	2,355	2,338	2,334	2,448	2,322	2,402	2,236	2,371	2,422
Energy (kJ)	9.9	9.8		10.0	10.0	9.9	9.8	9.8	10.3	9.8	10.1	9.4	10.0	10.2
Fat (g)	97	98		97	98	98	95	96	101	94	99	93	99	100
Fat (% total energy)	37.1	37.9		36.7	37.0	37.5	36.6	37.0	37.1	36.4	37.1	37.4	37.6	37.2
Saturated fat (g)	37.1	37.4		37.6	38.1	38.3	36.4	37.1	38.6	36.4	38.5	33.3	38.3	38.9
Saturated fat (% total energy)	14.2	14.5		14.2	14.4	14.6	14.0	14.3	14.2	14.1	14.4	13.4	14.5	14.5
Total sugars (g)	134	134		138	132	133	130	133	142	36	139	121	136	141
Non-milk extrinsic sugars (g)	88	90		93	88	89	85	89	94	91	90	77	88	91
Non-milk extrinsic sugars (% total energy)	14.0	14.5		14.6	13.8	14.2	13.6	14.3	14.4	14.7	14.1	12.9	13.9	14.1
Non-starch polysaccharide fibre (g)	15.4	14.5		15.2	15.4	14.8	14.9	14.9	16.0	14.9	16.0	15.2	15.8	16.3
Sodium (g)	3.0	3.1		3.1	3.1	3.2	3.3	3.1	3.2	3.1	3.2	2.7	3.3	3.3
Salt (g)	7.6	7.9		7.9	7.9	7.9	8.4	7.7	8.0	7.7	8.0	6.8	8.3	8.2
Purchase per person per week														
Fruit (g)	1,286	1,137		1,137	1,024	1,025	1,138	1,124	1,265	1,164	1,426	1,390	1,413	1,403
Vegetables (g)	1,165	926		1,077	873	1,058	1,033	1,050	1,225	1,091	1,192	1,237	1,235	1,288

Notes: Sodium intake does not include sodium from table salt. Salt intake = sodium x 2.52. Consumption assumed from purchase data.

Source: Office for National Statistics (2008) Family Food in 2006. The Stationery Office: London.

Table 5.10 *Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, by income quintile, 2004 to 2006, United Kingdom*

<i>Consumption per person per day total diet (i.e. including alcohol)</i>	Quintile 1 (Lowest income)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (Highest income)
Energy (kcal)	2,382	2,409	2,342	2,312	2,318
Energy (kJ)	10.0	10.1	9.8	9.7	9.7
Fat (g)	100	100	96	94	95
Fat (% total energy)	37.8	37.4	36.9	36.6	36.9
Saturated fat (g)	38.4	38.6	37.0	36.2	36.2
Saturated fat (% total energy)	14.5	14.4	14.2	14.1	14.1
Total sugars (g)	138	139	135	131	130
Non-milk extrinsic sugars (g)	91	91	90	87	83
Non-milk extrinsic sugars (% total energy)	14.3	14.2	14.4	14.1	13.4
Non-starch polysaccharide fibre (g)	15.3	15.6	15.0	15.1	15.8
Sodium (g)	3.0	3.0	3.0	3.0	3.0
Salt (g)	7.5	7.6	7.6	7.6	7.7
<i>Purchase per person per week</i>					
Fruit (g)	1,183	1,210	1,176	1,198	1,449
Vegetables (g)	1,084	1,151	1,099	1,102	1,199

Notes: Sodium intake does not include sodium from table salt. Salt intake = sodium x 2.52. Consumption assumed from purchase data.

Source: Office for National Statistics (2008) *Family Food in 2006*. The Stationery Office: London.

Table 5.11 *Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, low income versus general population, adults aged 19 to 64, 2004, United Kingdom*

<i>Consumption per person per day</i>	Men Low income	General population	Women Low income	General population
Energy (MJ)	9.07	9.72	6.63	6.87
Fat (g)	82.9	86.5	60.9	61.4
Fat (% food energy)	35.9	35.8	35.1	34.9
Saturated fat (g)	31.2	32.5	23.4	23.3
Saturated fat (% food energy)	13.4	13.4	13.4	13.2
Total sugars (g)	115	118	87	88
Non-milk extrinsic sugars (g)	82	79	57	51
Non-milk extrinsic sugars (% food energy)	15.2	13.6	13.5	11.9
Non-starch polysaccharide fibre (g)	12.8	15.2	10.7	12.6
Sodium (g)	3.0	3.3	2.1	2.3
Salt (g)	7.6	8.3	5.4	5.8
Fruit (portions/day)	0.8	1.3	0.9	1.5
Vegetables (portions/day)	1.2	1.4	1.2	1.4
Base	678	766	1,313	958

Notes: General population data taken from the National Diet and Nutrition Survey from 2000/01. Data from the low income survey were collected by four day 24 hour recall.

Data from the general population survey were collected by seven day weighed food diary. Because of the differences in data collection techniques, comparisons between the surveys should be made with caution.

Source: Nelson M, Erens B, Bates B, Church S, Boshier T (2007) *Low income diet and nutrition survey*. London: The Stationery Office.

Table 5.12 *Consumption of energy, fat, saturated fat, sugar, salt, fibre and fruit and vegetables, by ethnic group, 2004 to 2006, United Kingdom*

<i>Consumption per person per day</i>	Asian/ Asian British	Black/ Black British	Chinese and others	Mixed	White
Energy (kcal)	2,193	2,024	2,047	2,252	2,370
Energy (kJ)	9.2	8.5	8.6	9.5	10.0
Fat (g)	94	81	86	96	98
Fat (% total energy)	38.6	36.0	37.8	38.4	37.2
Saturated fat (g)	30.1	25.9	27.9	33.2	37.9
Saturated fat (% total energy)	12.4	11.5	12.3	13.3	14.4
Total sugars (g)	107	115	99	124	136
Non-milk extrinsic sugars (g)	66	78	60	86	90
Non-milk extrinsic sugars (% total energy)	11.3	14.5	11.0	14.3	14.2
Non-starch polysaccharide fibre (g)	13.9	13.4	13.7	14.3	15.5
Sodium (g)	1.8	2.0	2.0	2.8	3.1
Salt (g)	4.5	5.1	5.1	7.0	7.9
<i>Purchase per person per week</i>					
Fruit (g)	1,158	1,495	1,330	1,343	1,270
Vegetables (g)	1,153	1,105	1,203	1,030	1,140

Notes: Sodium intake does not include sodium from table salt. Salt intake = sodium x 2.52. Consumption assumed from purchase data.

Source: Office for National Statistics (2008) *Family Food in 2006*. The Stationery Office: London.

Table 5.13 *Total energy available from fat and availability of fruit and vegetables by country, 2003, Europe*

	% energy from fat	fruit and veg per person per year (kg)		% energy from fat	fruit and veg per person per year (kg)
Albania	27.1	264.4	Lithuania	27.9	168.5
Armenia	19.6	237.6	Luxembourg	40.3	199.5
Austria	38.8	227.6	FYR Macedonia	29.6	235.7
Azerbaijan	14.0	192.0	Malta	28.1	243.1
Belarus	29.5	155.0	Netherlands	36.0	255.5
Belgium	40.3	199.5	Norway	37.2	190.7
Bosnia and Herzegovina	18.0	225.3	Poland	29.8	147.9
Bulgaria	30.1	190.1	Portugal	34.2	297.2
Croatia	28.7	199.8	Republic of Moldova	18.4	153.9
Cyprus	36.3	278.5	Romania	26.3	244.3
Czech Republic	31.2	151.4	Russia	24.7	144.8
Denmark	35.9	248.7	Serbia	39.5	224.2
Estonia	27.4	174.4	Slovakia	33.5	129.7
Finland	36.2	162.6	Slovenia	32.4	215.4
France	41.8	238.4	Spain	41.2	256.0
Georgia	18.1	142.4	Sweden	35.5	193.6
Germany	36.7	203.7	Switzerland	40.1	201.1
Greece	35.6	422.7	Tajikistan	19.1	84.5
Hungary *	38.0	176.3	Turkey	24.7	338.1
Iceland *	36.2	167.7	Turkmenistan	23.0	136.1
Ireland *	32.6	182.9	Ukraine	24.1	152.4
Israel *	34.1	336.4	United Kingdom	35.1	207.4
Italy	38.2	309.3	Uzbekistan	25.0	146.4
Kazakhstan	25.9	146.8	<i>Europe average</i>	31.9	233.2
Kyrgyzstan	15.6	158.4	<i>EU-15 average</i>	37.9	242.5
Latvia	33.1	153.2	<i>EU-27 average</i>	36.3	232.5

Notes: *data for these countries are for 2002. Fruit and vegetables do not include potatoes. Amount available refers to fruit and vegetables produced nationally, plus imports, minus exports.

Source: World Health Organization (2008) *European Health for All* statistical database. Accessed March 2008 <http://www.euro.who.int/hfad>

Figure 5.13a Percentage of total energy available from fat by country, 2003, selected European countries, with WHO target

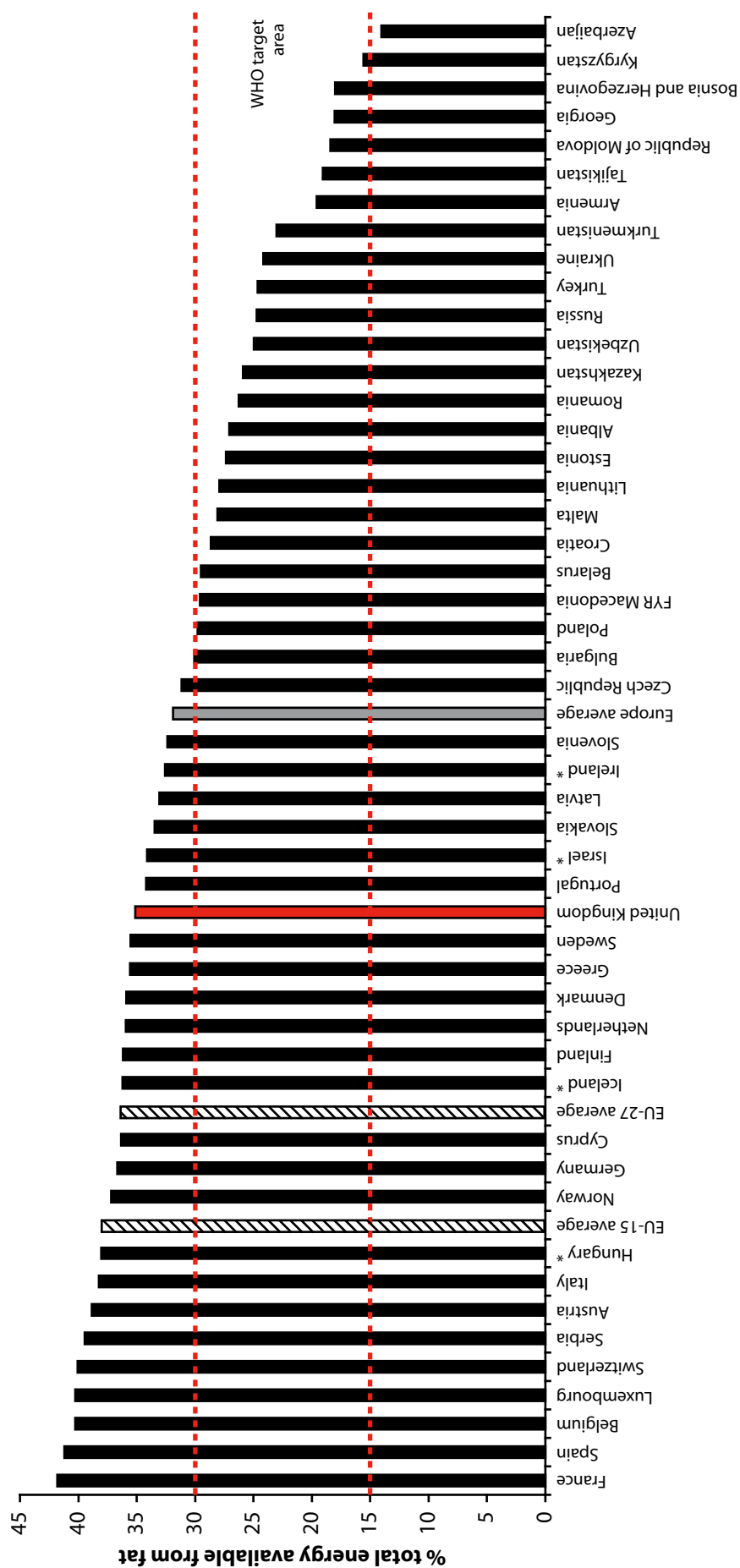
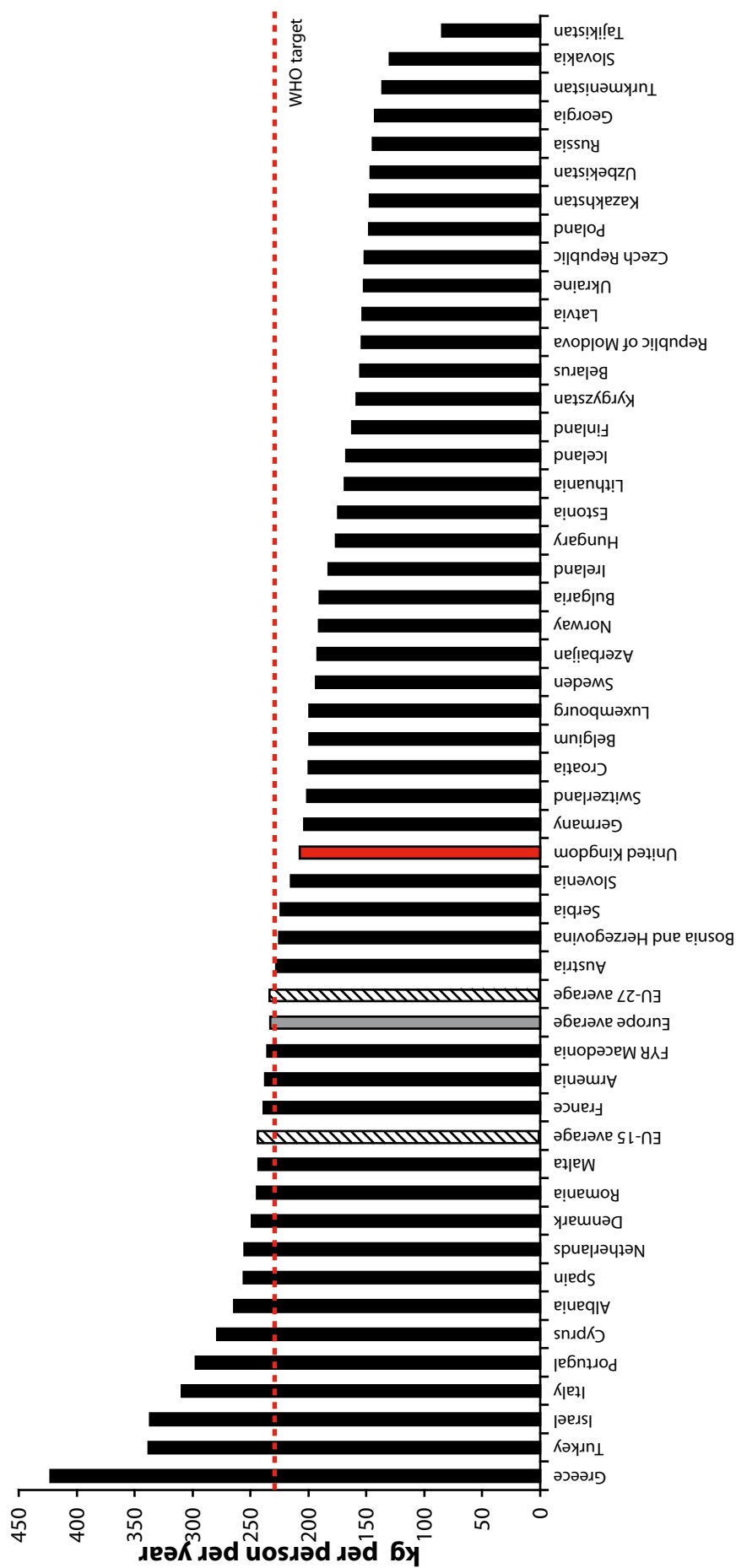


Figure 5.13b Availability of fruit and vegetables by country, 2003, selected European countries, with WHO target



Notes: WHO international target is 400g fruit and vegetable consumption per person per day. Target of 219 kg of available fruit and vegetables per person per year has been adjusted for wastage (see source for method).

6. Physical Activity

People who are physically active have a lower risk of CHD. To produce the maximum benefit the activity needs to be regular and aerobic. Aerobic activity involves using the large muscle groups in the arms, legs and back steadily and rhythmically so that breathing and heart rate are significantly increased.

Recent research from the World Health Organization highlighted the importance of physical inactivity as a major risk factor for CHD. The 2002 World Health Report estimated that around 3% of all disease burden in developed countries was caused by physical inactivity, and that over 20% of CHD and 10% of stroke in developed countries was due to physical inactivity (less than 2.5 hours per week moderate intensity activity or 1 hour per week vigorous activity)¹.

Public health targets

Since 1996, the Government recommendation on physical activity has been that adults should participate in a minimum of 30 minutes of at least moderate intensity activity (such as brisk walking, cycling or climbing the stairs) on five or more days of the week. In 2004 the Chief Medical Officer restated this recommendation in the report *At least five a week*, and highlighted the importance of physical activity in the prevention of CHD, diabetes and obesity².

Choosing Activity: a physical activity action plan was published in 2005³. This document outlined key commitments relating to physical activity contained within the White Paper *Choosing Health*, which aimed to increase levels of physical activity in adults and children in England⁴.

A target for physical activity in England was proposed in 2002 by the Government's Strategy Unit: to increase the proportion of the adult population who participate in 30 minutes of moderate physical activity five or more times a week to 70% by 2020 (Table 6.1)⁵. This is a very ambitious target requiring participation levels in England to more than double in just over 15 years. HM Treasury proposed that the proportion of children who spend a minimum of two hours per week on high quality sport should increase from 25% in 2002 to 75% by 2006 and 85% by 2008⁶.

In 2003 the Scottish Executive set a target that by 2022, 50% of the adult population should participate in 30 minutes of moderate activity on 5 or more occasions each week. The Scottish target for children is to increase the number of children taking at least one hour a day of moderate activity on 5 or more days a week to 80% by 2022⁷ (Table 6.1).

There are no physical activity targets set for Wales or Northern Ireland.

Overall levels

Physical activity levels are low in the UK. Health Survey for England data show that, in 2006, only 40% of men and 28% of women met the current physical activity guidelines suggested by the Government (Table 6.2 and Figure 6.2a). In 2006 around one third of English adults were inactive, that is, participated in less than one occasion of 30 minutes activity a week.

Sex and age differences

Data from 2006 show that physical activity declined rapidly with increasing age for both men and women, although for women this decline did not begin until the mid-forties (Table 6.2 and Figures 6.2a and 6.2b). In England 53% of men and 33% of women aged 16 to 24 were physically active at the recommended level compared to 21% of men and 16% of women in the 65 to 74 age group.

Between 1997 and 2006, the Health Survey for England reported that the overall proportion of adults meeting the recommended level of physical activity increased from 32% to 40% in men and from 21% to 28% in women (Table 6.3).

Children and young people

It is recommended that all children and young people aged 5 to 18 participate in physical activity of at least moderate intensity for one hour a day^{2,3}. In 2006 in England, 70% of boys and 59% of girls aged 2 to 15 were active for at least an hour a day (Table 6.4). In girls, participation rates declined with age after about age 10. By the age of 15, only 45% of girls reached the recommended level of activity (Figures 6.4a and 6.4b).

National and regional differences

In 2003, levels of physical activity in Scotland were generally higher for men than in England in 2006 (Table 6.2). This was particularly the case for 25 to 34 year olds, where 57% met physical activity recommendations in Scotland compared to 52% in England in 2006. This was also the case for women: 40% of 25 to 34 year olds met recommendations in Scotland compared to 36% in England in 2006.

Within England there is some variation in the level of activity by region (Table 6.5). In 2006 men were more likely to meet the physical activity recommendations in the South West (44%), South East (43%), Yorkshire and Humber (42%). Women were more likely to meet the physical activity guidelines in the East (31%), South East (31%) and South West (30%).

Socio-economic differences

Socio-economic differences in physical activity are complex. Among English men in 2006, 42% of those in the highest income quintile met current recommended levels of physical activity compared to 35% of those in the lowest income quintile (Table 6.6).

In English women, the pattern was less clear: 28% of those in the highest income quintile met the current recommended levels of physical activity compared 26% of women in the lowest income quintile (Table 6.6).

Ethnic differences

Compared with the general population, in 2004 Indian, Pakistani, Bangladeshi and Chinese men and women were less likely to meet physical activity recommendations. Only 26% of Bangladeshi men and 11% of Bangladeshi women met the current recommended physical activity levels. Irish men and Black Caribbean women were the most likely to be physically active at the recommended level (Table 6.7 and Figure 6.7).

International differences

Levels of activity vary across European member states, with levels of activity in the UK falling just below the EU average (Table 6.8 and Figure 6.8).

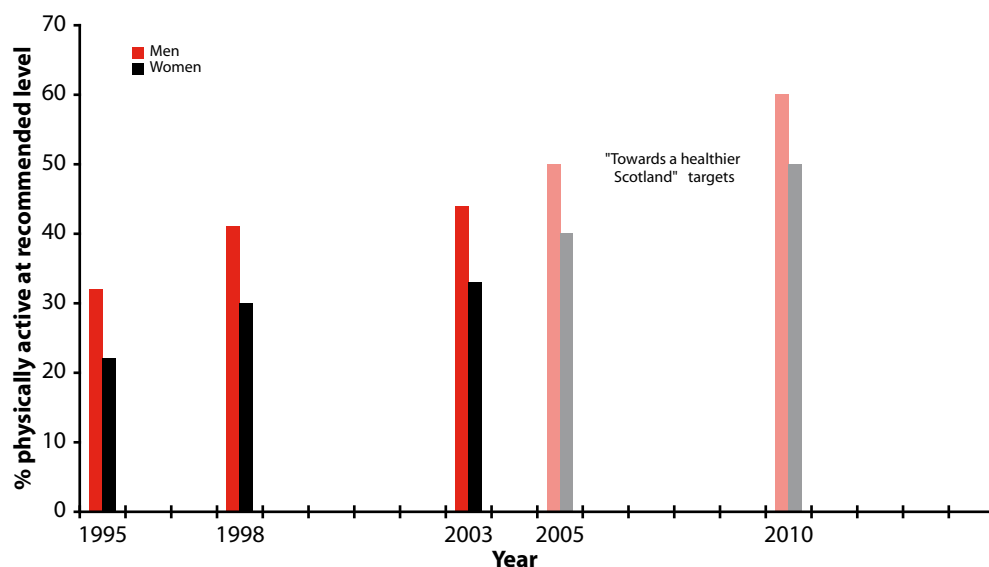
1. World Health Organization (2002) *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. World Health Organization: Geneva.
2. Department of Health (2004) *At least five a week: evidence on the impact of physical activity and its relationship to health*. Department of Health: London. See www.dh.gov.uk/assetRoot/04/08/09/81/04080981.pdf
3. Department of Health (2005) *Choosing Activity: a physical activity action plan*. Department of Health: London.
4. Department of Health (2004) *Choosing Health: making healthy choices easier*. Department of Health: London.
5. Strategy Unit (2002) *Game Plan: a strategy for delivering Government's sport and physical activity objectives*. A joint Department of Culture, Media and Sport and Strategy Unit Report. HMSO: London.
6. HM Treasury (2004) *Spending Review*. Department for Culture, Media and Sport. HMSO: London. See www.hm-treasury.gov.uk/media/965/FB/sr2004_ch18.PDF
7. The Scottish Executive (2003). *Let's make Scotland more active: a strategy for physical activity*. The Scottish Executive: Edinburgh

Table 6.1 *Physical activity targets for the United Kingdom*

England^{1,2}	
Adults ¹	By 2020, 70% of individuals to be undertaking 30 minutes of physical activity on at least 5 days a week. An interim target of 50% of individuals by 2011
Children ²	To increase the proportion of school children in England who spend a minimum of two hours each week on high quality sport from 25% in 2002, to 75% by 2006 and 85% in 2008
Scotland³	
Adults - <i>Target</i>	To increase the proportion of all adults aged over 16 years taking the minimum recommended levels of physical activity (30 minutes of moderate activity on 5 or more occasions each week) to 50% by 2022. To meet this goal will need average increases of 1% a year across the population
Children - <i>Target</i>	To increase the proportion of all children aged 16 and under taking the minimum recommended levels of physical activity (1 hour a day of moderate activity on 5 or more days a week) to 80% by 2022. To meet this goal will need average increases of 1% a year across the population
Wales	No target set
Northern Ireland⁴	No target set

1. Strategy Unit (2002). *Game Plan: a strategy for delivering Government's sport and physical activity objectives*. A joint Department of Culture, Media and Sport and Strategy Unit Report. HMSO: London.
2. HM Treasury (2004) *Spending review*. Department for Culture, Media and Sport. HMSO: London. See www.hm-treasury.gov.uk
3. The Scottish Executive (2003) *Let's Make Scotland More Active: A strategy for physical activity*. The Scottish Executive: Edinburgh.
4. New strategies for CVD in Northern Ireland are being developed by the Department of Health, Social Services and Public Safety and were issued for consultation in 2004.

Fig 6.1 *Physical activity levels 1995, 1998 and 2003, Scotland, with “Towards a healthier Scotland” national targets*



Source: *The Scottish Executive (2005) The Scottish Health Survey 2003. The Stationery Office: Edinburgh and previous editions.*
Due to important differences to the relevant questions in the health survey questionnaire, comparisons of the 1998 and 2003 results with 1995 results should be made with caution.

Table 6.2 *Physical activity level by sex and age, England 2006, Scotland 2003, Wales 2004/05 and Northern Ireland 2001*

<i>Summary physical activity level</i>	All ages %	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %
ENGLAND								
MEN								
High (above recommended level)	40	53	52	46	38	35	21	9
Medium	30	28	29	30	34	29	33	23
Low	30	19	19	24	28	37	46	68
<i>Weighted base</i>	6,845	1,040	1,127	1,354	1,122	1,012	694	496
<i>Unweighted base</i>	5,561	649	860	1,181	1,049	1,123	415	284
WOMEN								
High (above recommended level)	28	33	36	35	34	27	16	4
Medium	34	36	36	40	35	36	30	15
Low	38	32	27	25	31	38	54	81
<i>Weighted base</i>	7,300	1,011	1,157	1,375	1,141	1,050	768	798
<i>Unweighted base</i>	6,869	792	1,146	1,490	1,279	1,269	463	430
SCOTLAND								
MEN								
High (above recommended level)	42	59	57	45	40	35	23	13
Medium	28	22	26	34	31	26	30	26
Low	30	19	18	21	29	39	47	61
<i>Weighted base</i>	3,857	580	610	761	670	569	406	260
<i>Unweighted base</i>	3,610	336	455	733	616	633	510	327
WOMEN								
High (above recommended level)	30	36	40	39	35	28	16	6
Medium	35	36	42	40	38	37	31	16
Low	35	27	18	22	27	35	53	78
<i>Weighted base</i>	4,538	404	600	887	795	778	581	493
<i>Unweighted base</i>	4,291	566	658	813	691	602	493	468
WALES								
MEN								
High (above recommended level)	36	47	40	42	39	32	26	15
Medium	33	35	41	35	32	30	27	23
Low	31	17	20	22	30	39	48	62
WOMEN								
High (above recommended level)	23	27	23	29	25	25	17	9
Medium	41	52	53	46	43	37	34	18
Low	36	20	23	25	32	38	48	73
NORTHERN IRELAND								
MEN								
High (above recommended level)	30	38	34	36	34	23	20	15
Medium	46	55	54	47	45	44	39	27
Low	24	8	12	17	21	32	41	58
<i>Base</i>	1,968	250	337	347	351	277	266	140
WOMEN								
High (above recommended level)	26	27	32	35	31	24	17	7
Medium	48	60	55	55	46	46	39	27
Low	25	14	13	10	23	30	44	66
<i>Base</i>	2,722	345	476	501	466	357	319	258

Notes: High = 30 minutes or more on at least 5 days a week (above recommended level).

Medium = 30 minutes or more on 1 to 4 days a week.

Low = lower level of activity.

Information on bases for Welsh Health Survey unavailable.

Source: Department of Health (2008) Health Survey for England 2006. The Stationery Office: London.

Scottish Health Executive (2005) The Scottish Health Survey 2003: Results. <http://www.scotland.gov.uk/Publications/2005/11/25145024/50251>

National Assembly for Wales (2005) Welsh Health Survey 2004/05.

<http://neu.wales.gov.uk/topics/statistics/publications/health-survey2004-05/?lang=en>

Northern Ireland Statistics and Research Agency (2001) Northern Ireland Health and Social Wellbeing Survey 2001:

Physical activity results - Activity level tables.

<http://www.csu.nisra.gov.uk/archive/Surveys/HWB/results/2001/Physical%20activity/Activity%20level%20tables.PDF>

Figure 6.2a Proportion meeting physical activity guideline by age and country, men, latest available year, England, Scotland, Wales and Northern Ireland

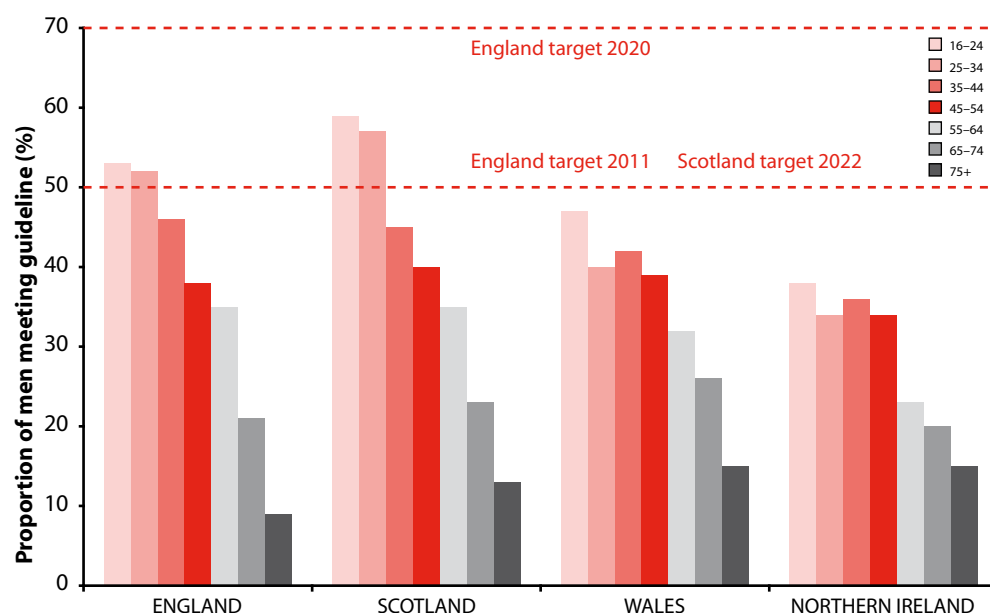


Figure 6.2b Proportion meeting physical activity guideline by age and country, women, latest available year, England, Scotland, Wales and Northern Ireland

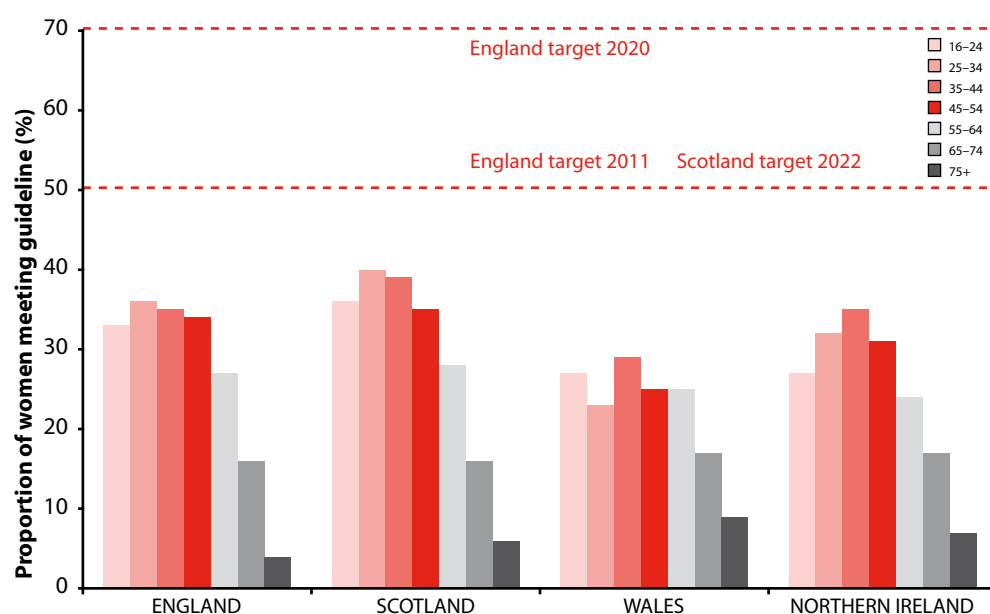


Table 6.3 *Proportion meeting the physical activity guideline by sex and age, adults aged 16 and over, 1997 to 2006 England*

	All ages %	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %
MEN								
1997	32	49	41	37	32	23	12	7
1998	34	53	45	41	34	30	14	6
2003	36	52	44	41	38	32	17	8
2004	37	56	46	41	37	32	18	8
2006	40	53	52	46	38	35	21	9
Unweighted base (2006)	5,561	649	860	1,181	1,049	1,123	415	284
Weighted base (2006)	6,845	1,040	1,127	1,354	1,122	1,012	694	496
WOMEN								
1997	21	26	26	29	24	19	8	5
1998	21	28	28	28	25	18	9	3
2003	24	30	29	30	31	23	13	3
2004	25	32	30	32	30	20	14	4
2006	28	33	36	35	34	27	16	4
Unweighted base (2006)	6,869	792	1,146	1,490	1,279	1,269	463	430
Weighted base (2006)	7,300	1,011	1,157	1,375	1,141	1,050	768	798

Notes: Data for 2003, 2004 and 2006 are weighted for non response.

Activity sessions lasting for less than 30 minutes in 1997 and 1998 were excluded so that data were comparable with 2003 and 2004.

Source: Department of Health (2008) Health Survey for England 2006. The Stationery Office: London.

Table 6.4 *Physical activity level among children aged 2 to 15 by sex and age, 2006, England*

Summary physical activity level	All ages	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
BOYS															
High	70	69	69	70	69	64	72	71	76	69	73	70	72	72	68
Medium	15	15	13	15	19	20	11	15	14	16	12	15	15	13	15
Low	15	16	18	16	12	16	17	14	10	16	15	15	13	15	16
% physically active at the recommended level	70	69	69	70	69	64	72	71	76	69	73	70	72	72	68
Weighted base	3,219	206	218	191	233	206	244	191	271	244	227	246	244	263	237
Unweighted base	3,440	232	241	213	248	227	255	199	277	264	238	271	270	263	242
GIRLS															
High	59	69	68	68	71	60	53	67	61	60	56	58	57	45	45
Medium	19	11	17	20	15	20	22	17	15	23	20	17	18	23	23
Low	22	20	15	13	14	19	25	17	24	17	24	25	25	32	31
% physically active at the recommended level	59	69	68	68	71	60	53	67	61	60	56	58	57	45	45
Weighted base	3,040	171	224	199	203	198	229	222	215	212	232	224	237	234	237
Unweighted base	3,343	199	243	214	221	229	258	262	243	237	260	239	253	242	243

Notes: High = 60 minutes or more on all 7 days in last week.
Medium = 30–59 minutes on all 7 days.
Low = lower level of activity.

Source: Department of Health (2008) *Health Survey for England: Volume 2. Obesity and other risk factors in children*. The Stationery Office: London.

Table 6.5 *Physical activity levels by Government Office Region and sex, adults aged 16 and over, 2006, England*

Summary physical activity level	Government Office Region						London	South East	South West
	North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	East England			
MEN	%	%	%	%	%	%	%	%	%
High	33	39	42	38	36	39	40	43	44
Medium	27	29	29	32	31	30	26	32	31
Low	40	32	29	30	32	30	33	24	25
Weighted base	342	910	701	603	717	778	1,046	644	1,104
WOMEN									
High	25	29	28	24	25	31	27	31	30
Medium	35	34	33	37	35	31	31	33	35
Low	40	37	39	39	40	38	42	36	36
Weighted base	386	989	746	616	797	797	983	768	1,218

Notes: High activity level = 30 minutes or more on at least 5 days a week.
Medium = 30 minutes or more on 1 to 4 days a week.
Low = lower levels of activity.
Results presented for prevalence in a standardised population only.

Source: Department of Health (2008) Health Survey for England 2006. The Stationery Office: London.

Table 6.6 *Physical activity by sex and income quintile, adults aged 16 and over, 2006, England*

Summary physical activity level	Equivalent annual household income quintile				
	Highest %	2nd %	3rd %	4th %	Lowest %
MEN					
High	42	45	44	38	35
Medium	35	33	29	24	26
Low	23	22	27	38	39
Unweighted base	1,143	1,083	908	718	666
Weighted base	1,318	1,270	1,107	915	829
WOMEN					
High	28	31	31	28	26
Medium	38	37	33	31	30
Low	33	32	36	41	44
Unweighted base	1,175	1,216	1,160	1,066	942
Weighted base	1,160	1,212	1,213	1,212	967

Notes: Weighted percentages. For method of age-standardisation see source.
Data are weighted for non-response.
High = 30 minutes or more on at least 5 days a week (above recommended level).
Medium = 30 minutes or more on 1 to 4 days a week.
Low = lower level of activity.

Source: Department of Health (2008) Health Survey for England 2006. The Stationery Office: London.

Table 6.7 *Physical activity by sex and ethnic group, adults aged 16 and over, 2004, England*

Summary physical activity level	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
MEN	%	%	%	%	%	%	%	%
High	37	37	35	30	28	26	30	39
Medium	31	29	30	26	21	23	32	28
Low	32	34	35	44	51	51	38	33
Weighted base	46,089	477	373	901	420	177	151	1,776
Unweighted base	2,873	409	386	549	429	408	348	497
WOMEN	%	%	%	%	%	%	%	%
High	25	31	29	23	14	11	17	29
Medium	36	30	28	32	34	21	36	38
Low	39	39	43	45	52	68	47	33
Weighted base	48,643	673	472	1,067	499	207	163	2,369
Unweighted base	3,818	648	467	634	508	477	375	656

Notes: High = 30 minutes or more physical activity on at least 5 days a week (recommended level).

Medium = 30 minutes or more on 1 to 4 days a week.

Low = lower level of activity.

Source: Department of Health (2005) Health Survey for England 2004. The Stationery Office: London.

Figure 6.7 *Percentage meeting physical activity guidelines by sex and ethnic group, adults aged 16 and over, 2004, England*

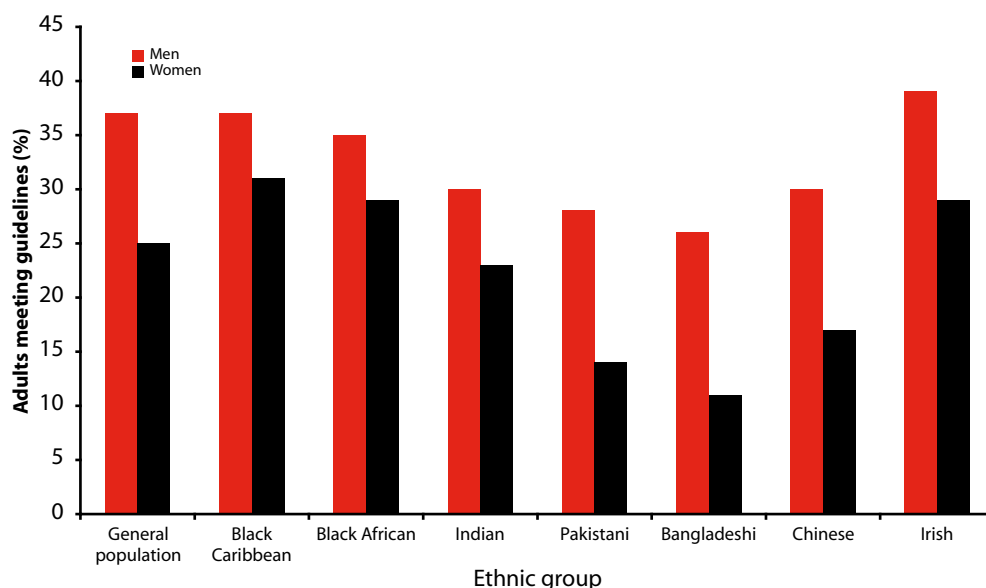
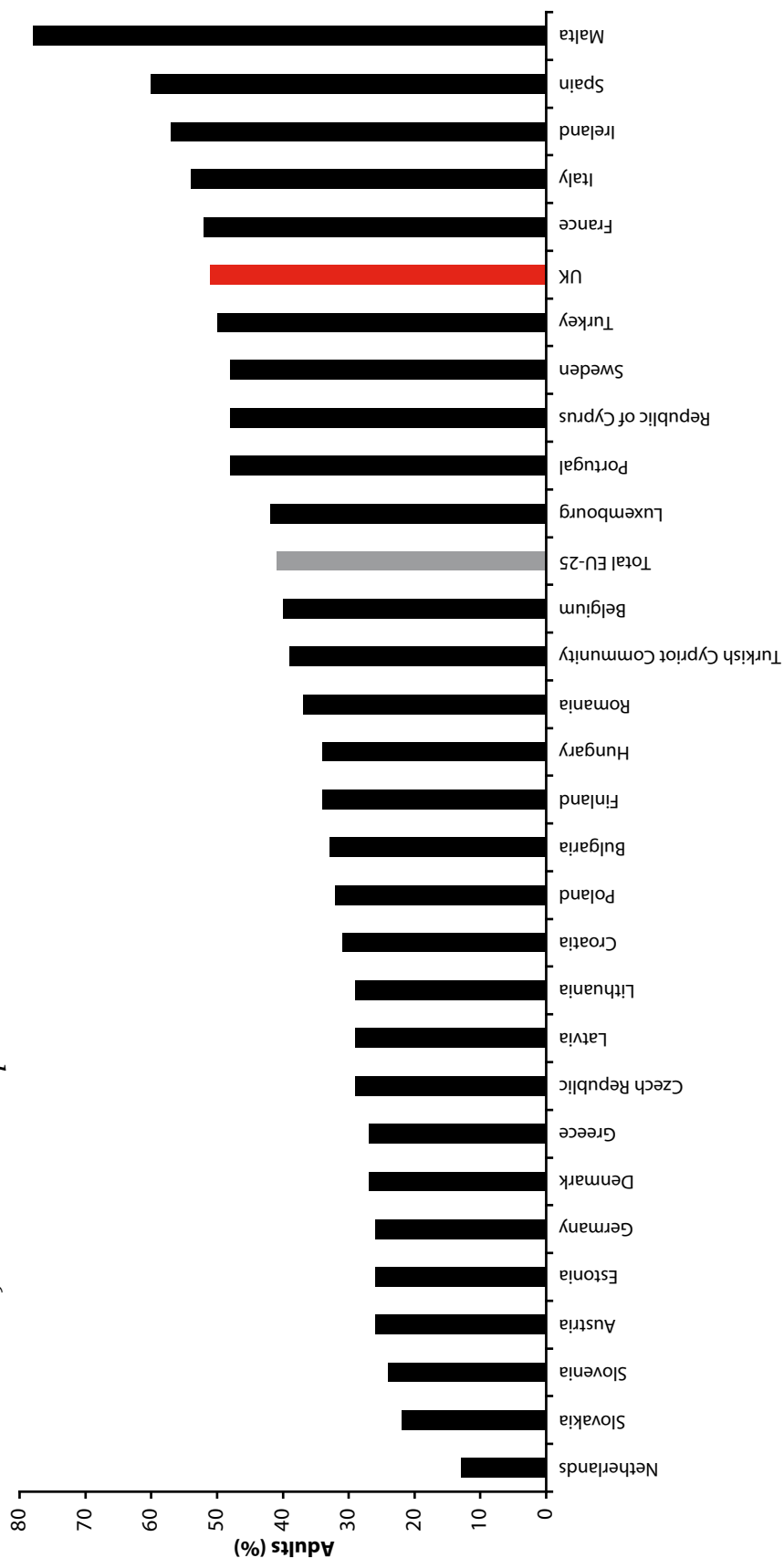


Table 6.8 Self-reported physical activity levels, 2005, selected European countries

	Number of days in last week walked for 10 minutes or more				Number of days in last week undertook moderate physical activity				Number of hours spent sitting on a usual day						
	None %	1 to 3 %	4 to 6 %	7 %	Don't know %	None %	1 to 3 %	4 to 6 %	7 %	Don't know %	Less than 1 %	1 to <4 %	4 to <8 %	8+ %	Don't know %
EU-25 COUNTRIES															
Austria	18	26	26	27	3	26	32	27	11	3	6	24	53	18	
Belgium	23	28	14	34	0	40	28	14	18	0	2	27	42	29	1
Czech Republic	10	16	21	49	5	29	30	17	18	5	0	19	37	34	9
Denmark	13	19	13	53	2	27	29	16	28	2	1	17	44	33	5
Estonia	8	15	15	61	1	26	25	17	28	2	1	26	43	24	5
Finland	12	24	20	44	2	34	30	16	18	2	5	25	35	31	3
France	15	23	13	48	1	52	22	8	15	2	4	35	40	18	3
Germany	8	18	22	50	3	26	27	20	24	3	0	25	43	22	10
Greece	20	22	20	38	0	27	30	18	25	0	0	17	48	35	0
Hungary	14	19	21	47	0	34	27	15	25	0	5	40	34	17	4
Ireland	21	19	26	33	1	57	20	14	8	2	2	30	41	17	10
Italy	22	23	20	32	2	54	22	12	9	2	9	31	44	14	3
Latvia	15	18	13	50	4	29	26	14	21	9	12	30	37	20	
Lithuania	14	13	17	51	5	29	21	15	28	6	11	29	30	16	13
Luxembourg	15	27	16	40	1	42	31	10	16	2	3	31	37	26	2
Malta	32	22	11	34		78	12	5	5		8	34	35	13	10
Netherlands	8	19	16	58	1	13	21	23	43	0	0	16	40	41	2
Poland	13	21	15	48	2	32	28	18	20	3	2	29	37	28	4
Portugal	21	12	20	43	2	48	16	15	18	3	17	45	27	11	
Republic of Cyprus	40	26	12	23		48	22	12	18		1	24	36	33	6
Slovakia	5	18	23	49	4	22	42	18	13	5	0	30	41	23	7
Slovenia	13	23	18	45	2	24	31	18	26	1	0	34	37	26	2
Spain	17	11	13	50	10	60	12	9	10	8	2	37	39	15	8
Sweden	12	28	20	41	0	48	32	11	9		1	26	43	28	2
UK	12	17	18	49	2	51	20	12	15	2	0	27	40	21	12
Total EU-25	14	19	18	46	3	41	24	15	18	3	3	29	41	21	6
OTHER COUNTRIES															
Bulgaria	6	10	18	64	3	33	22	15	25	5	0	34	40	17	8
Croatia	20	20	14	44	1	31	24	15	30	1	2	34	37	25	2
Romania	13	14	21	52	1	37	17	21	24	2	32	27	25	13	2
Turkey	14	17	12	52	5	50	19	7	20	3	1	25	46	15	13
Turkish Cypriot Community	18	30	18	26	9	39	26	7	16	12	0	20	43	19	17

Source: European Commission (2006) Health and food, Special Eurobarometer 24c/Wave 64.3 - TNS Opinion & Social.
http://ec.europa.eu/health/ph_publication/eb_food_en.pdf

Figure 6.8 Percentage of adults who do no moderate-intensity physical activity in a typical week, 2005, selected European countries



7. Alcohol

While moderate alcohol consumption (one or two drinks a day) reduces the risk of CVD, at high levels of intake – particularly in ‘binges’ – the risk of CVD is increased.

The World Health Report 2002 estimates that over 9% of all disease burden in developed countries is caused by alcohol consumption and that 2% of CHD and almost 5% of stroke in men in developed countries is due to alcohol. However, the impact of alcohol consumption in women in developed countries is estimated to be positive – if no alcohol were consumed, there would be a 3% increase in CHD and a 16% increase in stroke¹.

The Government currently advises that ‘regular consumption of between three and four units a day by men’ and ‘between two and three units a day by women of all ages will not lead to any significant health risk’². Consuming in excess of four units on the heaviest drinking day of the week in men, or over three units in women, is not advised, and the Government recommendations on sensible drinking are now based on these daily benchmarks³. This advice is consistent with previous advice, based on weekly alcohol consumption; that men should drink less than 21 units a week and women less than 14 units a week⁴ (Table 7.1)

Public health targets

The 2004 report by the Academy of Medical Sciences, *Calling Time: The Nation’s drinking as a major health issue*, presented strong evidence that the overall national consumption of alcohol is a major determinant of national alcohol related harm, and recommended the introduction of targets by Government to reduce per capita alcohol consumption in the UK⁵. *The Alcohol Harm Reduction Strategy for England*, published in 2004, did not, however, include such targets³. Currently in the UK only Scotland has targets for limiting alcohol consumption (Table 7.1).

Overall levels of alcohol consumption

The General Household Survey 2006 uses an updated method for calculating the number of alcoholic units consumed. The estimates using the updated method are intended to reflect the trend towards larger measures and stronger alcoholic drinks, especially wine. The alcohol consumption estimates derived using the updated method do not reflect a real change in drinking among the adult population. In some cases results using both the updated and original methods are shown.

In Britain in 2006, the updated method shows 40% of men and 33% of women consumed more alcohol than the recommended daily benchmarks; that is more than four units on the heaviest drinking day of the week for men and more than three for women (Table 7.2).

Age and sex differences

The updated method of calculating units of alcohol consumed resulted in a narrowing of the gap between men and women. In 2006, men were still more likely than women to exceed the daily recommended levels of alcohol consumption (Table 7.2), and one and a half times as likely to binge drink⁶ (Table 7.2 and Table 7.3).

In 2006, alcohol consumption was higher in younger age groups, for example 42% of men and 39% of women aged 16 to 24 drank more than the recommended daily benchmarks, compared with only 21% of men and 14% of women aged 65 and over (Table 7.2 and Figures 7.2a and 7.2b).

Similar patterns are evident for binge drinking. The prevalence of binge drinking was highest in the 16 to 24 years age group, with 30% of young men and 25% of young women drinking heavily on at least one day a week (Table 7.2).

Temporal trends

In the first half of the twentieth century per capita alcohol consumption in the UK fell rapidly, from around 11 litres per year in 1900 to around 4 litres after the Second World War. From the late 1950s to the end of the century alcohol consumption increased steadily, more than doubling overall from around four to ten litres per person per year⁵.

Evidence about temporal trends in binge drinking are short-term as the General Household Survey has only included questions about the maximum daily amount consumed since 1998. Between 1998 and 2006, there have only been small fluctuations in the patterns of binge drinking in both men and women (Table 7.3 and Figure 7.3).

Trend data from the General Household Survey show that the average weekly consumption of alcohol remained reasonably stable between 1998 and 2006 for both men and women (Table 7.4).

Young people and drinking

In 2006, 21% of boys and 20% of girls aged 11 to 15 years consumed an alcoholic drink in the last week. This has been constant since 1988 (Table 7.5).

National and regional differences

On a regional basis, using the updated method for estimating units consumed, the proportions consuming more than the recommended daily level of alcohol in 2006 were lowest in London and highest in Yorkshire and the Humber for men, and lowest in London and highest in Yorkshire and the Humber and the North West for women. For example, while 40% of women in Yorkshire and the Humber and the North West consumed more than three units on the heaviest drinking day of the week compared to 27% of women in London (Table 7.6 and Figures 7.6a and 7.6b).

Socio-economic differences

For both men and women in 2005, those in managerial and professional households were the most likely to drink and the most likely to drink on five or more days a week. This socio-economic gradient was also found in the amount of alcohol drunk with the exception of binge drinking where between 21% and 24% of all men exceeded the daily benchmarks for binge drinking (Table 7.7).

Ethnic differences

Levels of alcohol consumption vary considerably with ethnicity. With the exception of the Irish, adults from each minority ethnic group were less likely to drink alcohol than the general population.

Very low proportions of Bangladeshi (less than 5%) and Pakistani (less than 10%) adults ever drink alcohol. Women are more likely than men to be non-drinkers in all ethnic groups (Table 7.8 and Figures 7.8a and 7.8b).

Irish men and women are more likely than those in the general population to drink more than the recommended daily level of alcohol on the heaviest drinking day in a typical week. About 56% of Irish men and over one third (36%) of Irish women exceeded guidelines for the heaviest drinking day (Table 7.8 and Figures 7.8a and 7.8b).

International differences

Levels of alcohol consumption in the UK in 2003 were about average for the European Union, and slightly higher than the European region average (Table 7.9 and Figure 7.9). In the EU as a whole, consumption of alcoholic drinks has steadily declined since 1980, but in the UK there has been no strong evidence of decline⁷.

1. World Health Organization (2002) *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. World Health Organization: Geneva.
2. Department of Health (1995) *Sensible Drinking. The Report of an Inter-Departmental Working Group*. DH: London.
3. These guidelines were restated in March 2004 in the Government's alcohol harm reduction strategy for England, published by the Cabinet Office. Prime Minister's Strategy Unit (2004) *Alcohol harm reduction strategy for England*. Cabinet Office: London. See www.strategy.gov.uk/work_areas/alcohol_misuse/index.asp.
4. In recognition of the dangers of excessive drinking in a single session, the sensible drinking recommendations were changed in 1995 to focus on daily rather than weekly guideline.
5. The Academy of Medical Sciences (2004) *Calling time: the nation's drinking as a major health issue*. Academy of Medical Sciences: London.
6. The General Household Survey defines heavy drinking, or binge drinking, as more than 8 units in one day for men and more than 6 units in one day for women. While people vary in their susceptibility to the effect of alcohol, these thresholds for heavy drinking were chosen as those likely to lead to intoxication.
7. World Health Organization (2006) *European Health For All statistical database*. See www.euro.who.int/hfad

Table 7.1 *Alcohol targets and recommendations for the United Kingdom*

Recommendations for the United Kingdom	
Safe level – men	No more than 4 units per day / 21 units per week
Safe level – women	No more than 3 units per day / 14 units per week
Benchmark for heavy drinking – men	8 units per day
Benchmark for heavy drinking – women	6 units per day
England¹	No target set
Scotland²	
Alcohol related hospital admissions	Reduce alcohol-related hospital admissions by 2011
Wales³	No target set
Northern Ireland⁴	No target set

1. The Government's Strategy Unit has recently published an alcohol strategy for England. This did not recommend the introduction of public health targets for alcohol consumption. Strategy Unit (2004) Alcohol Harm Reduction Strategy for England. Cabinet Office: London. See www.strategy.gov.uk
2. The Scottish Executive (2008) Spending Review 2007, The Scottish Executive: Edinburgh. <http://www.scotland.gov.uk>
3. The Welsh Assembly Government is currently developing new determinants of health indicators. The first stage of this work is underway and includes a focus on CHD. See the Chief Medical Officer Wales website, www.cmo.wales.gov.uk/
4. The Department of Health, Social Services and Public Safety in Northern Ireland is currently developing a target for the next 6 years aimed at reducing the number of people who binge drink.

Table 7.2 *Alcohol consumption by sex and age, adults aged 16 and over, 2006, Great Britain*

<i>Maximum daily alcohol consumption</i>	<i>All ages %</i>	<i>16-24 %</i>	<i>25-44 %</i>	<i>45-64 %</i>	<i>65+ %</i>
MEN					
Drank nothing last week	29	40	27	24	33
Up to 4 units	31	18	25	33	46
5-8 units	17	12	17	21	14
More than 8 units	23	30	31	21	7
% exceeding 4 units	40	42	48	42	21
Weighted base (000s)	19,918	2,586	7,046	6,450	3,836
Unweighted base	7,675	774	2,464	2,670	1,767
WOMEN					
Drank nothing last week	44	47	40	40	56
Up to 3 units	23	14	20	25	30
4-6 units	18	14	19	23	12
More than 6 units	15	25	21	12	2
% exceeding 3 units	33	39	40	35	14
Weighted base (000s)	22,740	2,859	7,877	7,096	4,908
Unweighted base	9,013	943	3,007	3,014	2,049

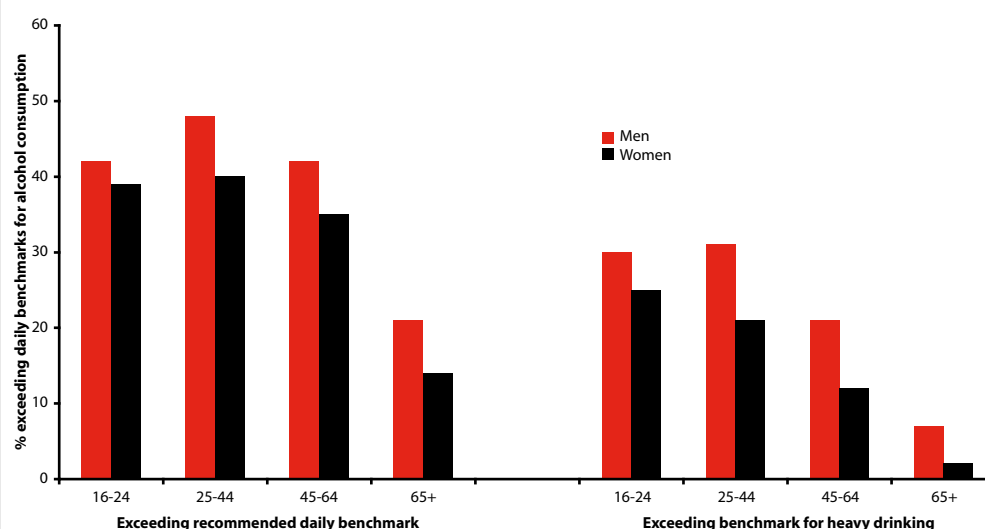
Notes: Alcohol consumption levels are based on the number of units of alcohol consumed on the heaviest day during the previous week, the "maximum daily" amount.

The method of calculating units of alcohol consumed was updated for GHS 2006; see source for details.

Source: Office for National Statistics (2008) *Smoking and drinking among adults, 2006: General Household Survey 2006*.

Office for National Statistics: London. See www.ons.gov.uk/gbs

Figure 7.2 *Percentage exceeding daily benchmarks for alcohol consumption by sex and age, adults aged 16 and over, 2006, Great Britain*



Note: Recommended daily benchmark is 4 units for men and 3 units for women. Benchmark for heavy drinking is 8 units for men and 6 units for women.

Table 7.3 *Percentage of adults aged 16 and over consuming more alcohol than the recommended daily maximum by sex and age, 1998 to 2006, Great Britain*

<i>Maximum daily alcohol consumption</i>	1998	2000	2001	2002	2003	2004	2005	2006 original method	2006 updated method
	%	%	%	%	%	%	%	%	%
MEN									
More than 4 units									
16-24	52	50	50	49	51	47	42	39	42
25-44	48	45	49	46	47	48	42	42	48
45-64	37	38	37	38	41	37	35	33	42
65+	16	16	18	16	19	20	16	14	21
% exceeding recommended daily maximum	39	39	40	38	40	39	35	33	40
More than 8 units									
16-24	39	37	37	35	37	32	30	27	30
25-44	29	27	30	28	30	31	25	25	31
45-64	17	17	17	18	20	18	16	15	21
65+	4	5	5	5	6	7	4	4	7
% exceeding daily benchmark for heavy drinking	22	21	22	21	23	22	19	18	23
Weighted base (000s)	19,174	20,369	19,911	19,534	19,161	19,538	19,479	19,918	19,918
Unweighted base	6,561	6,598	7,054	6,828	8,087	6,862	10,028	7,674	7,674
WOMEN									
More than 3 units									
16-24	42	42	40	42	40	39	36	34	39
25-44	28	31	31	31	30	28	26	27	40
45-64	17	19	19	19	20	20	18	17	35
65+	4	4	5	5	4	5	4	4	14
% exceeding recommended daily maximum	21	23	23	23	23	22	20	20	33
More than 6 units									
16-24	24	27	27	28	23	24	22	20	25
25-44	11	13	14	13	13	13	11	12	21
45-64	5	5	5	5	5	6	4	4	12
65+	1	1	1	1	1	1	1	0	2
% exceeding daily benchmark for heavy drinking	8	10	10	10	9	9	8	8	15
Weighted base (000s)	21,625	22,054	21,985	22,202	21,788	22,343	22,299	22,740	22,740
Unweighted base	7,821	7,491	8,299	7,942	9,304	8,012	11,617	9,013	9,013

Notes: Alcohol consumption levels are based on the number of units of alcohol consumed on the heaviest day during the previous week, the "maximum daily" amount.

Estimates for 2006 are given using original and updated GHS methods; see source for details.

2005 data includes last quarter of 2004/5 data due to survey change from financial to calendar year.

Source: Office for National Statistics (2008) *Smoking and drinking among adults. General Household Survey 2006*. Office for National Statistics: London, and previous years. See www.ons.gov.uk/ghs

Figure 7.3 Percentage consuming more alcohol than the recommended daily maximum, adults aged 16 and over, 1998 to 2006, Great Britain

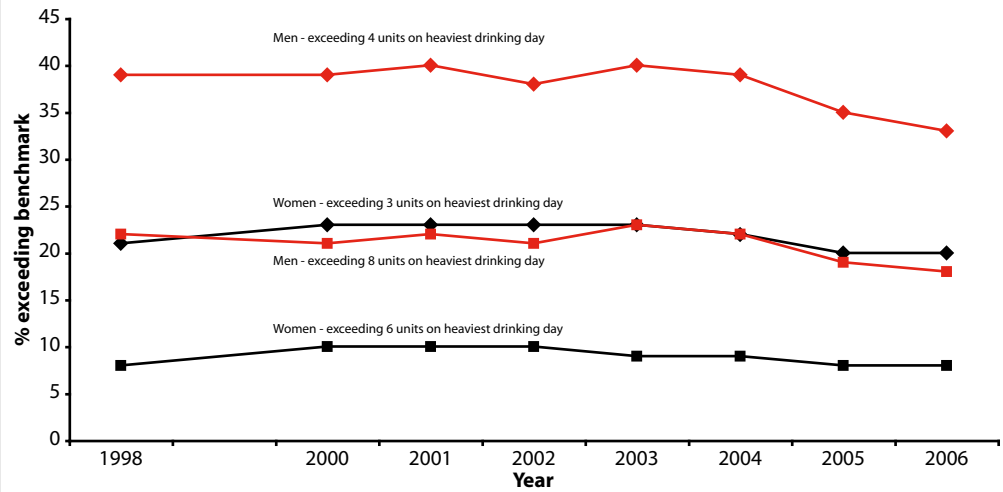


Table 7.4 Weekly alcohol consumption by sex and age, 1992 to 2006, Great Britain

Average weekly alcohol consumption (units)														
Age	Unweighted data				Weighted data							Unweighted base 2006		
	1992	1994	1996	1998	1998	2000	2001	2002	2005	2006 original method	2006 updated method		Weighted base 2006 (000s)	
MEN														
16-24	19.1	17.4	20.3	23.6		25.5	25.9	24.8	21.5	18.2	16.4	18.6	2,607	781
25-44	18.2	17.5	17.6	16.5		17.1	17.7	18.4	18.7	16.2	15.6	19.7	7,057	2,468
45-64	15.6	15.5	15.6	17.3		17.4	16.8	16.1	17.5	17.7	16.0	20.8	6,450	2,671
65+	9.7	10.0	11.0	10.7		10.6	11.0	10.8	10.7	10.4	10.4	13.5	3,836	1,767
Total	15.9	15.4	16.0	16.4		17.1	17.4	17.2	17.2	15.8	14.8	18.7	19,950	7,687
WOMEN														
16-24	7.3	7.7	9.5	10.6		11.0	12.6	14.1	14.1	10.9	9.0	10.8	2,863	944
25-44	6.3	6.2	7.2	7.1		7.1	8.1	8.3	8.4	7.1	6.8	10.1	7,875	3,006
45-64	5.3	5.3	5.9	6.4		6.4	6.2	6.8	6.7	6.3	6.2	9.8	7,095	3,014
65+	2.7	3.2	3.5	3.3		3.2	3.5	3.6	3.8	3.5	3.5	5.1	4,911	2,050
Total	5.4	5.4	6.3	6.4		6.5	7.1	7.5	7.6	6.5	6.2	9.0	22,744	9,014

Notes: Adults aged 16 and over.

Alcohol consumption levels are based on the number of units of alcohol consumed on the heaviest day during the previous week, the "maximum daily" amount.

Estimates for 2006 are given using original and updated GHS methods; see source for details.

2005 data includes last quarter of 2004/5 data due to survey change from financial to calendar year.

Source: Office for National Statistics (2008) Smoking and drinking among adults: General Household Survey 2006. Office for National Statistics: London, and previous years. See www.ons.gov.uk/ghs

Table 7.5 *Percentage of children aged 11 to 15 years who drank alcohol in the last week, by sex and age, 1988 to 2006, England*

	1988 %	1990 %	1992 %	1994 %	1996 %	1998 %	1999 %	2000 %	2001 %	2002 %	2003 %	2004 %	2005 %	2006 %
BOYS														
11 years	7	8	8	8	7	4	7	5	8	7	8	5	4	5
12 years	12	9	13	10	12	14	10	11	14	12	12	11	7	8
13 years	20	17	15	22	27	16	16	18	22	20	22	17	18	16
14 years	25	32	32	34	37	28	28	34	35	34	32	32	31	29
15 years	45	42	49	52	50	48	48	51	54	49	49	44	46	40
All ages	24	22	24	26	27	23	22	25	28	25	26	23	22	21
GIRLS														
11 years	4	4	5	4	6	2	4	5	4	4	5	3	2	2
12 years	7	6	7	9	9	6	8	9	11	9	9	9	9	7
13 years	11	19	11	16	22	14	17	19	22	21	19	19	18	15
14 years	19	32	25	26	35	29	28	31	35	34	34	33	33	30
15 years	36	39	40	48	55	40	41	45	50	45	48	46	45	41
All ages	17	20	17	22	26	18	20	23	25	23	24	23	23	20
<i>Bases</i>														
Boys														
11 years	227	309	284	266	269	285	882	612	814	866	894	861	735	600
12 years	279	340	335	307	296	336	1,017	740	930	1,003	1,052	1,024	957	818
13 years	312	312	351	304	275	293	947	737	937	1,035	1,084	1,007	977	765
14 years	306	300	310	306	297	597	921	750	898	950	1,017	977	938	805
15 years	348	358	366	326	295	745	1,049	796	1,032	1,107	1,157	1,078	1,002	869
All ages	1,473	1,623	1,652	1,509	1,432	2,256	4,816	3,635	4,611	4,961	5,204	4,947	4,609	3,857
Girls														
11 years	225	289	304	231	266	291	881	564	800	798	856	820	728	636
12 years	312	277	354	304	272	365	896	681	967	978	1,076	923	887	829
13 years	296	290	333	326	277	383	925	696	956	935	1,057	941	919	826
14 years	311	298	298	309	285	657	933	691	942	946	983	917	953	767
15 years	374	302	317	341	291	666	923	764	956	1,012	1,114	1,024	972	978
All ages	1,518	1,459	1,614	1,511	1,391	2,362	4,558	3,396	4,621	4,669	5,086	4,625	4,459	4,036

Notes: Children in secondary school years 7 to 11, mostly aged 11 to 15.

Source: Department of Health (2007). *Smoking, Drinking and Drug Use among Young People in England in 2006*. The Information Centre: Leeds.

Table 7.6 Alcohol consumption by sex, country of Great Britain and Government Office Region of England, adults aged 16 and over, 2006, Great Britain

	<i>Drinking last week</i>		<i>Units consumed - updated method</i>			
	Drank last week	Drank on 5 or more days last week	Drank more than 4 units on at least one day	Drank more than 8 units on at least one day	<i>Weighted base (000s)</i>	<i>Unweighted base</i>
	%	%	%	%		
MEN						
North East	70	19	43	21	803	310
North West	76	20	47	31	2,216	899
Yorkshire and the Humber	77	21	48	29	1,794	718
East Midlands	72	24	41	23	1,703	688
West Midlands	68	21	37	19	1,745	676
East of England	73	20	37	20	1,987	785
London	62	19	35	21	2,239	662
South East	72	23	37	20	2,858	1,115
South West	76	24	39	21	1,819	743
England	72	21	40	23	17,162	6,596
Wales	69	23	42	22	1,024	411
Scotland	67	14	40	23	1,732	667
Great Britain	71	21	40	23	19,918	7,674
	Drank last week	Drank on 5 or more days last week	Drank more than 3 units on at least one day	Drank more than 6 units on at least one day	<i>Weighted base (000s)</i>	<i>Unweighted base</i>
	%	%	%	%		
WOMEN						
North East	53	11	33	11	915	367
North West	60	10	40	20	2,668	1,110
Yorkshire and the Humber	62	14	40	23	1,977	818
East Midlands	58	14	32	14	1,749	741
West Midlands	52	11	29	13	1,932	773
East of England	57	11	30	12	2,200	907
London	46	7	27	11	2,656	796
South East	59	14	32	15	3,237	1,302
South West	59	15	34	16	2,126	884
England	57	12	33	15	19,465	7,698
Wales	53	11	34	12	1,152	477
Scotland	52	9	33	14	2,124	838
Great Britain	56	11	33	15	22,741	9,013

Notes: Alcohol consumption levels are based on the number of units of alcohol consumed on the heaviest day during the previous week, the "maximum daily" amount.

Estimates for units consumed are given using original and updated GHS methods; see source for details.

Source: Office for National Statistics (2008) *Smoking and drinking among adults*. General Household Survey 2006. Office for National Statistics: London.

Figure 7.6a Percentage of men consuming more alcohol than the recommended daily maximum (four units) by region, 2006, Great Britain

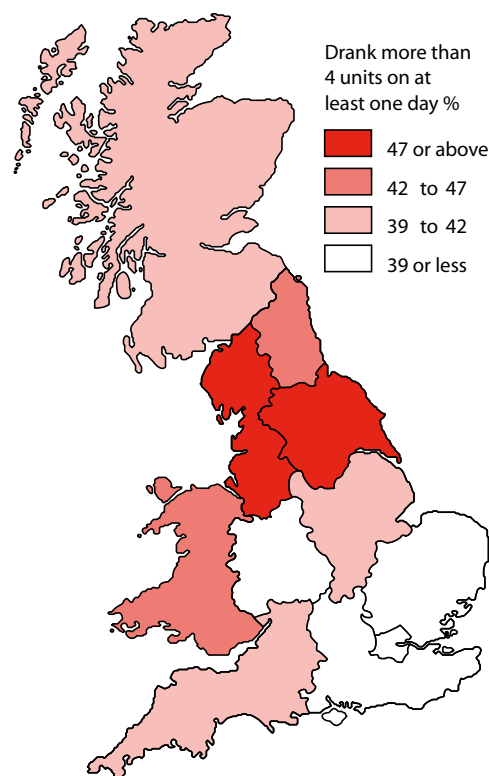
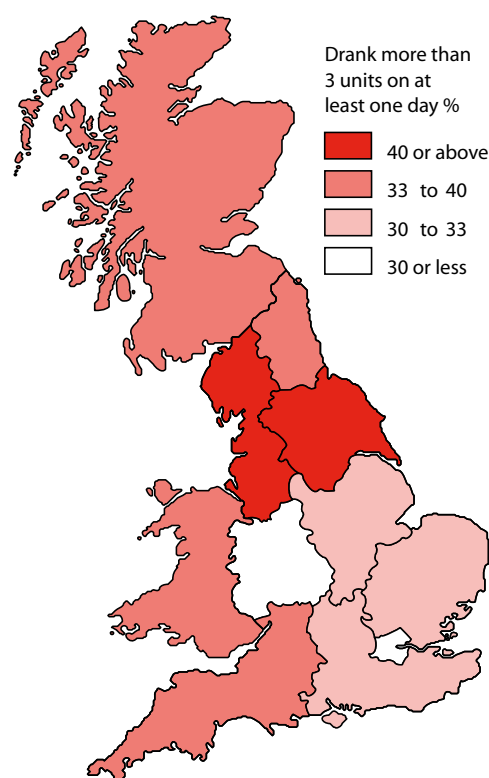


Figure 7.6b Percentage of women consuming more alcohol than the recommended daily maximum (three units) by region, 2006, Great Britain



Adults aged 16 and over.

Figure 7.6c *Percentage of men exceeding daily benchmark for heavy drinking (eight units) by region, 2006, Great Britain*

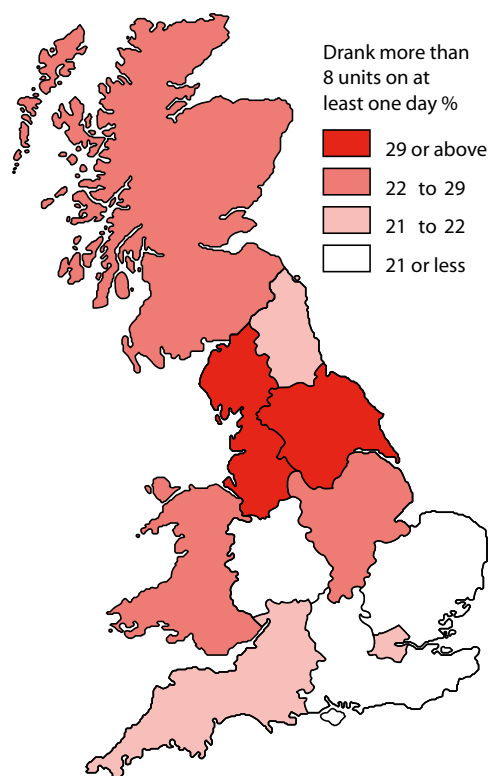
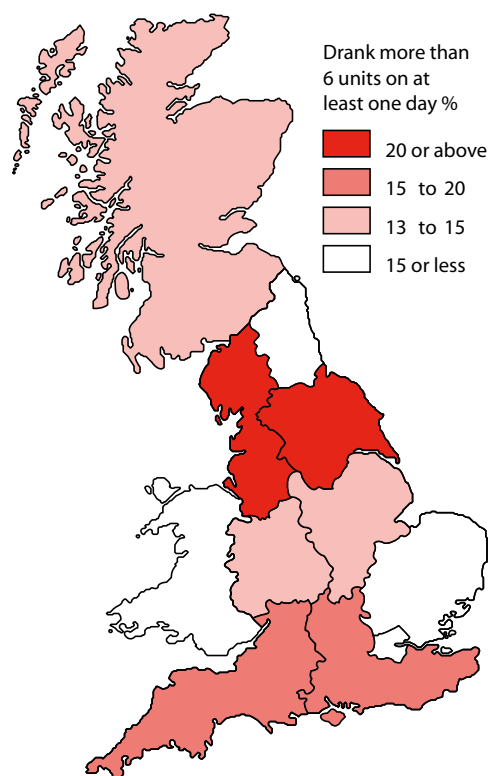


Figure 7.6d *Percentage of women exceeding daily benchmark for heavy drinking (six units) by region, 2006, Great Britain*



Adults aged 16 and over.

Table 7.7 *Alcohol consumption by sex and socio-economic classification, adults aged 16 and over, 2006, Great Britain*

	Drinking last week		Units consumed - updated method			
	Drank last week	Drank on 5 or more days last week	Drank more than 4 units on at least one day	Drank more than 8 units on at least one day	Weighted base (000s)	Unweighted base
	%	%	%	%		
MEN						
Managerial and professional	79	25	44	24		
Large employers and higher managerial	84	30	47	27	1,763	731
Higher professional	79	24	42	21	2,062	830
Lower managerial and professional	76	23	44	24	4,598	1,828
Intermediate	71	23	41	23		
Intermediate	73	21	41	22	1,390	526
Small employers and own account	71	24	41	23	2,138	814
Routine and manual	64	15	35	21		
Lower supervisory and technical	70	16	38	24	2,383	900
Semi routine	62	14	33	18	2,231	836
Routine	61	16	35	22	2,490	930
Total	71	21	40	23	19,917	7,674
	Drank last week	Drank on 5 or more days last week	Drank more than 3 units on at least one day	Drank more than 6 units on at least one day	Weighted base (000s)	Unweighted base
	%	%	%	%		
WOMEN						
Managerial and professional	66	15	40	17		
Large employers and higher managerial	72	18	47	19	1,821	770
Higher professional	67	16	41	16	1,916	805
Lower managerial and professional	63	14	37	17	5,273	2,153
Intermediate	55	12	32	13		
Intermediate	55	11	30	13	2,268	877
Small employers and own account	56	13	34	14	2,046	810
Routine and manual	47	8	26	12		
Lower supervisory and technical	53	9	30	13	2,234	866
Semi routine	46	8	26	13	3,179	1,247
Routine	42	6	23	11	2,829	1,072
Total	56	11	33	15	22,739	9,013

Notes: Alcohol consumption levels are based on the number of units of alcohol consumed on the heaviest drinking day during the previous week, the "maximum daily amount".

Estimates for units consumed are given using original and updated GHS methods; see source for details.

Data are weighted for non-response.

Source: Office for National Statistics (2006). *Smoking and drinking among adults, 2005. General Household Survey 2005*. Office for National Statistics: London. See www.ons.gov.uk/ghs

Table 7.8 *Alcohol consumption by sex and ethnic group, adults aged 16 and over, 2004, England*

<i>Alcohol consumed on the heaviest drinking day</i>	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN								
None	24	40	62	53	93	99	52	20
Under 2 units	13	12	8	11	1	0	14	10
Up to 4 units	55	72	83	77	96	99	81	44
More than 4, up to 8 units	20	16	10	13	1	0	9	25
More than 8 units	25	12	7	9	3	0	10	32
% exceeding 4 units	45	28	17	22	4	1	19	56
<i>Unweighted base</i>	2,829	397	369	531	416	395	337	490
<i>Weighted base</i>	45,229	465	357	873	406	172	147	1,751
WOMEN								
None	39	53	74	79	97	99	68	33
Under 2 units	18	17	11	8	1	0	15	18
Up to 3 units	70	81	92	92	98	99	88	64
More than 3, up to 6 units	16	12	5	4	0	0	8	20
More than 6 units	14	6	2	4	1	0	4	16
% exceeding 3 units	30	18	7	8	1	1	12	36
<i>Unweighted base</i>	3,745	618	446	618	495	448	364	642
<i>Weighted base</i>	47,623	641	454	1,043	488	194	158	2,329

Notes: Numbers may not add due to rounding.

Source: Department of Health (2005) *Health Survey for England 2004*. The Information Centre: London
See <http://www.ic.nhs.uk/pubs/healthsurvey2004ethnicfull>

Figure 7.8a Alcohol consumption by ethnic group, men aged 16 and over, 2004, England

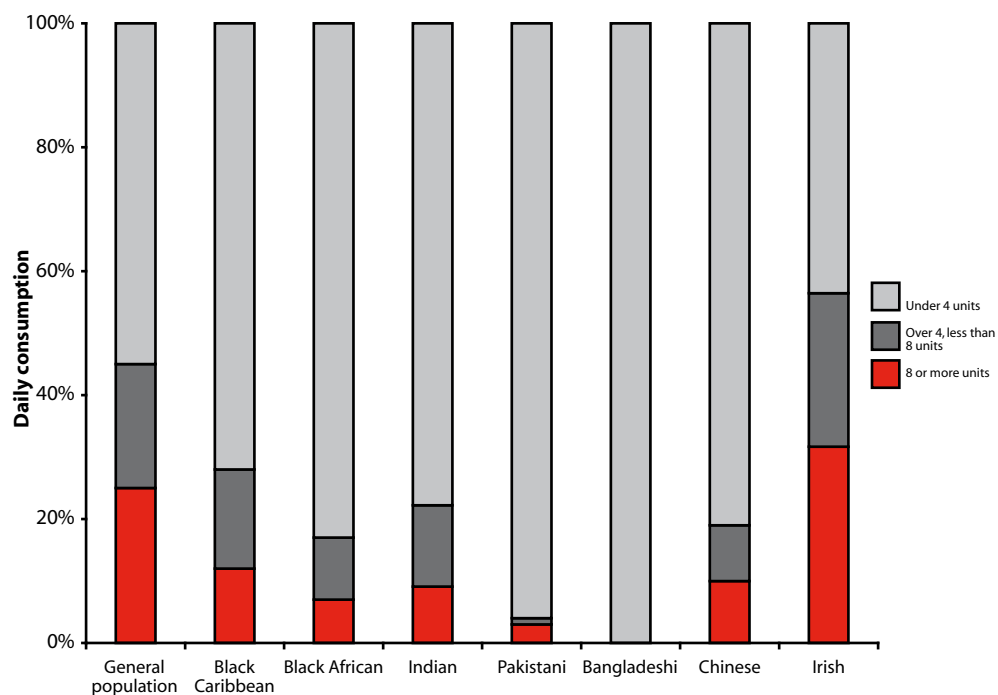


Figure 7.8b Alcohol consumption by ethnic group, women aged 16 and over, 2004, England

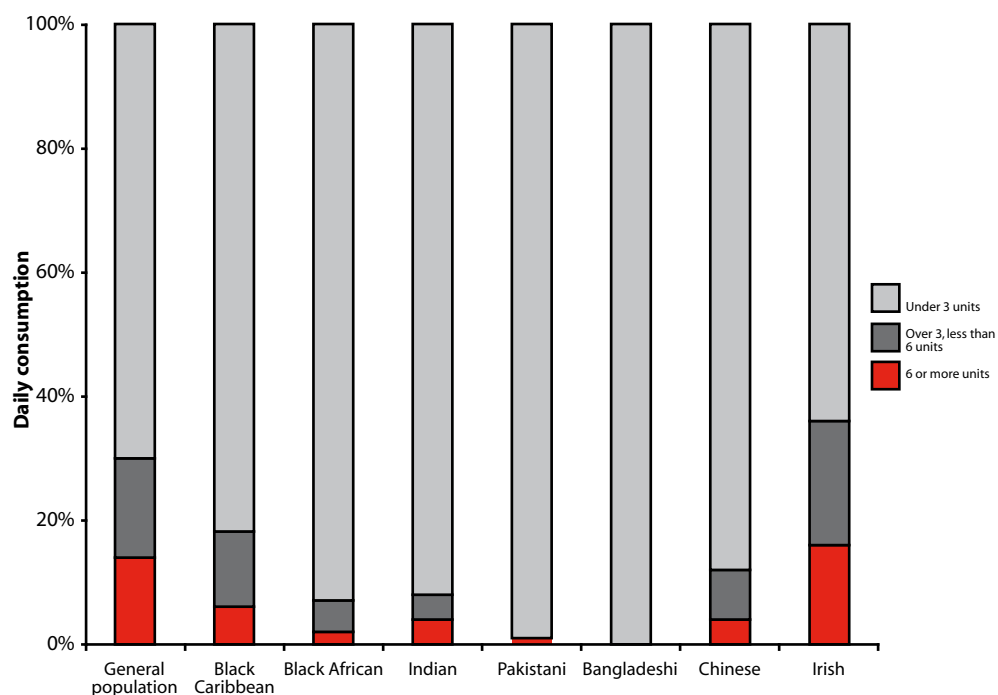


Table 7.9 *Alcohol consumption by country, adults aged 15 and over, 2003, Europe*

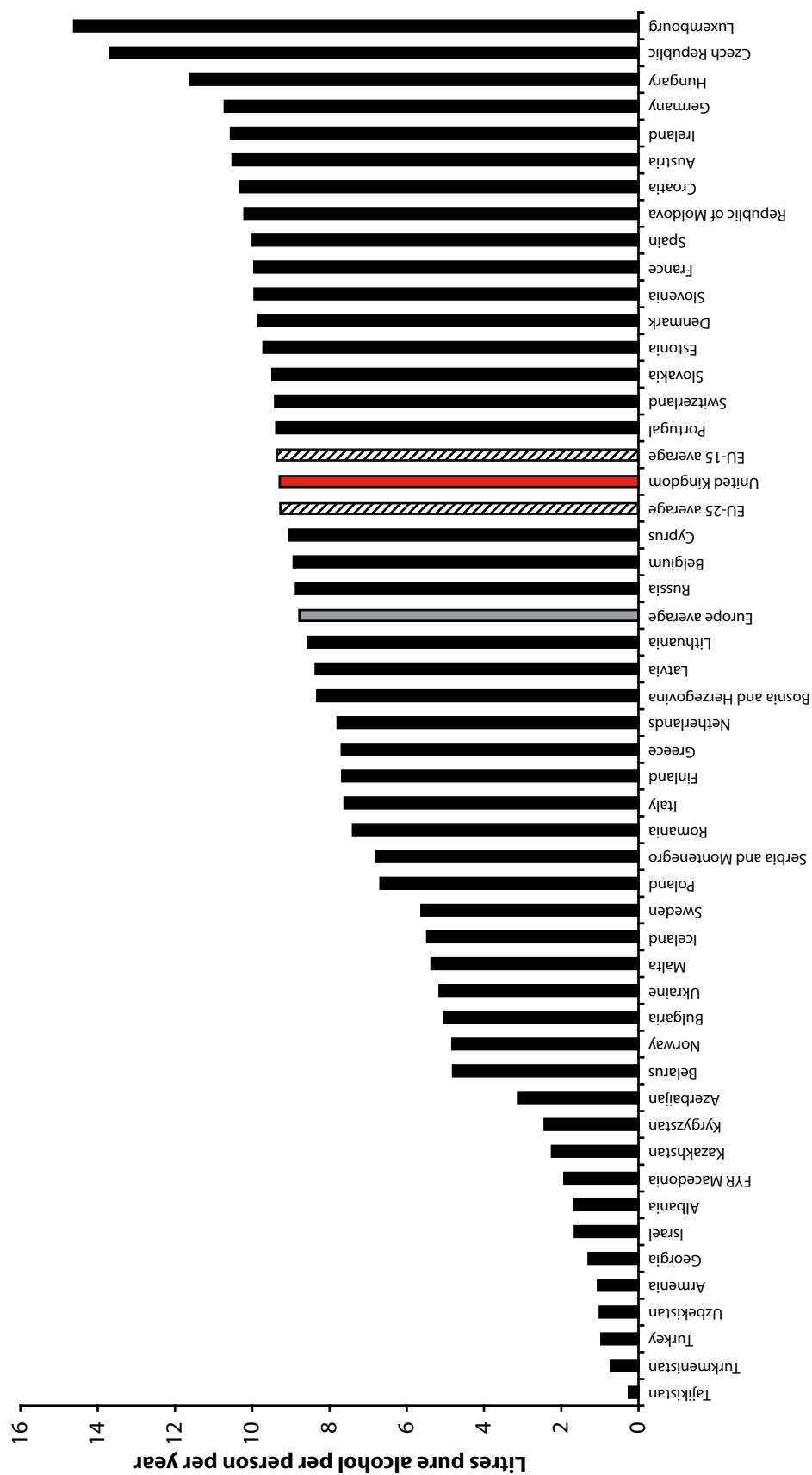
Litres pure alcohol per person per year

Albania	1.7	Lithuania	8.6
Armenia	1.1	Luxembourg	14.6
Austria	10.5	FYR Macedonia *	1.9
Azerbaijan	3.1	Malta	5.4
Belarus	4.8	Netherlands	7.8
Belgium	8.9	Norway	4.8
Bosnia and Herzegovina	8.3	Poland	6.7
Bulgaria	5.0	Portugal	9.4
Croatia	10.3	Republic of Moldova *	10.2
Cyprus	9.0	Romania	7.4
Czech Republic	13.7	Russia	8.9
Denmark	9.8	Serbia and Montenegro *	6.8
Estonia	9.7	Slovakia	9.5
Finland	7.7	Slovenia	9.9
France	10.0	Spain	10.0
Georgia	1.3	Sweden	5.6
Germany	10.7	Switzerland	9.4
Greece	7.7	Tajikistan	0.3
Hungary	11.6	Turkey	1.0
Iceland	5.5	Turkmenistan	0.7
Ireland	10.6	Ukraine	5.2
Israel	1.7	United Kingdom	9.3
Italy	7.6	Uzbekistan	1.0
Kazakhstan	2.2	Europe average	8.8
Kyrgyzstan	2.4	EU-15 average	9.4
Latvia	8.4	EU-25 average	9.3

Notes: * data for these countries are for 2002.

Source: World Health Organization (2006) *European Health for All statistical database*.
<http://www.euro.who.int/hfad> (accessed 12 January 2007)

Figure 7.9 Alcohol consumption by country, adults aged 15 and over, 2003, Europe



8. Psychosocial Well-being

Four different types of psychosocial factor have been found to be most consistently associated with an increased risk of CHD: work stress, lack of social support, depression (including anxiety) and personality (particularly hostility)¹. As yet there are no estimates of the numbers of deaths from CHD which are due to poor psychosocial well-being or of the numbers of deaths which could be avoided if psychosocial well-being was increased.

The Government acknowledges that ‘working in jobs which make very high demands, or in which people have little or no control, increases the risk of CHD and premature death. Inadequate social support or lack of social networks can also have a harmful effect on health and on the chances of recovering from disease’².

Depression

The Health Survey for England 2005 and the Scottish Health Survey for 2003 used the General Health Questionnaire (GHQ12) to assess levels of depression, anxiety, sleep disturbance and happiness in the population. A GHQ12 score of 4 or more - a ‘high GHQ12 score’ - indicates a high level of psychological distress.

Both surveys indicate that women have higher GHQ12 scores than men: 15% of women had a high score, compared with 11% of men in England; 17% compared to 13% in Scotland (Table 8.1 and Figure 8.1).

There is a clear inverse relationship between GHQ12 scores and income: people with low incomes tended to have higher GHQ12 scores. For example, in England men with the lowest 20% of household incomes are almost four times as likely to have a high GHQ12 score than those with the highest 20% of incomes (Table 8.2).

GHQ12 scores also vary geographically across England and are highest in men and women in the North of England. Men living in the North East of England were nearly 50% more likely to have a high GHQ12 score than men living in London and the South of England. There was less variation among women (Table 8.3).

GHQ12 scores vary by ethnicity in both men and women. Chinese men and women were less likely to have a high GHQ12 score – just 9% of men and 13% of women compared to 11% of men and 15% of women in the general population. The highest GHQ12 scores (and hence the highest levels of psychological distress) in men were found in the Bangladeshi followed by the Indian communities: 18% of Bangladeshi men and 16% of Indian men had high GHQ12 scores. The highest GHQ12 scores in women were found in the Pakistani and Black African

communities: 20% of Pakistani women and 19% of Black African women had high GHQ12 scores (Table 8.4).

Social support

Men are more likely to report a lack of social support than women. The 2005 Health Survey for England found that 18% of men but only 11% of women reported a severe lack of social support. There was no clear pattern of reported social support in relation to age (Table 8.5).

Lack of social support is associated with socio-economic classification. Both men and women in the semi-routine and routine category are around twice as likely to report a severe lack of social support as those in the managerial and professional group (Table 8.6 and Figure 8.6). The social gradient is even more evident when measured by income: only 5% of women in the highest income quintile report a severe lack of social support compared to 17% of women in the lowest income quintile (Table 8.7).

Social support also varies with ethnicity. Men and women of Pakistani and Bangladeshi origin were more likely to report a severe lack of social support compared with the general population. Pakistani and Bangladeshi adults were well over twice as likely to perceive a severe lack of social support, with over one-third of Pakistani (38%) and Bangladeshi (35%) men, and about one-third of Pakistani (30%) and Bangladeshi (33%) women experiencing little social support (Table 8.8 and Figure 8.8).

1. Hemingway H, Marmot M (1999) Psychosocial factors in the aetiology and prognosis of coronary heart disease: systematic review of prospective cohort studies. *BMJ*; 318; 1460-7.
2. Department of Health (1999) *Saving Lives: Our Healthier Nation*. DH: London.

Table 8.1 GHQ12 score by sex and age, adults aged 16 and over, 2005, England and 2003, Scotland

	All ages	16-24	25-34	35-44	45-54	55-64	65-74	75+
GHQ12 score	%	%	%	%	%	%	%	%
ENGLAND, 2005								
MEN								
0	67	67	68	68	65	65	74	65
1-3	22	24	23	21	23	22	17	21
4 or more	11	9	9	11	12	13	9	14
Unweighted base	2,977	341	406	440	431	354	627	378
Weighted base	3,280	496	541	639	548	502	327	226
WOMEN								
0	62	55	62	62	63	65	72	56
1-3	23	30	24	22	19	18	20	29
4 or more	15	15	14	16	17	17	7	15
Unweighted base	3,534	386	508	582	498	423	695	442
Weighted base	3,557	494	578	678	573	529	358	347
SCOTLAND, 2003								
MEN								
0	67	66	69	68	65	70	68	64
1-3	20	25	19	18	20	16	19	23
4 or more	13	10	12	14	14	13	13	14
Unweighted base	3,380	318	425	697	584	594	470	292
Weighted base	3,614	553	567	718	637	533	376	232
WOMEN								
0	61	54	64	61	59	65	65	55
1-3	23	30	20	20	23	20	21	28
4 or more	17	16	17	18	18	15	14	18
Unweighted base	4,285	391	582	853	763	737	527	432
Weighted base	4,057	547	640	782	664	570	447	408

Notes: GHQ12 is a questionnaire containing 12 questions about general level of happiness, depression, anxiety and sleep disturbance over the past four weeks. A score of 4 or more is used as a threshold to identify informants with high levels of psychological distress. The results for England are derived directly from the Health Survey for England dataset for 2005, using the provided individual weighting.

Source: Joint Health Surveys Unit (2006) Health Survey for England 2005. The Stationery Office: London. Data downloaded from the UK Data Archive.

The Scottish Executive (2005). The Scottish Health Survey 2003, Vol 2. The Stationery Office: Edinburgh.

Figure 8.1a High GHQ12 score (4+) by sex and age, 2005, England

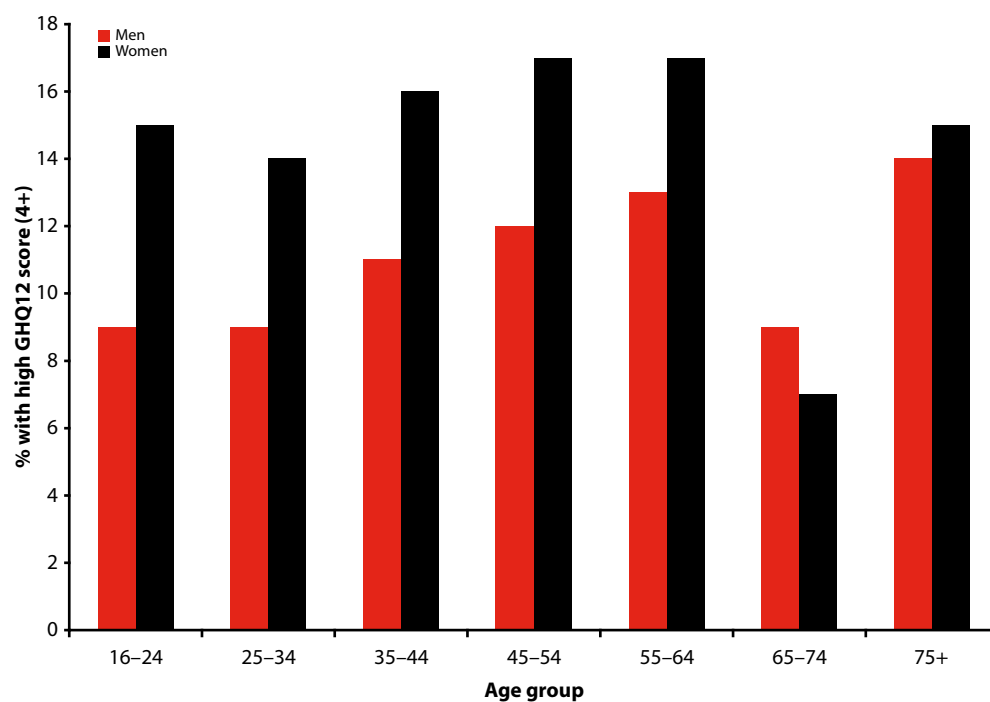


Figure 8.1b High GHQ12 score (4+) by sex and age, 2003, Scotland

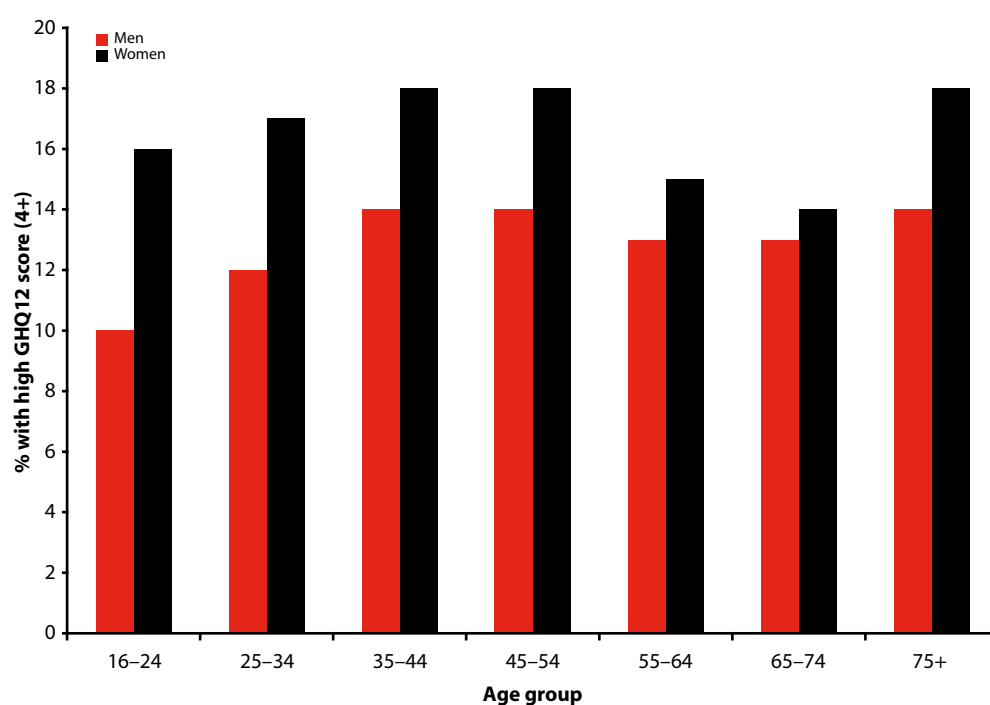


Table 8.2 GHQ12 score by sex and household income, adults aged 16 and over, 2005, England and 2003, Scotland

GHQ12 score	Equivalent household income quintile				
	Lowest %	2nd %	3rd %	4th %	Highest %
ENGLAND, 2005					
MEN					
0	57	64	68	68	71
1–3	21	25	22	23	23
4 or more	22	10	9	10	6
Unweighted base	389	425	529	536	593
Weighted base	445	455	557	600	681
WOMEN					
0	60	62	60	66	65
1–3	21	21	22	24	24
4 or more	20	16	17	10	12
Unweighted base	632	526	614	550	570
Weighted base	652	523	599	552	607
SCOTLAND, 2003					
MEN					
0	55	62	68	72	73
1–3	21	23	17	20	18
4 or more	24	15	15	8	9
Unweighted base	442	611	557	616	747
Weighted base	475	590	591	665	813
WOMEN					
0	49	59	61	65	62
1–3	26	21	22	22	27
4 or more	24	20	16	13	11
Unweighted base	655	870	725	691	782
Weighted base	625	789	685	658	750

Notes: GHQ12 is a questionnaire containing 12 questions about general level of happiness, depression, anxiety and sleep disturbance over the past four weeks. A score of 4 or more is used as a threshold to identify informants with high levels of psychological distress. The results for England are derived directly from the Health Survey for England dataset for 2005, using the provided individual weighting.

Source: Joint Health Surveys Unit (2006) *Health Survey for England 2005*. The Stationery Office: London. Data downloaded from the UK Data Archive.

The Scottish Executive (2005) The Scottish Health Survey 2003, Vol 2. The Stationery Office: Edinburgh.

Table 8.3 *GHQ12 score by sex and Government Office Region, adults aged 16 and over, 2005, England*

GHQ12 score	Government Office Region								
	North East %	North West %	Yorkshire & the Humber %	East Midlands %	West Midlands %	East of England %	London %	South East %	South West %
MEN									
0	65	69	63	70	64	69	65	69	69
1-3	21	19	25	20	24	23	24	21	21
4 or more	14	12	12	10	12	9	10	10	10
Unweighted base	235	557	439	415	420	496	428	673	483
Weighted base	161	426	340	315	348	374	416	533	368
WOMEN									
0	64	58	64	63	64	64	59	65	58
1-3	18	24	24	22	21	23	24	21	28
4 or more	17	18	12	15	15	13	17	14	14
Unweighted base	323	733	563	462	548	567	513	833	561
Weighted base	188	479	380	304	397	405	454	570	379

Notes: GHQ12 is a questionnaire containing 12 questions about general level of happiness, depression, anxiety and sleep disturbance over the past four weeks. A score of 4 or more is used as a threshold to identify informants with high levels of psychological distress. The results are derived directly from the Health Survey for England dataset for 2005, using the provided individual weighting.

Source: Joint Health Surveys Unit (2006) Health Survey for England 2005. The Stationery Office: London. Data downloaded from the UK Data Archive.

Table 8.4 *Prevalence of high GHQ12 score (4+) by sex and ethnic group, adults aged 16 and over, 2004, England*

	General population %	Black Caribbean %	Black African %	Indian %	Pakistani %	Bangladeshi %	Chinese %	Irish %
MEN								
	11	13	11	16	15	18	9	12
Weighted base	41,950	372	295	769	315	104	135	1,614
Unweighted base	2,621	315	293	464	322	246	310	427
WOMEN								
	15	18	19	14	20	15	13	15
Weighted base	44,845	556	364	890	328	122	139	2,182
Unweighted base	3,523	514	350	534	334	283	318	587

Notes: Age-standardised percentages (standardised risk ratios x percentage in general population).

Source: Department of Health (2005) Health Survey for England. The Health of Minority Ethnic Groups 2004. The Stationery Office: London.

Table 8.5 *Perceived social support by sex and age, adults aged 16 and over, 2005, England*

	All ages	16–24	25–34	35–44	45–54	55–64	65–74	75 & over
<i>Perceived social support</i>	%	%	%	%	%	%	%	%
MEN								
No lack	55	55	62	50	56	56	51	49
Some lack	28	27	25	29	27	26	33	29
Severe lack	18	17	13	22	17	18	16	22
<i>Weighted base</i>	3,303	497	549	640	549	505	326	235
<i>Unweighted base</i>	4,177	370	465	522	560	549	1,019	692
WOMEN								
No lack	66	68	70	63	66	69	63	64
Some lack	22	23	20	25	21	20	25	24
Severe lack	11	9	10	12	13	11	13	11
<i>Weighted base</i>	3,588	497	584	676	579	529	363	360
<i>Unweighted base</i>	5,180	442	593	716	684	638	1,142	965

Notes: The results are derived directly from the Health Survey for England dataset for 2005, using the provided individual weighting.

Source: Joint Health Surveys Unit (2006) Health Survey for England 2005. The Stationery Office: London. Data downloaded from the UK Data Archive.

Table 8.6 *Perceived social support by sex and socio-economic classification, adults aged 16 and over, 2005, England*

	NS-SEC of head of household				
	Managerial & professional	Intermediate	Small employers & own account workers	Lower supervisory & technical	Semi-routine & routine
<i>Perceived social support</i>	%	%	%	%	%
MEN					
No lack	62	50	55	46	48
Some lack	25	32	27	33	28
Severe lack	13	18	18	20	25
Weighted base	1,340	252	378	432	784
Unweighted base	1,741	294	480	564	1,047
WOMEN					
No lack	74	67	64	59	60
Some lack	18	21	27	25	26
Severe lack	8	12	9	16	14
Weighted base	1,400	344	369	359	1,008
Unweighted base	1,873	549	506	520	1,576

Notes: The results are derived directly from the Health Survey for England dataset for 2005, using the provided individual weighting.

Figure 8.6 *Percentage perceiving severe lack of social support by sex and socio-economic classification, adults aged 16 and over, 2005, England*

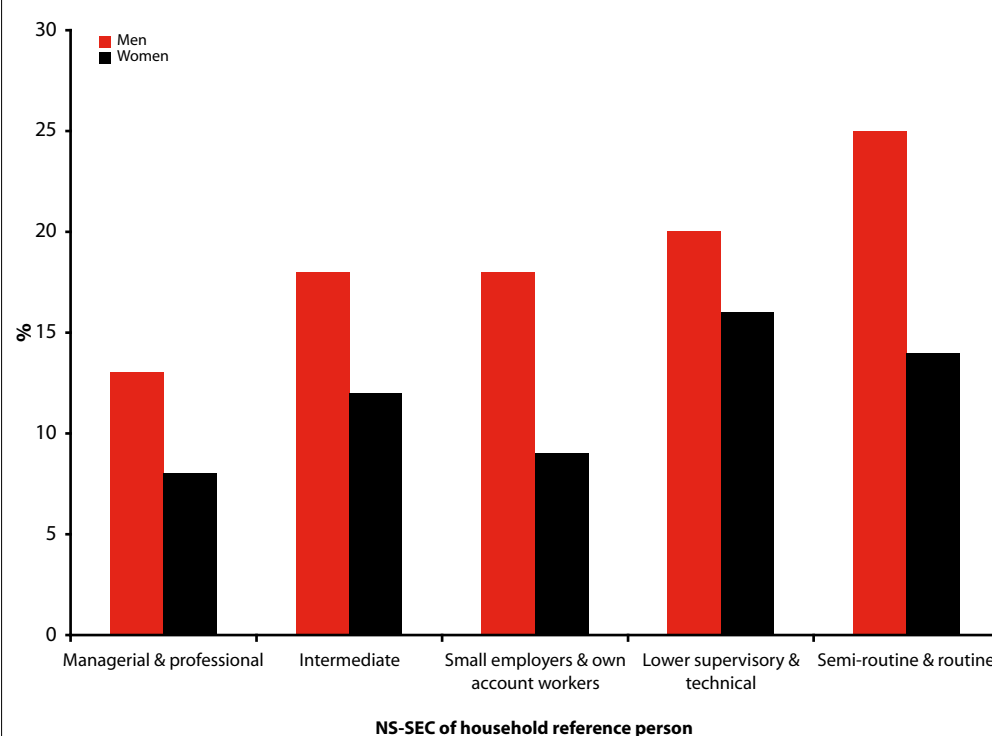


Table 8.7 *Perceived social support by sex and household income, adults aged 16 and over, 2005, England*

<i>Perceived social support</i>	<i>Equivalised household income quintile</i>				
	<i>Lowest %</i>	<i>2nd %</i>	<i>3rd %</i>	<i>4th %</i>	<i>Highest %</i>
MEN					
No lack	40	49	56	59	61
Some lack	30	30	27	25	26
Severe lack	30	20	16	15	13
<i>Weighted base</i>	449	456	560	606	680
<i>Unweighted base</i>	678	678	731	673	709
WOMEN					
No lack	56	59	67	71	81
Some lack	26	28	23	20	14
Severe lack	17	13	10	9	5
<i>Weighted base</i>	658	531	604	554	608
<i>Unweighted base</i>	1,104	867	867	678	702

Notes: The results are derived directly from the Health Survey for England dataset for 2005, using the provided individual weighting.

Source: Joint Health Surveys Unit (2006) Health Survey for England 2005. The Stationery Office: London.
Data downloaded from the UK Data Archive.

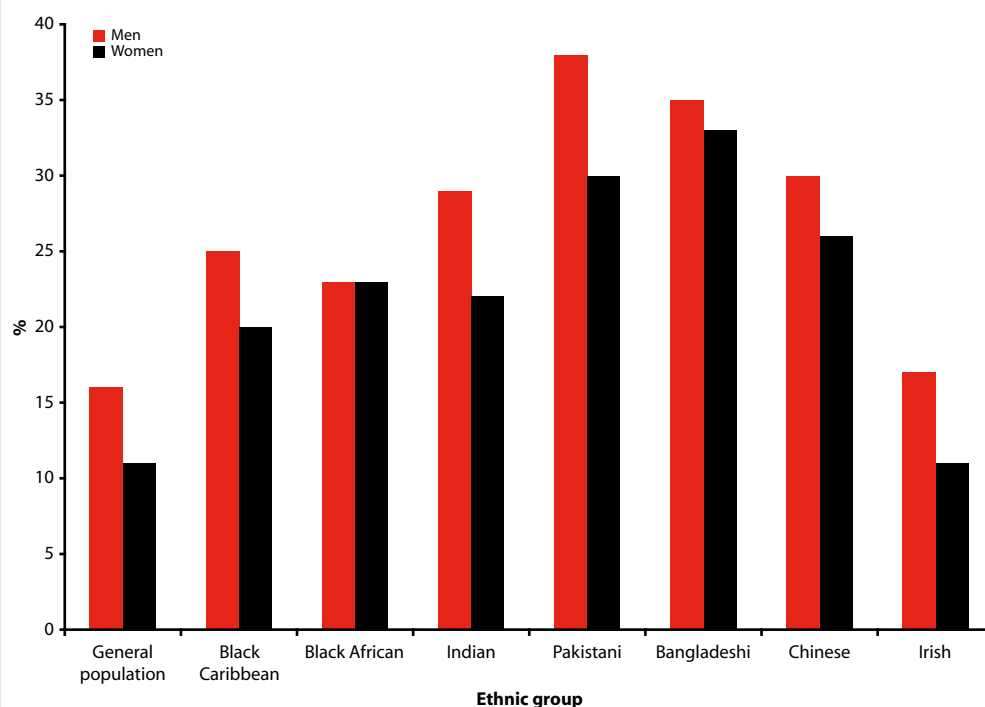
Table 8.8 *Percentage perceiving severe lack of social support by sex and ethnic group, adults aged 16 and over, 2004, England*

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN	16	25	23	29	38	35	30	17
Weighted base	42,128	390	296	771	315	104	135	1,624
Unweighted base	2,636	327	296	467	321	246	312	433
WOMEN	11	20	23	22	30	33	26	11
Weighted base	45,113	567	377	907	341	126	143	2,195
Unweighted base	3,548	521	362	541	346	292	328	597

Notes: Age-standardised percentages (standardised risk ratios x percentage in general population).

Source: Department of Health (2005) Health Survey for England. The Health of Minority Ethnic Groups 2004. The Stationery Office: London.

Figure 8.8 *Percentage perceiving severe lack of social support by sex and ethnic group, adults aged 16 and over, 2004, England*



9. Blood Pressure

Risk of CHD is directly related to both systolic and diastolic blood pressure levels. Meta-analysis of prospective data on over one million adults has shown that for adults aged 40 to 69 years, each 20mmHg increase in usual systolic blood pressure, or 10mmHg increase in usual diastolic blood pressure, doubles the risk of death from CHD¹. At older ages the increase in risk of death from CHD is smaller, around 50% increase for every 20mmHg increase in usual systolic or 10mmHg increase in diastolic blood pressure in adults aged 80 to 89 years.

The World Health Report 2002 estimates that around 11% of all disease burden in developed countries is caused by raised blood pressure, and that over 50% of CHD and almost 75% of stroke in developed countries is due to systolic blood pressure levels in excess of the theoretical minimum (115mmHg)².

More recently the INTERHEART study estimated that 22% of heart attacks in Western Europe and 25% of heart attacks in Central and Eastern Europe were due to a history of high blood pressure, and that those with a history of hypertension were at just under twice the risk of a heart attack compared to those with no history of hypertension³.

The 2004 British Hypertension Society guidelines for hypertension management recommend that drug treatment should be considered for individuals with blood pressures of 140/90mmHg or over, and that optimal blood pressure treatment targets are a systolic blood pressure of less than 140mmHg and a diastolic blood pressure of less than 85mmHg (and lower still, at 130/85mmHg, in people with diabetes). The optimal blood pressure level is now classified as <120/<80mmHg⁴ (Table 9.1).

Both drug treatment and lifestyle changes - particularly weight loss, an increase in physical activity, and a reduction in salt and alcohol intake - can effectively lower blood pressure.

Overall levels

Rates of hypertension have dropped slightly in England since 1998, for both men and women at all ages. The largest decreases have occurred at older ages. For example, 73% of women aged 65 to 74 had hypertension in 1998 compared to 66% in 2006 (Table 9.2 and Figure 9.2).

In 2006, 31% of men and 28% of women in England had hypertension (defined here as a systolic blood pressure of 140mmHg or over, or a diastolic blood pressure of 90mmHg or over) or were being treated for hypertension. Around three-fifths (58%) of men and nearly half (46%) of women with hypertension were not receiving treatment. Of those that were treated, around half remained hypertensive (Table 9.3).

The prevalence of hypertension increases with age in both sexes. For example, only 1% of women aged 16 to 24 are hypertensive, compared to 40% aged 55 to 64 and two-thirds aged 65 to 74 (Table 9.3 and Figure 9.3).

National and regional differences

Data from the Scottish Health Survey suggest that the prevalence of high blood pressure is similar in England and Scotland. In 2003, 34% of English men and 30% of English women were hypertensive compared to 33% of Scottish men and 33% of Scottish women⁵ (Table 9.4).

Data from Wales and Northern Ireland are not comparable with those for England and Scotland, as they are not based on direct blood pressure measurements. In Wales, the Welsh Health Survey 2004/05, showed that 19% of people reported being treated for raised blood pressure. In Northern Ireland, the Northern Ireland Health and Social Wellbeing Survey 2001, found that 19% of men and 27% of women reported having been informed by a health professional that they had high blood pressure (Table 9.5).

For men in England, the lowest levels of hypertension are found in the East of England (28%), and the highest levels are found in the North East (35%). The situation is similar for women, where the lowest levels are found in the East of England (23%) and the highest levels are found in Yorkshire and the Humber (30%) (Table 9.6).

Socio-economic differences

The prevalence of hypertension in men does not seem to vary by income quintile. In 2006, the prevalence was around 30% for each quintile. This is not the case for women where the prevalence of high blood pressure in the lowest income quintile is a third higher than in the highest income quintile (Table 9.7).

Ethnic differences

Data from the Health Survey for England show that in 2004 the proportion of men with high blood pressure in Bangladeshi men was half that of the general population; in Pakistani and Chinese men the proportion was two thirds that of the general population. Pakistani and Chinese women were half as likely to have high blood pressure compared to women in the general population (Table 9.8).

The prevalence of untreated hypertension was lower among Pakistani, Bangladeshi and Chinese men and Indian, Pakistani, Bangladeshi and Chinese women than in the general population⁶.

International differences

Data from the World Health Organization⁷ show a wide range in mean systolic blood pressure throughout Europe. For men in 2002, the lowest systolic blood pressure was found in Turkey (117.6 mmHg) and the highest in Georgia (139.7 mmHg). For women in 2002 the lowest was Denmark (114.8 mmHg) and the highest was Georgia (134.6 mmHg). Mean systolic blood pressure in the UK in 2002 was 132.2 mmHg for men and 121.2 mmHg for women (Table 9.9 and Figures 9.9a and 9.9b).

Trend data from the World Health Organization's MONICA Project show that between the mid-1980s and mid-1990s the majority of populations included in the study experienced a decline in average systolic blood pressure. Compared to other cities in the study, declines in average systolic blood pressure were moderately high in Glasgow but low in Belfast, where no significant decline occurred⁸.

1. Prospective Studies Collaboration (2002) Age-specific relevance of usual blood pressure to vascular mortality: a meta analysis of individual data for one million adults in 61 prospective studies. *The Lancet*; 360: 1903-1913.
2. World Health Organization (2002) *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. World Health Organization: Geneva.
3. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigo J, Lisheng A, on behalf of the INTERHEART Study Investigators (2004) Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART Study): case-control study. *The Lancet*; 364: 937-952.
4. Williams B, Poulter N, Brown M, Davis M, McInnes G, Potter J, Sever P, Thom S; the BHS guidelines working party, for the British Hypertension Society (2004) British Hypertension Society guidelines for hypertension management 2004 (BHS-IV): summary. *BMJ*; 328: 634-640.
5. *The Scottish Health Survey (SHS) uses the same methods as the Health Survey for England.*
6. See Table 7.3, page 32 in *The Health of Minority Ethnic Groups - headline tables (2005) Health Survey for England 2004*. NHS Health and Social Care Information Centre.
7. World Health Organization (2005) *The SuRF Report 2. Surveillance of chronic disease Risk Factors – Country level data and comparable estimates*. WHO Global Infobase (www.who.int/ncd_surveillance/infobase/web/surf2/start.html).
8. WHO MONICA Project (2003) *Monica monograph and multimedia sourcebook*. Edited by Hugh Tunstall-Pedoe for the WHO MONICA Project. WHO: Geneva.

Table 9.1 *Blood pressure recommendations and hypertension definition for the United Kingdom*

<i>Recommendations</i>	
Systolic blood pressure – general population	No greater than 140mmHg
Systolic blood pressure – diabetes or chronic renal failure sufferers	No greater than 130mmHg
Diastolic blood pressure – general population	No greater than 85mmHg
Diastolic blood pressure – diabetes or chronic renal failure sufferers	No greater than 80mmHg
<i>Hypertension</i>	
Definition	Systolic blood pressure greater than or equal to 140mmHg, and / or diastolic blood pressure greater than or equal to 90mmHg
Threshold for drug treatment	Sustained levels of systolic blood pressure greater than or equal to 160mmHg, and / or diastolic blood pressure greater than or equal to 100mmHg

Table 9.2 *Prevalence of high blood pressure by sex and age, adults aged 16 and over, 1998 to 2006, England*

	1998	2000	2001	2002	2003	2005	2006
MEN	%	%	%	%	%	%	%
All ages	41	40	41	37	38	39	39
16-24	16	12	20	14	11	9	10
25-34	21	21	18	17	13	17	18
35-44	26	27	23	24	21	26	18
45-54	42	41	41	36	37	33	35
55-64	60	54	58	53	53	53	51
65-74	70	70	68	62	65	64	63
75 and over	73	65	70	71	67	69	68
<i>Base:</i>							
All ages	5,401	2,552	4,840	2,161	4,108	1,916	3,924
16-24	594	260	516	947	370	185	335
25-34	984	424	711	308	557	243	473
35-44	981	510	917	445	806	312	715
45-54	981	429	877	348	699	351	663
55-64	766	378	786	335	736	367	739
65-74	665	323	660	287	577	264	592
75 and over	430	228	373	184	363	194	407
WOMEN							
All ages	33	33	35	34	32	29	31
16-24	4	4	5	4	2	1	1
25-34	7	6	7	6	5	4	3
35-44	13	10	12	12	10	10	10
45-54	31	31	34	33	24	23	26
55-64	52	52	54	52	47	42	42
65-74	73	75	74	70	68	62	66
75 and over	78	81	79	79	77	73	73
<i>Base:</i>							
All ages	6,483	3,046	5,813	2,668	5,075	2,392	4,838
16-24	692	268	582	1,145	479	216	411
25-34	1,142	516	896	380	715	325	602
35-44	1,190	621	1,144	554	994	429	965
45-54	1,164	562	1,056	440	837	453	810
55-64	896	419	866	408	889	431	870
65-74	751	366	716	324	617	298	638
75 and over	648	294	553	274	544	240	542

Notes: Informants were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medicine prescribed for blood pressure. All data are presented unweighted for analysis of trends. The measurement of blood pressure in the Health Survey for England series changed in 2003; the results presented here for 2003, 2005 and 2006 have been adapted for comparison with the earlier measurement methods.

Source: National Centre for Social Research (2008) Health Survey for England 2006. Adult trend tables.
<http://www.ic.nhs.uk/statistics-and-data-collections/healthand-lifestyles-related-surveys/health-survey-for-england/health-survey-for-england-2006-latest-trends>
 Accessed 15th February 2008

Figure 9.2a Prevalence of high blood pressure, by age, men aged 16 and over, 1998 to 2006, England

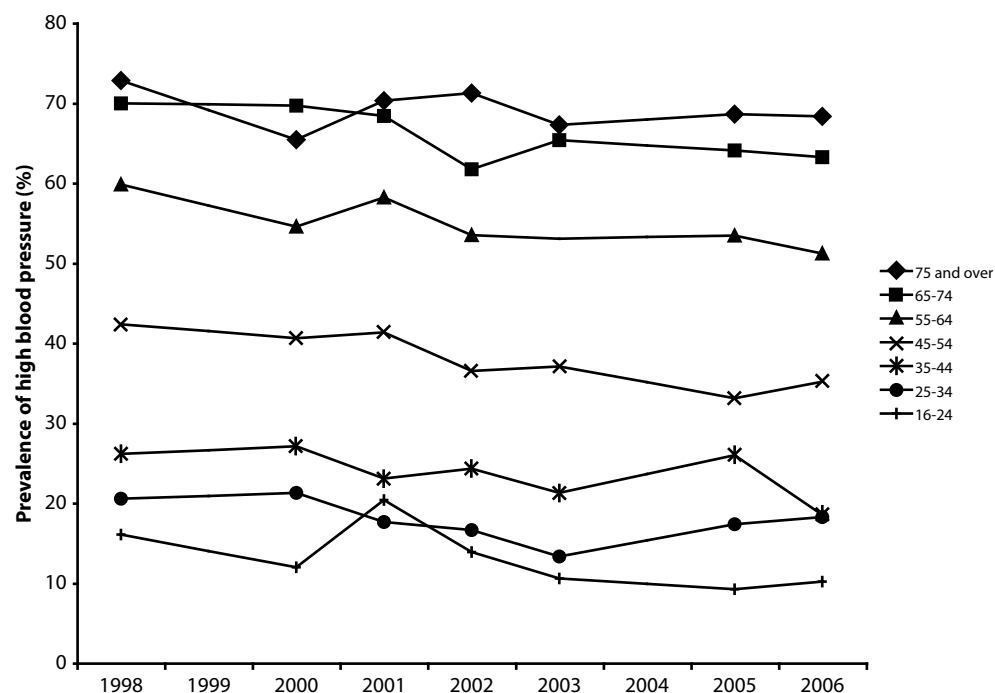


Figure 9.2b Prevalence of high blood pressure, by age, women aged 16 and over, 1998 to 2006, England

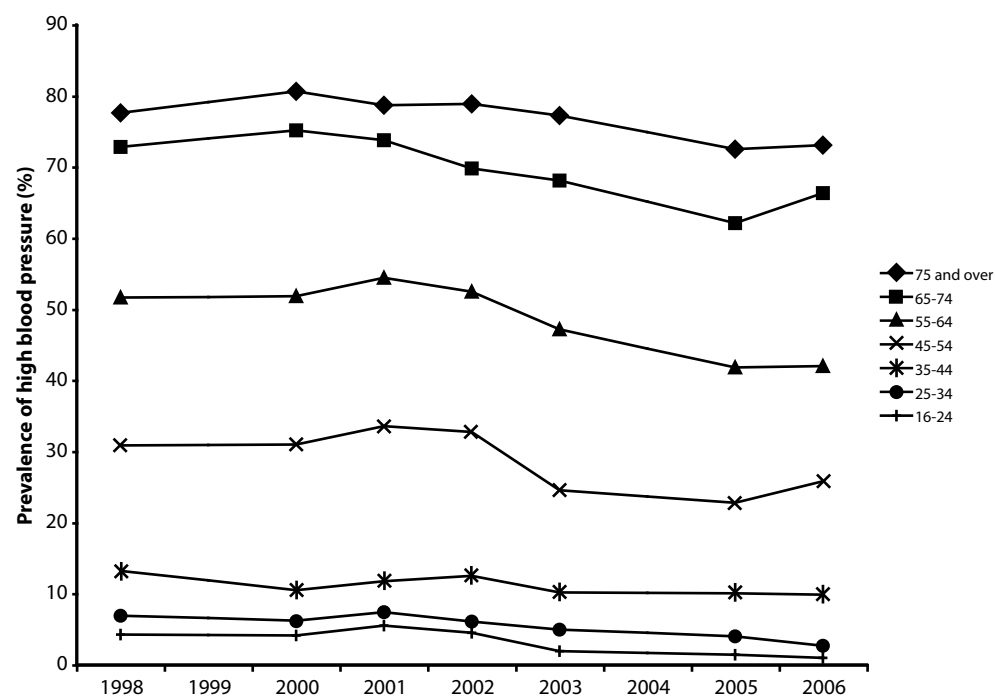


Table 9.3 *Blood pressure levels by sex and age, adults aged 16 and over, 2006, England*

Blood pressure level	All ages	16-24	25-34	35-44	45-54	55-64	65-74	75+
	%	%	%	%	%	%	%	%
MEN								
Normotensive untreated	69	94	84	84	66	53	40	34
Normotensive treated	7	-	0	1	6	11	22	19
Hypertensive treated	6	-	0	1	6	10	16	22
Hypertensive untreated	18	6	16	14	22	26	23	26
<i>All with high blood pressure</i>	<i>31</i>	<i>6</i>	<i>16</i>	<i>16</i>	<i>34</i>	<i>47</i>	<i>60</i>	<i>66</i>
Unweighted base	3,924	335	473	715	663	739	592	407
Weighted base	4,175	604	666	799	694	630	458	325
WOMEN								
Normotensive untreated	72	99	97	90	74	60	37	31
Normotensive treated	8	1	1	2	6	12	20	20
Hypertensive treated	7	0	-	1	3	8	17	27
Hypertensive untreated	13	1	2	6	17	19	27	22
<i>All with high blood pressure</i>	<i>28</i>	<i>1</i>	<i>3</i>	<i>10</i>	<i>26</i>	<i>40</i>	<i>63</i>	<i>69</i>
Unweighted base	4,838	411	602	965	810	870	638	542
Weighted base	4,492	583	641	851	700	680	504	535

Notes: Data are weighted for non response.

Informants were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medicine affecting blood pressure. "Treated" means taking medication prescribed for high blood pressure.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Figure 9.3 *Prevalence of high blood pressure by sex and age, adults aged 16 and over, 2006, England*

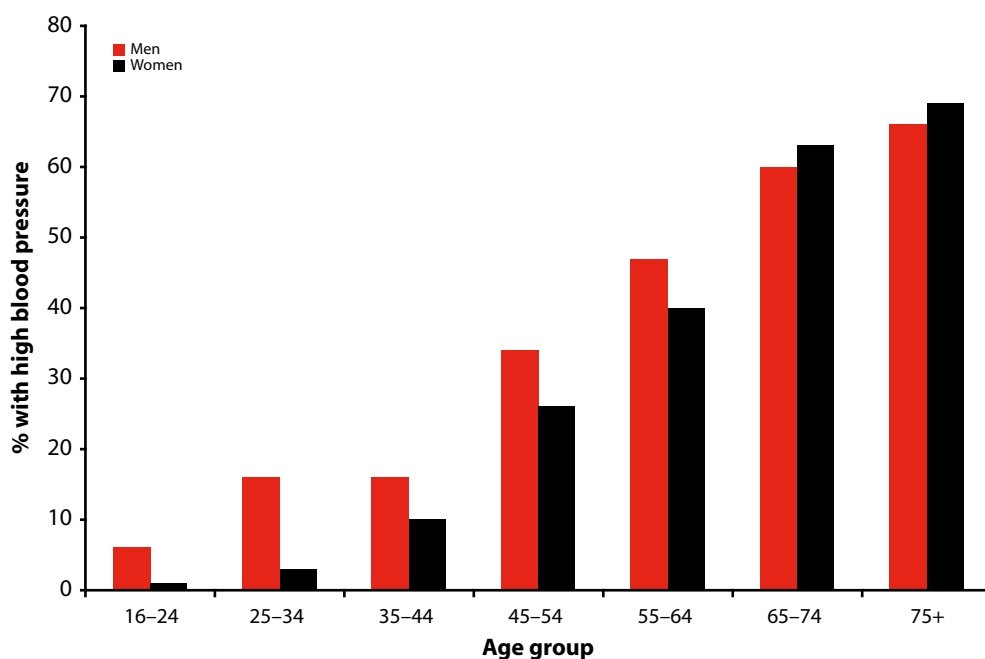


Table 9.4 *Blood pressure levels by sex and age, adults aged 16 and over, 2003, Scotland*

<i>Blood pressure level</i>	<i>All ages</i>	<i>16-24</i>	<i>25-34</i>	<i>35-44</i>	<i>45-54</i>	<i>55-64</i>	<i>65-74</i>	<i>75+</i>
	%	%	%	%	%	%	%	%
MEN								
Normotensive untreated	67	88	86	79	73	48	39	23
Normotensive treated	6	0.7	-	3	4	14	14	14
Hypertensive treated	6	-	0	1	6	7	17	29
Hypertensive untreated	21	11	14	18	17	31	30	35
<i>All with high blood pressure</i>	<i>33</i>	<i>12</i>	<i>15</i>	<i>21</i>	<i>27</i>	<i>51</i>	<i>60</i>	<i>77</i>
<i>Weighted base</i>	<i>2,032</i>	<i>294</i>	<i>296</i>	<i>403</i>	<i>350</i>	<i>314</i>	<i>226</i>	<i>149</i>
<i>Unweighted base</i>	<i>1,933</i>	<i>142</i>	<i>209</i>	<i>369</i>	<i>328</i>	<i>377</i>	<i>301</i>	<i>207</i>
WOMEN								
Normotensive untreated	67	98	95	83	72	51	32	23
Normotensive treated	7	-	-	2	6	13	19	15
Hypertensive treated	9	-	-	1	4	13	23	32
Hypertensive untreated	17	2	6	14	17	24	27	30
<i>All with high blood pressure</i>	<i>33</i>	<i>2</i>	<i>6</i>	<i>17</i>	<i>27</i>	<i>49</i>	<i>68</i>	<i>77</i>
<i>Weighted base</i>	<i>2,382</i>	<i>315</i>	<i>348</i>	<i>440</i>	<i>373</i>	<i>340</i>	<i>285</i>	<i>281</i>
<i>Unweighted base</i>	<i>2,538</i>	<i>181</i>	<i>299</i>	<i>493</i>	<i>454</i>	<i>478</i>	<i>351</i>	<i>282</i>

Notes: Adults aged 16 and over with a valid blood pressure reading and data on medication.

Informants were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medicine affecting blood pressure. "Treated" means taking medication prescribed for high blood pressure.

Source: The Scottish Executive (2005). The Scottish Health Survey 2003. The Stationery Office: Edinburgh

Table 9.5 *Prevalence of high blood pressure by sex and age, adults aged 16 and over, 2004/05, Wales*

	<i>All ages</i>	<i>16-24</i>	<i>25-34</i>	<i>35-44</i>	<i>45-54</i>	<i>55-64</i>	<i>65-74</i>	<i>75+</i>
	%	%	%	%	%	%	%	%
MEN								
	17	1	2	5	16	31	43	47
<i>Base:</i>	<i>7,132</i>	<i>914</i>	<i>886</i>	<i>1,219</i>	<i>1,202</i>	<i>1,241</i>	<i>991</i>	<i>679</i>
WOMEN								
	20	1	2	4	16	28	49	57
<i>Base:</i>	<i>8,198</i>	<i>1,003</i>	<i>1,064</i>	<i>1,437</i>	<i>1,356</i>	<i>1,364</i>	<i>1,044</i>	<i>930</i>

Notes: Data refer to adults who are currently being treated for high blood pressure, and are not based upon blood pressure measurements. Because of differences in data collection techniques, these results are incomparable with prevalence estimates for England and Scotland collected by the Health Survey series.

Source: Welsh Assembly Government (2006) Welsh Health Survey 2004/05. Welsh Assembly Government: Cardiff.

Table 9.6 *Blood pressure levels by sex and Government Office Region, adults aged 16 and over, 2006, England*

	North East %	North West %	Yorkshire & the Humber %	East Midlands %	West Midlands %	East of England %	London %	South East %	South West %
<i>GHQ12 score</i>									
MEN									
Normotensive untreated	65	69	69	68	68	72	69	69	74
Normotensive treated	9	4	5	8	7	7	9	8	4
Hypertensive treated	5	6	7	7	6	5	9	3	5
Hypertensive untreated	21	21	19	18	18	16	13	20	16
<i>All with high blood pressure</i>	35	31	31	32	32	28	31	31	26
<i>Unweighted base</i>	219	579	435	385	425	478	322	379	702
<i>Weighted base</i>	211	547	427	367	454	500	577	402	692
WOMEN									
Normotensive untreated	72	73	70	71	75	77	76	73	74
Normotensive treated	8	6	7	9	8	7	6	7	8
Hypertensive treated	7	8	8	9	6	6	7	5	6
Hypertensive untreated	12	13	14	11	10	11	11	15	12
<i>All with high blood pressure</i>	28	27	30	29	25	23	24	27	26
<i>Unweighted base</i>	275	734	525	473	517	532	391	530	861
<i>Weighted base</i>	225	637	447	370	479	496	582	498	758

Notes: Data are weighted for non response. Informants were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medicine affecting blood pressure. "Treated" means taking medication prescribed for high blood pressure.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 9.7 *Blood pressure levels by sex and equivalised household income, 2006, England*

<i>Blood pressure level</i>	Highest %	2nd %	3rd %	4th %	Lowest %
MEN					
Normotensive untreated	70	72	68	70	69
Normotensive treated	6	4	7	6	8
Hypertensive treated	5	7	6	6	6
Hypertensive untreated	18	17	18	17	17
<i>All with high blood pressure</i>	30	28	32	30	31
<i>Unweighted base</i>	801	742	694	582	461
<i>Weighted base</i>	873	802	690	566	500
WOMEN					
Normotensive untreated	77	75	73	71	70
Normotensive treated	8	6	7	9	9
Hypertensive treated	5	6	7	8	6
Hypertensive untreated	10	13	13	12	15
<i>All with high blood pressure</i>	23	25	27	29	30
<i>Unweighted base</i>	791	854	873	855	650
<i>Weighted base</i>	732	786	794	775	607

Notes: Equivalised household income is a measure that takes account of all individuals within a household that are dependent upon the income.

Data are weighted for non response. The weighted base is the base for age-standardised percentages. For method of age-standardisation see source.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 9.8 *Prevalence of high blood pressure by sex and ethnic group, adults aged 16 and over, 2004, England*

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
<i>High blood pressure</i>	%	%	%	%	%	%	%	%
MEN	32	38	25	33	20	16	20	36
<i>Weighted base</i>	4,420	169	136	361	159	53	63	667
<i>Unweighted base</i>	4,108	155	123	265	162	99	153	240
WOMEN	29	32	19	18	15	19	16	29
<i>Weighted base</i>	4,702	249	183	442	207	83	66	923
<i>Unweighted base</i>	5,075	243	154	320	207	144	166	328

Notes: Adults with a valid blood pressure reading and data on medication.

Informants were classified as having high blood pressure if their systolic blood pressure was 140mmHg or over or their diastolic blood pressure was 90mmHg or over, or they were taking medication for high blood pressure.

Comparative data for the general population are not available for 2004 so data have been taken from 2003 survey.

Source: Department of Health (2005) Health Survey for England 2004. The Health of Minority Ethnic Groups. The Stationery Office: London.

Table 9.9 *Mean systolic blood pressure estimates and projections for 2002, 2005 and 2010 by sex, adults aged 15 and over, all available countries, Europe*

Country	MEN			WOMEN		
	2002	2005	2010	2002	2005	2010
Albania	128.8	128.8	128.8	125.1	125.1	125.1
Austria	128.6	127.9	126.8	122.4	121.6	120.2
Belarus	134.2	134.2	134.2			
Belgium	127.2	127.2	127.2	118.9	118.9	118.9
Bosnia and Herzegovina	130.1	130.1	130.1	130.7	130.7	130.7
Bulgaria	132.4	132.4	132.4	125.2	125.2	125.2
Cyprus	127.7	127.7	127.7	123.4	123.4	123.4
Czech Republic	129.8	129.1	128.0	123.1	122.2	120.6
Denmark	122.2	121.6	120.6	114.8	114.1	113.1
Estonia	131.4	131.4	131.4	121.7	121.7	121.7
Finland	131.4	130.3	128.5	124.6	123.2	121.0
France	129.3	127.2	123.9	124.6	122.5	119.2
Georgia	139.7	139.7	139.7	134.6	134.6	134.6
Germany	134.4	134.4	134.4	130.0	130.0	130.0
Greece	130.5	129.8	128.6	124.1	123.2	121.7
Hungary	133.7	133.7	133.7	126.1	126.1	126.1
Iceland	124.9	124.9	124.9	117.9	117.9	117.9
Israel	127.5	126.8	125.7	121.1	120.2	118.8
Italy	128.8	127.4	125.0	121.8	120.3	118.0
Lithuania	136.7	136.7	136.7	133.8	133.8	133.8
Luxembourg	125.8	125.1	124.0	120.8	120.0	118.7
Malta	132.3	131.6	130.4	128.1	127.2	125.8
Netherlands	130.5	129.8	128.7	121.6	120.8	119.5
Poland	128.6	128.6	128.6	123.3	123.3	123.3
Portugal	126.7	126.1	125.1	124.4	123.6	122.3
Romania	126.8	126.8	126.8	122.0	122.0	122.0
Russian Federation	129.4	129.4	129.4	127.4	127.4	127.4
Serbia and Montenegro	132.7	132.7	132.7	129.9	129.9	129.9
Spain	123.1	122.5	123.3	117.6	117.0	115.9
Sweden	130.8	130.8	130.8	125.0	125.0	125.0
Switzerland	126.2	125.4	124.0	115.4	114.0	111.9
Turkey	117.6	117.6	117.6	118.8	118.8	118.8
Ukraine	127.2	127.2	127.2	125.3	125.3	125.3
United Kingdom	132.2	130.9	128.7	126.6	125.3	123.1
Uzbekistan	121.4	121.4	121.4	121.2	121.2	121.2

Notes: Values age-adjusted to the WHO Standard Population.

Mean SBP is measured in mmHg.

Standard deviation available upon request, contact infobase@who.int

Source: World Health Organization (2005) *The SuRF Report 2. Surveillance of chronic disease Risk Factors - Country-level data and comparable estimates*. WHO Global InfoBase (<http://infobase.who.int>)

Figure 9.9a Mean systolic blood pressure estimates, men aged 15 and over, all available countries, 2002, Europe

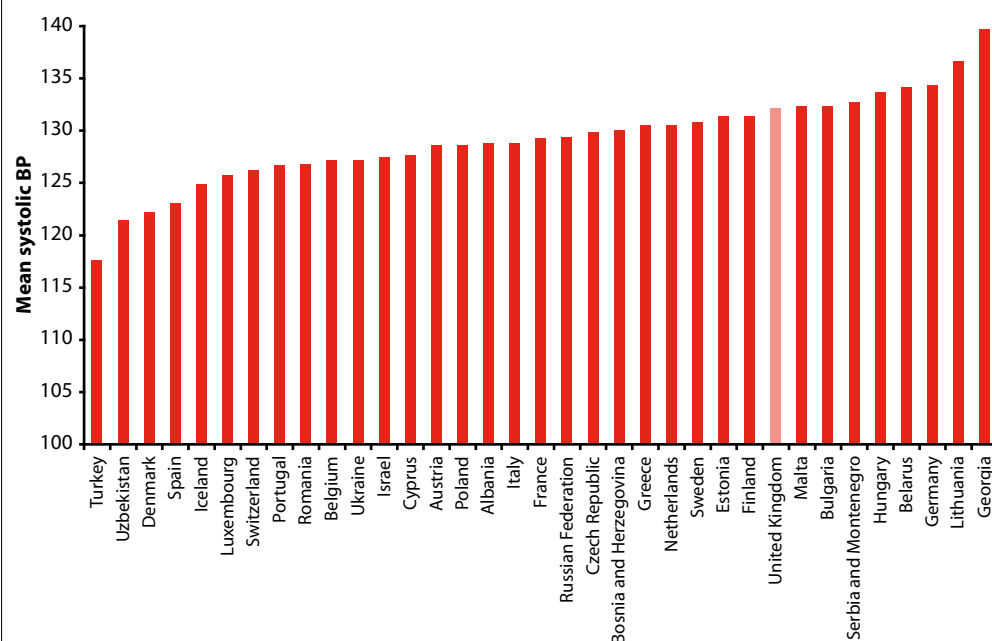
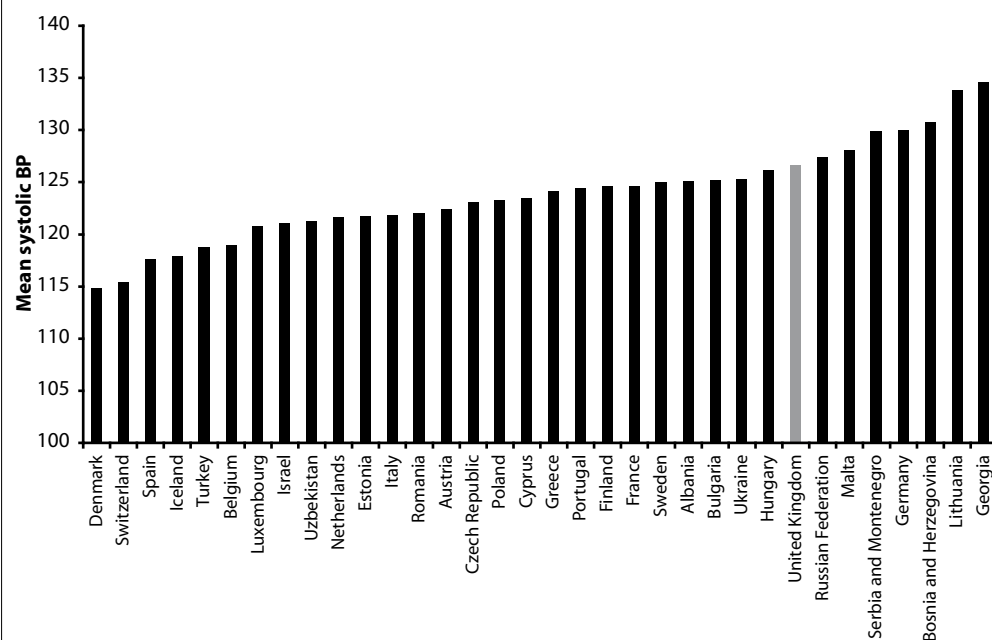


Figure 9.9b Mean systolic blood pressure estimates, women aged 15 and over, all available countries, 2002, Europe



10. Blood Cholesterol

Risk of CHD is directly related to blood cholesterol levels. Blood cholesterol levels can be reduced by drugs, physical activity and by dietary changes, in particular a reduction in the consumption of saturated fat.

Research from the World Health Organization highlights the importance of raised blood cholesterol as a risk factor for CHD. The World Health Report 2002 estimates that around 8% of all disease burden in developed countries is caused by raised blood cholesterol, and that over 60% of CHD and around 40% of ischaemic stroke in developed countries is due to total blood cholesterol levels in excess of the theoretical minimum (3.8mmol/l)¹.

More recently the INTERHEART case-control study estimated that 45% of heart attacks in Western Europe and 35% of heart attacks in Central and Eastern Europe are due to abnormal blood lipids, and that those with abnormal lipids are at over three times the risk of a heart attack compared to those with normal lipids².

Different guidelines give slightly different advice for managing high levels of blood cholesterol (hyperlipidaemia). The National Service Framework for coronary heart disease includes guidelines on the prevention of CHD in clinical practice and suggests a cholesterol target of less than 5.0mmol/l for both primary and secondary prevention³. More recent guidelines suggest a target for total cholesterol of less than 4.0mmol/l for individuals with established cardiovascular disease, diabetes, or at high risk of developing cardiovascular disease (Table 10.1).

High-density lipoprotein cholesterol (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. Guidelines on HDL-cholesterol generally recommend treatment for those with concentrations below 1.0mmol/l (Table 10.1).

Overall levels

The mean blood cholesterol level for men aged 16 and over in England in 2006 was 5.3mmol/l and for women 5.4mmol/l. 57% of men and 61% women had blood cholesterol levels of 5.0mmol/l and above⁴. In Scotland, the mean blood cholesterol level in 2003 was 5.4mmol/l for men and 5.6mmol/l for women, and 63% of both men and women aged 16 to 64 had levels of 5.0mmol/l and above⁵ (Table 10.2).

The mean HDL-cholesterol level for those aged 16 and over in England in 2006 for women was 1.6mmol/l, and 1.3mmol/l for men. Overall, about 9% of men and 2% of women had HDL-cholesterol levels of less than 1.0mmol/l in England (Table 10.3).

In 2003 the mean HDL-cholesterol level for those aged 16 and over in Scotland was 1.3mmol/l for men and 1.6mmol/l for women⁵.

Age and sex differences

The prevalence of raised cholesterol increases with age in both men and women. In 2006, the proportion of men with cholesterol levels of 5.0mmol/l or above was 20% in those aged 16 to 24 compared to around 75% in those aged between 45 to 64, and slightly lower in the two oldest age groups. The proportion of women with cholesterol levels of 5.0mmol/l or above was 31% in those aged 16 to 24 compared to 84% in those aged 55 to 64, and slightly lower in those over 65 years (Table 10.2 and Figure 10.2).

The prevalence of low HDL-cholesterol showed smaller age-related variation, with no clear pattern. Rates of low HDL-cholesterol are much higher in men than women – over five times higher overall. The greatest difference being in the 75 and over group in which the rate of low HDL-cholesterol was 0.2% for women and 8.3% for men (Table 10.3).

Temporal trends

In both England and Scotland, and for both men and women, the prevalence of raised total cholesterol fell between 1994 and 1998, but increased slightly between 1998 and 2003. In England the prevalence of raised total cholesterol in men has decreased in all age groups between 2003 and 2006 with the largest decrease in the 75 and over group which experienced a 16% drop. Similarly for women, the 75 and over group also experienced the biggest reduction (15%). The prevalence of raised total cholesterol in women has decreased for all age groups except for the 45-54 group which was slightly higher than 2003. In older age groups (55 and older in men and 65 and older in women) the prevalence of raised total cholesterol has fallen steadily over the past decade (Table 10.2)⁶.

National and regional differences

In 2006, the proportion of people with total cholesterol levels of 5mmol/l and over ranged between 54% and 62% for different regions of England for men, and between 58% and 66% for women. London had the lowest prevalence of raised cholesterol (52% in men, 58% in women), whereas Yorkshire and the Humber had the highest prevalence in men (62%) but the South East had the highest prevalence for women (66%). (Table 10.4).

This pattern was not repeated for low HDL-cholesterol. The proportion of men with HDL-cholesterol less than 1.0mmol/l was lowest in the South East (6.5%) and highest in the West Midlands (14.1%). The proportion of women with HDL-cholesterol less than 1.0mmol/l was lowest in the East Midlands (0.6%) and highest in London (2.6%) (Table 10.4).

Socio-economic differences

Total blood cholesterol levels show little social class variation in either sex. However, low HDL-cholesterol levels vary with income; those with higher incomes are less likely to have levels of HDL-cholesterol below 1.0mmol/l (Tables 10.5).

Two longitudinal cohort studies in the UK examined socio-economic variations in baseline cholesterol levels. The West of Scotland cohort data (employed men aged 35 to 64 in 1970 to 1973

from West of Scotland) showed a slight gradient in cholesterol levels, with lower total cholesterol levels in the lower social classes⁷. The Whitehall II study (male and female civil servants aged 35 to 55 in 1985 to 1988 from London) found a slight gradient with higher total cholesterol levels in the lower social classes⁸.

Ethnic differences

In 2004, the prevalence of blood cholesterol levels of 5.0mmol/l and above, was lower in all ethnic minority groups than the general population, with the exception of the Irish (Table 10.6).

The highest rates of HDL-cholesterol below 1.0mmol/l for both sexes were found in the Indian, Pakistani and Bangladeshi communities. One fifth of Bangladeshi and Pakistani men had an HDL-cholesterol level of less than 1.0mmol/l compared to 6% of men in the general population. In contrast Black African men and Black Caribbean women and Chinese women had a relatively low prevalence of low HDL-cholesterol (Table 10.6).

International differences

The World Health Organization global database holds worldwide estimates of mean total cholesterol levels for countries. These estimates are derived from national or sub-national surveys, and have been adjusted to national age-standardised populations. Trend data has been used to standardise the estimates to 2005. Their estimate suggests that mean total cholesterol levels for both men and women in the UK in 2005 were 5.1mmol/l, around average for Europe (Table 10.7 and Figures 10.7a and 10.7b).

1. World Health Organization (2002) *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. World Health Organization: Geneva.
2. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigo J, Lisheng A, on behalf of the INTERHEART Study Investigators (2004) Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART Study): case-control study. *The Lancet*; 364: 937-952.
3. Department of Health (2000) *National Service Framework for Coronary Heart Disease*. DH: London.
4. Joint Health Surveys Unit (2008) *Health Survey for England 2006. Cardiovascular disease and risk factors*. The Information Centre: Leeds.
5. Scottish Executive (2005) *The Scottish Health Survey 2003*. Scottish Executive: Edinburgh.
6. *The reporting trends in raised cholesterol levels in England are complicated due to different weighting of results in the 2003 and 2006 surveys*
7. Blane D, Hart C, Davey Smith G (1996). Association of cardiovascular disease risk factors with socioeconomic position during childhood and during adulthood. *BMJ*, 313: 1434-8.
8. Brunner E, Shipley M, Blane D (1999). When does cardiovascular risk start? Past and present socioeconomic circumstances and risk factors in adulthood. *Journal of Epidemiology and Community Health*, 53; 757-64.

Table 10.1 Cholesterol recommendations for the United Kingdom

UNITED KINGDOM	
Total cholesterol ¹	<4.0mmol/l in individuals with established cardiovascular disease, diabetes, or at high risk of developing cardiovascular disease.
HDL cholesterol ²	≥ 1mmol/l in individuals with established cardiovascular disease, and those at high risk of the disease.

Notes: The original recommendation for total cholesterol levels of less than 5mmol/l for individuals with cardiovascular disease, diabetes, or at high risk of developing cardiovascular disease, originally set in 1998 by the Joint British Societies is retained for audit purposes.

Source: 1. British Cardiac Society, British Hypertension Society, Diabetes UK, HEART UK, Primary Care Cardiovascular Society, The Stroke Association (2005). JBS2: Joint British Societies' guidelines on prevention of cardiovascular diseases in clinical practices. *Heart*. 91 (suppl V): v1-v52.
2. Sacks FM, for the expert group on HDL-cholesterol (2002). The role of high density lipoprotein (HDL) cholesterol on the prevention of coronary heart disease; Expert group recommendations. *American Journal of Cardiology*. 90: 139-143.

Table 10.2 Total cholesterol levels by sex and age, 1994 to 2006 England and 1995 to 2003, Scotland

$\geq 5.0\text{mmol/l}$ total cholesterol		All ages %	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %
ENGLAND, 2006									
MEN									
1994		75	32	61	82	88	90	87	79
1998		66	23	50	70	78	81	76	72
2003	unweighted	70	28	60	77	82	81	69	63
2003	weighted	66	26	60	77	81	80	67	64
2006		57	20	53	68	74	73	54	47
WOMEN									
1994		77	44	57	70	82	95	97	93
1998		67	27	44	59	74	88	91	89
2003	unweighted	71	34	50	62	78	88	87	82
2003	weighted	66	31	55	69	79	84	77	75
2006		61	31	42	58	78	84	76	67
SCOTLAND, 2003									
MEN									
1995		70*	26	65	81	87	86		
1998		62*	22	53	70	82	76	72	
2003		63*	22	59	72	83	75	67	56
WOMEN									
1995		68*	34	54	68	87	92		
1998		60*	23	44	58	79	89	92	
2003		63*	26	46	65	83	88	84	79
Weighted base:									
England, men	2006	3,410	265	417	681	604	682	480	281
England, women	2006	4,061	291	512	817	753	764	545	379
Scotland, men	2003	1,426	123	211	380	345	367	281	178
Scotland, women	2003	1,696	129	251	455	435	426	294	223

Notes: Data from 1994 to 1998 are unweighted data, for 2003 weighted and unweighted data is shown, for 2006 only weighted data are presented.

Scottish data are all weighted for non-response.

The Scottish Health Survey for 1995 only covered 16-64 year olds. The survey for 1998 only covered 16-74 year olds. For comparability, all of the Scottish all age estimates (marked with asterisks) are for 16-64 year olds only.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

The Scottish Executive (2005) The Scottish Health Survey 2003. Scottish Executive: Edinburgh.

Figure 10.2 Percentage of adults with blood cholesterol levels of 5.0mmol/l and over, 2006, England

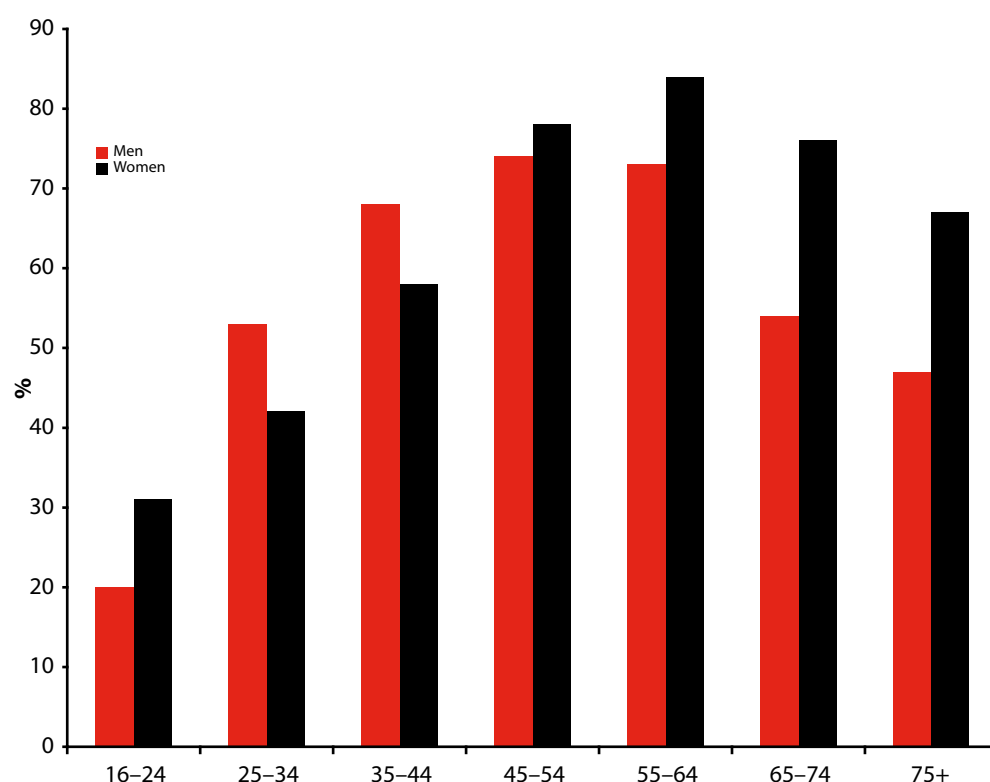


Table 10.3 Low HDL cholesterol by sex and age, 2006, England and 2003, Scotland

$\leq 1.0\text{mmol/l}$ total HDL cholesterol		All ages	16-24	25-34	35-44	45-54	55-64	65-74	75+
		%	%	%	%	%	%	%	%
ENGLAND, 2006									
MEN		9.4	11.4	11.2	8.6	7.8	7.8	11.0	8.3
WOMEN		1.8	2.2	2.2	2.1	1.7	1.4	2.2	0.2
SCOTLAND, 2003									
MEN		7.7	10.6	7.1	8.4	5.7	7.4	8.5	6.2
WOMEN		2.0	3.3	3.5	1.2	1.5	1.6	0.4	2.6
ENGLAND									
Unweighted base	Men	3,410	265	417	681	604	682	480	281
	Women	4,061	291	512	817	753	764	545	379
Weighted base	Men	3,618	549	589	727	593	537	366	257
	Women	3,850	525	620	721	606	554	408	417
SCOTLAND									
Unweighted base	Men	1,886	123	211	381	345	367	281	178
	Women	2,213	129	251	455	435	426	294	223
Weighted base	Men	1,954	285	311	386	339	292	208	133
	Women	2,150	274	336	411	348	302	244	235

Notes: Data are weighted for non response.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

The Scottish Executive (2004) Scottish Health Survey 2003. Scottish Executive: Edinburgh.

Table 10.4 *Total cholesterol levels and low HDL cholesterol levels by sex and Government Office Region, adults aged 16 and over, 2006, England*

	North East %	North West %	Yorkshire & the Humber %	East Midlands %	West Midlands %	East England %	London %	South East %	South West %
MEN									
≥ 5.0mmol/l total cholesterol	59	57	62	54	60	58	52	59	56
≤ 1.0mmol/l HDL cholesterol	9.4	8.9	10.4	9.9	14.1	10.0	7.5	8.7	6.5
WOMEN									
≥ 5.0mmol/l total cholesterol	61	61	61	60	60	61	58	63	66
≤ 1.0mmol/l HDL cholesterol	2.0	1.9	1.3	0.6	1.8	2.0	2.6	1.7	1.9
<i>Unweighted base:</i>									
<i>Men</i>	190	521	383	328	378	410	296	601	303
<i>Women</i>	224	639	448	387	477	411	334	737	404
<i>Weighted base:</i>									
<i>Men</i>	178	475	363	339	375	435	536	575	343
<i>Women</i>	197	549	389	323	425	393	530	644	401

Notes: Data are weighted for non-response, and estimates are age-standardised to account for differing age structures.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 10.5 *Total cholesterol levels and low HDL cholesterol by sex and equivalised household income, 2006, England*

	Equivalised household income quintile				
	Highest	2nd	3rd	4th	Lowest
MEN					
Mean HDL cholesterol	1.4	1.4	1.3	1.3	1.3
% < 1.0 mmol/l HDL cholesterol	7.6	5.6	10.6	11.0	14.4
Mean total cholesterol	5.3	5.4	5.2	5.3	5.2
% ≥ 5.0 mmol/l total cholesterol	59	60	57	58	53
WOMEN					
Mean HDL cholesterol	1.7	1.6	1.6	1.5	1.5
% < 1.0 mmol/l HDL cholesterol	0.5	1.1	1.6	2.3	4.2
Mean total cholesterol	5.5	5.4	5.5	5.3	5.4
% ≥ 5.0 mmol/l total cholesterol	64	60	64	58	64
<i>Unweighted base:</i>					
<i>Men</i>	720	697	605	488	376
<i>Women</i>	708	724	732	731	515
<i>Weighted base:</i>					
<i>Men</i>	721	737	601	494	430
<i>Women</i>	636	659	662	692	533

Notes: Data are weighted for non response and age-standardised.

For method of age-standardisation see source.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 10.6 Total cholesterol and low HDL cholesterol by sex and ethnic group, adults aged 16 and over, 2004, England

	General population (2003)	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN								
≥ 5.0mmol/l total cholesterol	66	51	55	60	55	60	60	67
≤ 1.0mmol/l HDL cholesterol	6	4	2	11	20	20	8	5
WOMEN								
≥ 5.0mmol/l total cholesterol	67	56	44	53	53	55	52	67
≤ 1.0mmol/l HDL cholesterol	2	1	3	4	6	8	1	2
<i>Unweighted base:</i>								
Men	3,814	137	103	234	137	87	101	244
Women	4,460	195	118	256	143	98	108	300
<i>Weighted base:</i>								
Men	4,020	139	109	267	123	44	39	510
Women	4,249	199	142	304	148	64	48	675

Notes: Data are weighted for non-response and age-standardised. For method of age-standardisation see source.

Source: Department of Health (2006) Health Survey for England 2004. *The Health of Minority Ethnic Groups*. The Stationery Office: London.

Table 10.7 Mean total cholesterol levels by sex, adults aged 15 and over, 2005, the World

MEN WOMEN			MEN WOMEN			MEN WOMEN		
Mean total cholesterol (mmol/l)								
Afghanistan	4.6	4.6	Gabon	4.6	4.6	Oman	5.0	5.0
Albania	5.2	5.1	Gambia	4.1	4.6	Pakistan	4.7	4.5
Algeria	4.6	4.7	Georgia	5.0	5.0	Palau	5.4	5.4
Andorra	5.4	5.4	Germany	5.7	5.7	Panama	5.2	5.2
Angola	4.3	4.3	Ghana	4.3	4.3	Papua New Guinea	5.5	5.3
Antigua and Barbuda	5.4	5.4	Greece	4.8	4.7	Paraguay	5.1	5.1
Argentina	5.4	5.3	Grenada	5.3	5.3	Peru	5.1	5.1
Armenia	5.1	5.1	Guatemala	4.6	4.9	Philippines	4.4	4.4
Australia	5.5	5.5	Guinea	4.3	4.3	Poland	5.2	5.1
Austria	5.4	5.5	Guinea-Bissau	4.2	4.2	Portugal	5.2	5.1
Azerbaijan	5.0	5.0	Guyana	5.1	5.1	Qatar	5.3	5.3
Bahamas	5.6	5.6	Haiti	4.9	4.9	Rep. of Korea	4.8	4.9
Bahrain	5.1	5.1	Honduras	5.0	5.0	Rep. of Moldova	5.0	5.0
Bangladesh	4.1	4.3	Hungary	5.4	5.1	Romania	5.1	5.0
Barbados	5.4	5.4	Iceland	5.6	5.4	Russian Fed.	4.9	4.9
Belarus	6.0	5.3	India	5.1	5.2	Rwanda	4.2	4.2
Belgium	5.5	5.5	Indonesia	4.5	4.5	Saint Kitts and Nevis	5.4	5.4
Belize	5.2	5.2	Iran (Islamic Rep. of)	4.6	4.8	Saint Lucia	5.2	5.2
Benin	4.2	4.2	Iraq	4.7	4.7	Saint Vincent and Grenadines	5.2	5.2
Bhutan	4.7	4.7	Ireland	5.5	5.4	Samoa	5.4	5.4
Bolivia	5.0	5.0	Israel	5.6	6.0	San Marino	5.3	5.3
Bosnia and Herzegovina	5.1	5.1	Italy	5.2	5.1	Sao Tome and Principe	4.3	4.3
Botswana	4.6	4.6	Jamaica	5.1	5.1	Saudi Arabia	4.5	4.6
Brazil	4.9	5.2	Japan	5.2	5.1	Senegal	4.3	4.3
Brunei Darussalam	5.3	5.3	Jordan	5.3	5.5	Serbia and Montenegro	6.2	5.9
Bulgaria	5.7	5.9	Kazakhstan	5.2	5.2	Seychelles	5.7	5.8
Burkina Faso	4.2	4.2	Kenya	4.3	4.3	Sierra Leone	4.2	4.2
Burundi	4.2	4.2	Kiribati	5.1	5.4	Singapore	5.3	5.2
Cambodia	5.0	5.0	Kuwait	5.1	5.1	Slovakia	5.0	5.1
Cameroon	3.1	3.4	Kyrgyzstan	5.1	5.0	Slovenia	5.2	5.2
Canada	5.2	5.0	Lao People's Dem. Rep.	5.0	5.0	Solomon Islands	4.4	4.6
Cape Verde	4.5	4.5	Latvia	5.3	5.3	Somalia	4.2	4.2
Central African Rep.	4.3	4.3	Lebanon	4.4	4.6	South Africa	4.3	4.3
Chad	4.2	4.2	Lesotho	4.3	4.3	Spain	5.1	5.1
Chile	4.8	4.9	Liberia	4.4	4.4	Sri Lanka	5.5	5.4
China	5.5	5.4	Libyan Arab Jamahiriya	5.4	6.0	Sudan	4.3	4.3
Colombia	6.3	5.2	Lithuania	5.3	5.4	Suriname	5.1	5.1
Comoros	4.3	4.3	Luxembourg	6.0	5.9	Swaziland	4.5	4.5
Congo	4.3	4.3	Madagascar	4.3	4.3	Sweden	5.2	5.2
Cook Islands	5.6	5.4	Malawi	4.2	4.2	Switzerland	5.1	5.2
Costa Rica	5.3	5.4	Malaysia	5.1	5.1	Syrian Arab Rep.	4.9	4.9
Cote d'Ivoire	4.4	4.4	Maldives	4.9	4.9	Tajikstan	4.9	4.9
Croatia	5.5	5.3	Mali	4.2	4.2	Thailand	5.1	5.3
Cuba	5.1	5.1	Malta	5.7	5.9	Togo	4.3	4.3
Cyprus	6.0	5.8	Marshall Islands	5.1	5.1	Tonga	5.3	5.1
Czech Rep.	5.4	5.5	Mauritania	4.0	4.2	Trinidad and Tobago	6.0	5.9
Dem. People's Rep. of Korea	5.0	5.0	Mauritius	5.1	5.1	Tunisia	4.1	4.4
Dem. Rep. of the Congo	4.2	4.2	Mexico	4.8	4.8	Turkey	4.5	4.6
Dem. Rep. of Timor-Leste	4.7	4.7	Micronesia, Fed. States of	4.6	4.6	Turkmenistan	5.2	5.2
Denmark	5.4	5.2	Monaco	5.3	5.3	Tuvalu	5.4	5.4
Djibouti	4.3	4.3	Mongolia	5.0	5.0	Uganda	4.3	4.3
Dominica	5.2	5.2	Morocco	4.7	4.7	Ukraine	5.1	5.2
Dominican Rep.	4.8	5.0	Mozambique	4.2	4.2	United Arab Emirates	5.8	4.8
Ecuador	5.1	5.1	Myanmar	4.9	4.9	United Kingdom	5.1	5.1
Egypt	4.7	4.9	Namibia	4.5	4.5	United Rep. of Tanzania	4.7	5.1
El Salvador	5.1	5.1	Nauru	5.4	5.5	United States of America	5.1	5.1
Equatorial Guinea	4.5	4.5	Nepal	4.7	4.7	Uruguay	6.1	6.0
Eritrea	4.2	4.2	Netherlands	4.8	4.9	Uzbekistan	5.0	5.0
Estonia	5.0	5.2	New Zealand	5.6	5.4	Vanuatu	5.9	5.1
Ethiopia	4.5	4.2	Nicaragua	5.0	5.0	Venezuela	4.6	4.9
Fiji	5.3	5.0	Niger	4.2	4.2	Vietnam	5.4	5.2
Finland	5.3	5.2	Nigeria	3.5	3.6	Yemen	4.6	4.6
France	5.4	5.3	Niue	5.5	5.5	Zambia	4.2	4.2
FYR Macedonia	5.1	5.1	Norway	5.6	6.0	Zimbabwe	4.4	4.4

Notes: Estimates are based on national or sub-national surveys, and are adjusted for definitions, and for non-standard age groups. Non-representative data is adjusted to national populations, and trend data is used to adjust to the standard reporting year. The estimates are then age-standardised to the WHO standard population. For details on adjustments, see source.

Source: WHO (2006). WHO global infobase online. <http://www.who.int/>

Figure 10.7a Mean total cholesterol levels, men aged 15 and over, 2005, Europe

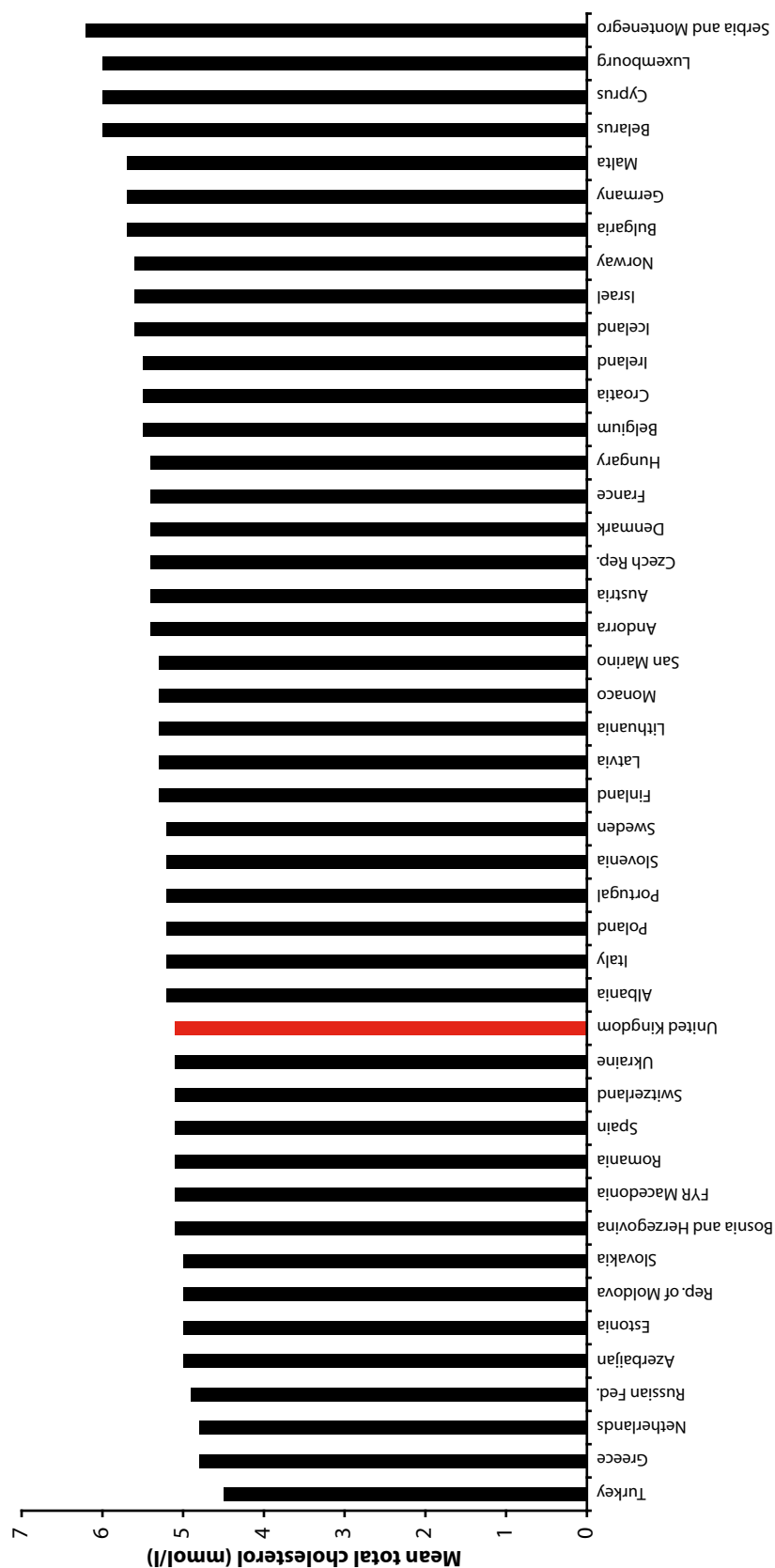
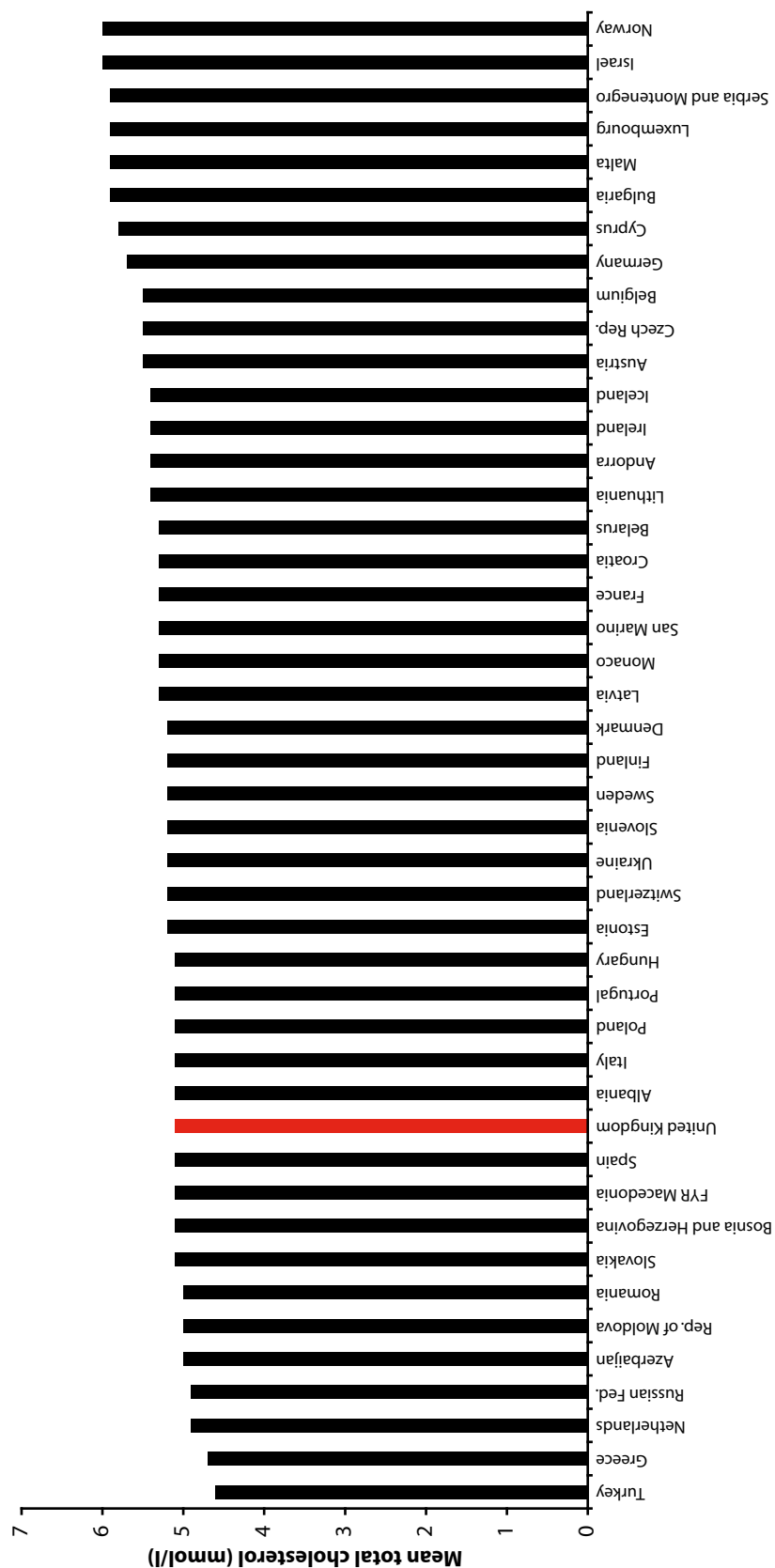


Figure 10.7b Mean total cholesterol levels, women aged 15 and over, 2005, Europe



11. Overweight and Obesity

Overweight and obesity increase the risk of CHD. As well as being an independent risk factor, obesity is also a major risk factor for high blood pressure, raised blood cholesterol, diabetes and impaired glucose tolerance¹.

The adverse effects of excess weight are more pronounced when fat is concentrated in the abdomen. This is known as central or abdominal obesity and is assessed using the waist to hip ratio or waist circumference².

The World Health Organization's World Health Report 2002 estimated that over 7% of all disease burden in developed countries was caused by raised body mass index (BMI), and that around a third of CHD and ischaemic stroke and almost 60% of hypertensive disease in developed countries was due to overweight³.

More recently the INTERHEART case-control study estimated that 63% of heart attacks in Western Europe and 28% of heart attacks in Central and Eastern Europe were due to abdominal obesity (a high waist to hip ratio), and those with abdominal obesity were at over twice the risk of a heart attack compared to those without⁴. This study also found that abdominal obesity was a much more significant risk factor for heart attack than BMI.

Public health targets

In 2004 an obesity target for children in England was introduced to halt the year-on-year rise in obesity in children under 11 by 2010. A more general statement has been made that increasing rates of obesity in the population should be addressed (Table 11.1). There are currently no targets for overweight and obesity in Scotland, Wales or Northern Ireland.

Overall prevalence

In England in 2006, around 43% of men and 32% of women were overweight (a BMI of 25-30 kg/m²), and an additional 24% of men and 24% of women were obese (a BMI of more than 30 kg/m²) (Table 11.2). Central obesity was also common among adults in England. In 2006, data show that around 32% of men and 41% of women had central obesity (Table 11.3).

Sex and age differences

Overweight and obesity increases with age. In 2006, about 34% of men and 32% of women aged 16 to 24 were overweight or obese compared to 80% of men aged 55 to 64 and 73% of women aged 65 to 74 (Table 11.2 and Figure 11.2). The prevalence of central obesity also increased with age, especially in men. About 10% of men and 17% of women aged 16 to 24 had central obesity compared to 51% of men and 60% of women aged 65 to 74 (Table 11.3).

Overweight and obesity in children

The classification of overweight and obesity in children and adolescents is more problematic than in adults. Constant changes in body composition during growth mean that the relationship between BMI and adiposity during childhood is age-dependent, and further complicated by race and gender. There is no clear agreement on the best way to define overweight and obesity in children. The International Obesity Taskforce (IOTF) has developed a new international classification based on age and sex-specific BMI cut-off points. UK data is sometimes reported using the National BMI percentile classification where children are classified as overweight or obese using the 85th and 95th percentiles as cut points. These two methods of classification result in different estimates of childhood overweight and obesity⁵.

The National BMI classification has been used in the 2006 Health Survey for England. This survey found just less than a third of boys (31%) and girls (29%) in England aged 2 to 15 years were either overweight or obese (Table 11.4)⁶.

Temporal trends

Overweight and obesity are increasing rapidly. In England the percentage of men aged 16 to 64 who are obese has risen from 14% in 1994 to 25% in 2006, and for women who are obese, from 19% in 1994 to 29% in 2006. The increase in obesity was particularly marked among men aged 55 to 64, doubling from 18% to 36% between 1994 and 2006 (Table 11.5 and Figure 11.5).

The high levels of overweight and obesity among children are likely to exacerbate the trend towards overweight and obesity in the adult population, since compared to thin children, obese children have a high risk of becoming overweight adults⁷. Between 1995 and 2006 the prevalence of obesity among English boys increased from 11% to 17% and from 12% to 15% among English girls (Table 11.6 and Figure 11.6).

In 2008, the Foresight project predicted that nearly 60% of the UK adult population could be obese by 2050. More information is available from the project web site <http://www.foresight.gov.uk/Obesity/Obesity.html>.

Regional differences

In England in 2006, about two thirds of men were overweight or obese with some variation by Government Office Region. The highest prevalence was found in the West Midlands (76%) and the lowest in London (61%). For women, the prevalence of overweight and obesity was lower and there was more regional variation. The highest prevalence was found in the West Midlands (62%) and the lowest in London (49%) (Table 11.7).

Recent evidence suggests that rates of obesity among women are rising faster in the North than the South of England. This pattern is not observed in men, where rates appear to be rising uniformly across England⁸.

Socio-economic differences

Among women, obesity rates vary considerably by household income. In 2006, 32% of women from the lowest quintile of household income were obese compared to 19% in the highest quintile. Much less variation was found in men (Table 11.8).

In both men and women, the prevalence of central obesity was highest in households with the lowest income. In 2006, 34% of men and 36% of women from the lowest quintile of household

income had a raised waist to hip ratio compared to 25% of men and 24% of women in the highest quintile. Much less variation was found in men (Table 11.9).

Ethnic differences

Levels of general and abdominal obesity vary with ethnicity in both men and women in England. In 2004, levels of obesity were much lower in Black African, Indian, Pakistani, and, most markedly, Bangladeshi and Chinese men, who were around four times less likely to be obese compared to men in the general population (Table 11.10 and Figure 11.10). Black Caribbean and Irish men had similar levels of obesity to the general population. Despite low levels of general obesity, Pakistani, Indian and Bangladeshi men had similar levels of raised waist to hip ratio compared to the general population. Black Caribbean, Black African and Chinese men were less likely to have a raised waist to hip ratio (Table 11.11).

Among women, obesity prevalence was high for Black Caribbean, Black African and Pakistani women and low for Chinese women (Table 11.10 and Figure 11.10). Again the pattern was different for levels of central obesity. Black Caribbean, Pakistani, and Irish women all had levels of central obesity above that of the general female population, while Bangladeshi women were much more likely to have a raised waist to hip ratio as women in the general population (Table 11.11).

International differences

Data from the WHO SuRF Report 2 show that the prevalence of overweight and obesity in the UK is among the highest in Europe. The prevalence of overweight and obesity in the UK is in the highest quintile for men and the second highest for women worldwide (Table 11.12 and Figures 11.12a and 11.12b).

In 2006, the International Obesity TaskForce 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 boys, the countries with overweight (including obesity) levels of 30% or more were Canada (33%), Mexico (32.3%), Kuwait (30%), Malta (32.7%), Spain (31%) and New Zealand (30%). For girls the countries were Mexico (31.1%), Bahrain (38.5%), Kuwait (31.8%), Malta (38.5%), Portugal (34.3%) and New Zealand (30%). Ethiopia, Mali, Senegal and Nepal had very low levels of under 1% for both boys and girls (Table 11.13).

1. World Health Organization (2000) *Obesity – preventing and managing the global epidemic. Report of a WHO Consultation on Obesity*. World Health Organization: Geneva.
2. Central obesity is commonly defined as a waist-hip ratio of 0.95 and over in men and 0.85 and over in women. Raised waist circumference is defined as a waist measurement greater than 102cm for men and greater than 88cm for women.
3. World Health Organization (2002) *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*. World Health Organization: Geneva.
4. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigo J, Lisheng A, on behalf of the INTERHEART Study Investigators (2004) Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART Study): case-control study. *The Lancet*; 364: 937-952.
5. For details of the International classification system see Department of Health (2003) *Health Survey for England 2002. The Stationery Office: London*. Because of differences in definition and measurement, direct comparison of adult (Table 11.2) and childhood (Table 11.6) tables in this chapter is inappropriate.
6. Overweight and obesity estimates derived using the alternative National BMI percentiles classification showed no marked sex differences whereas the International classification may under-estimate obesity prevalence among boys.
7. 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.
8. Scarborough P, Allender S (2008). *The North - South gap in overweight and obesity in England*. *British Journal of Nutrition* (in press).

Table 11.1 Obesity targets for the United Kingdom

England¹	
Children	To halt the year-on-year rise in obesity among children under 11 by 2010 in the context of a broader strategy to tackle obesity in the population as a whole
Scotland²	
Children	Reduce the rate of increase in the proportion of children with their Body Mass Index outside a healthy range by 2018.
Wales	No target set
Northern Ireland	No target set

Source: 1. Department of Health (2004) *National Standards, Local Action: Health and Social Care Standards and Planning Framework 2005/06 and 2007/08*. DH: London. PSA Target 3. www.dh.gov.uk/PublicationsAndStatistics/
2. Scottish Government (2007). <http://www.scotland.gov.uk/Publications/>

Table 11.2 *Body mass index by sex and age, adults aged 16 and over, 2006, England*

	All ages	16-24	25-34	35-44	45-54	55-64	65-74	75+
	%	%	%	%	%	%	%	%
MEN								
BMI (kg/m²)								
Less than 18.5	1	6	0	0	0	0	0	1
18.5 to less than 25	32	61	38	26	24	20	19	31
25 to less than 30	43	25	41	48	48	47	49	51
30 to less than 40	22	8	20	23	26	30	30	18
40 or more	1	1	1	2	2	3	1	0
All 30 or more (obese)	24	9	21	25	28	33	31	18
<i>Weighted base</i>	6,014	930	991	1,246	993	888	599	368
<i>Unweighted base</i>	5,523	577	762	1,084	933	986	735	446
WOMEN								
BMI (kg/m²)								
Less than 18.5	2	7	2	1	1	1	1	2
18.5 to less than 25	42	62	50	45	37	33	26	29
25 to less than 30	32	20	29	30	35	36	38	42
30 to less than 40	22	11	16	21	24	27	31	26
40 or more	3	1	2	3	3	3	4	2
All 30 or more (obese)	24	12	18	24	27	30	35	27
<i>Weighted base</i>	6,074	866	942	1,207	996	914	637	511
<i>Unweighted base</i>	6,504	679	935	1,308	1,125	1,106	776	575

Notes: Adults with a valid height and weight measurement.

Data are weighted for non-response.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Figure 11.2 *Prevalence of overweight and obesity by sex and age, adults aged 16 and over, 2006, England*

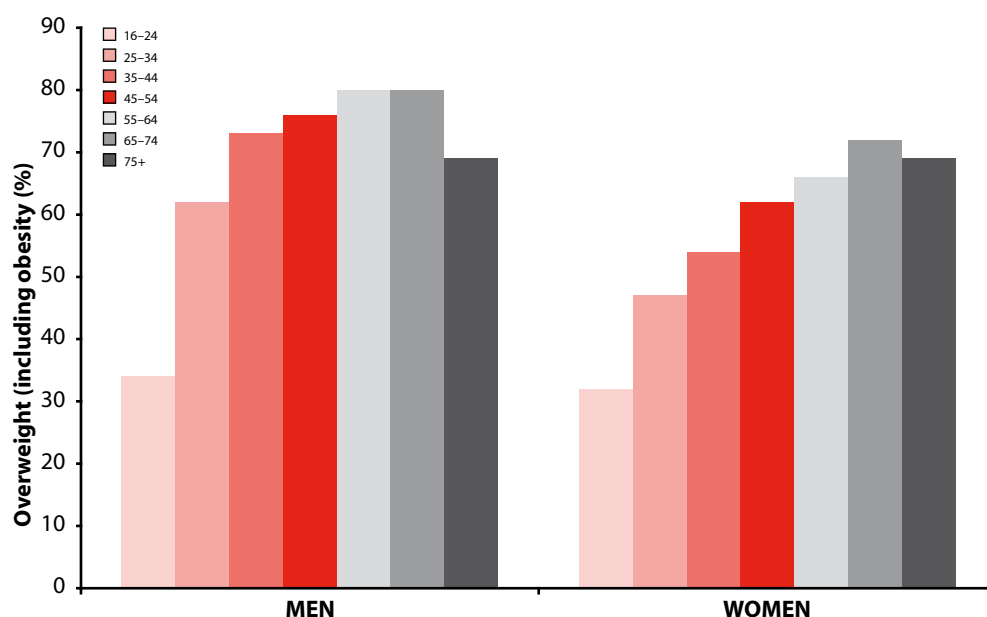


Table 11.3 *Mean waist circumference and percentage with raised waist circumference by sex and age, adults aged 16 and over, 2006, England*

	All ages	16-24	25-34	35-44	45-54	55-64	65-74	75+
	%	%	%	%	%	%	%	%
MEN								
Mean waist circumference (cm)	97	86	94	98	99	102	103	101
% raised waist circumference	32	10	21	30	38	46	51	41
Weighted base	4,954	743	820	990	815	734	504	349
Unweighted base	4,592	415	576	877	781	857	651	435
WOMEN								
Mean waist circumference (cm)	86	77	83	85	89	90	92	91
% raised waist circumference	41	17	30	36	45	50	60	57
Weighted base	5,175	716	777	983	815	768	55	565
Unweighted base	5,536	506	722	1,113	944	983	695	573

Notes: Raised waist circumference: greater than 102 cm in men and greater than 88 cm in women.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 11.4 *Prevalence of overweight and obesity in children by sex and age, 2006, England*

	AGE (years)														
	Total (2 to 15)	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BOYS															
Overweight	13	13	13	13	11	9	13	11	14	11	16	15	15	14	15
Obese	17	16	17	16	19	19	6	15	23	21	21	15	23	13	16
Total overweight and obese	31	29	31	29	30	28	20	26	38	33	38	30	38	27	31
Weighted base	2,822	145	171	166	198	183	222	176	250	226	198	214	228	226	219
Unweighted base	3,029	164	192	187	212	203	234	184	254	245	212	235	252	229	226
GIRLS															
Overweight	14	10	16	12	13	9	11	15	10	17	17	16	12	20	17
Obese	15	12	8	9	14	8	14	15	19	18	14	18	18	19	15
Total overweight and obese	29	22	24	22	27	17	25	30	29	35	31	35	30	39	32
Weighted base	2,670	132	181	176	179	178	197	198	201	195	206	196	216	199	218
Unweighted base	2,950	153	196	189	197	203	225	235	228	219	232	210	232	208	223

Notes: Overweight is defined as ≥ 85 th UK National BMI percentile; obese is defined as ≥ 95 th UK National BMI percentile.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 11.5 *Prevalence of overweight and obesity by sex and age, adults aged 16 and over, 1994 to 2006, England*

	All ages	16-24	25-34	35-44	45-54	55-64	65-74	75+
	%	%	%	%	%	%	%	%
MEN								
1994	BMI (kg/m²)							
	25 to less than 30	44	25	40	46	51	53	48
	30 to less than 40	14	6	10	16	17	18	15
	40 or more	0	0	0	0	1	0	1
	Unweighted base	6,795	935	1,373	1,288	1,076	925	382
1998	BMI (kg/m²)							
	25 to less than 30	46	23	40	48	52	53	48
	30 to less than 40	17	5	16	17	21	23	16
	40 or more	1	0	1	1	1	1	0
	Unweighted base	6,600	825	1,261	1,229	1,197	910	433
2003	BMI (kg/m²)							
	25 to less than 30	44	23	41	47	48	50	48
	30 to less than 40	23	9	18	25	28	27	21
	40 or more	1	0	1	1	1	1	0
	Unweighted base	5,966	686	962	1,178	1,001	997	406
2003	BMI (kg/m²)							
	25 to less than 30	43	22	41	47	48	50	48
	30 to less than 40	22	9	18	25	28	27	21
	40 or more	1	0	1	1	1	1	0
	Weighted base	6,519	960	1,194	1,316	1,073	943	369
2006	BMI (kg/m²)							
	25 to less than 30	43	25	41	48	48	47	49
	30 to less than 40	24	9	21	25	28	33	31
	40 or more	1	1	1	2	2	3	1
	Weighted base	6,014	930	991	1,246	993	888	599
WOMEN								
1994	BMI (kg/m²)							
	25 to less than 30	32	20	25	28	36	38	41
	30 to less than 40	17	8	13	17	18	26	25
	40 or more	2	1	1	2	1	2	2
	Unweighted base	7,884	990	1,524	1,418	1,227	988	1,048
1998	BMI (kg/m²)							
	25 to less than 30	34	16	27	30	40	39	41
	30 to less than 40	21	11	16	21	24	29	29
	40 or more	1	1	2	3	2	2	2
	Unweighted base	7,730	903	1,433	1,449	1,373	1,043	853
2003	BMI (kg/m²)							
	25 to less than 30	34	19	28	33	32	39	41
	30 to less than 40	23	13	19	22	27	28	30
	40 or more	3	2	3	4	4	2	3
	Unweighted base	7,090	788	1,088	1,452	1,142	1,194	810
2003	BMI (kg/m²)							
	25 to less than 30	33	18	28	34	33	39	42
	30 to less than 40	23	13	18	22	27	28	30
	40 or more	3	2	3	4	4	3	3
	Weighted base	6,570	912	1,085	1,289	1,073	982	694
2006	BMI (kg/m²)							
	25 to less than 30	42	20	29	30	35	33	37
	30 to less than 40	27	12	18	24	27	30	35
	40 or more	2	1	2	3	3	3	4
	Weighted base	6,074	866	942	1,207	996	914	637

Notes: Overweight BMI = 25 to less than 30; Obese BMI = 30 to less than 40; Morbidly obese BMI = 40 and more.
From 2003 data has been weighted for non-response.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Figure 11.5 Prevalence of obesity by sex, adults aged 16 and over, 1994 to 2006, England

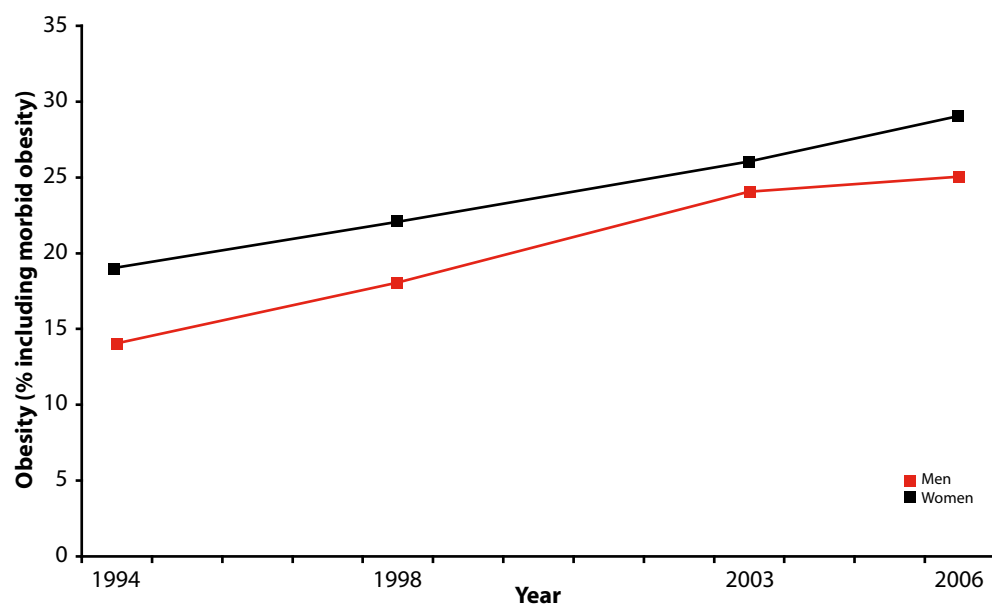


Table 11.6 *Prevalence of overweight and obesity in children aged 2 to 15 by sex, 1995 to 2006, England*

		1995	1996	1997	1998	1999	2000	2001	2002	2003	2003	2004	2005	2006
		%	%	%	%	%	%	%	%	%	%	%	%	%
BOYS														
All (aged 2-15)														
Overweight		13	14	13	15	14	12	15	14	15	15	14	16	13
Obese		11	12	13	13	16	14	15	17	17	17	19	18	17
Overweight including obese		24	26	26	28	31	27	31	31	32	32	33	34	31
Weighted base		1,918	2,132	3,063	1,981	977	877	1,653	3,745	1,410	1,452	624	1,102	2,822
GIRLS														
All (aged 2-15)														
Overweight		13	12	13	14	14	13	15	14	14	15	17	13	14
Obese		12	12	12	14	14	14	14	17	16	16	18	18	15
Overweight including obese		25	24	26	27	27	27	30	31	30	31	35	31	29
Weighted base		1,901	2,014	3,069	1,872	950	841	1,699	3,636	1,444	1,393	8,228	1,091	2,670

Notes: Children were defined as overweight or obese using the 85th and 95th percentiles of the UK reference curves (known as the National BMI percentile classification).

Alternative methods of classification of childhood overweight and obesity are discussed in Health Survey for England 2002, Chapter 9, Introduction.

Data for all years have been weighted to correct for the probability of selection. For 2003 - 2006 (shaded columns), data have also been weighted for non-response. Two columns are shown for 2003, one with selection weighting only, and one with selection and non-response weighting.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Figure 11.6 Prevalence of obese children aged 2 to 15, by sex, 1995 to 2006, England

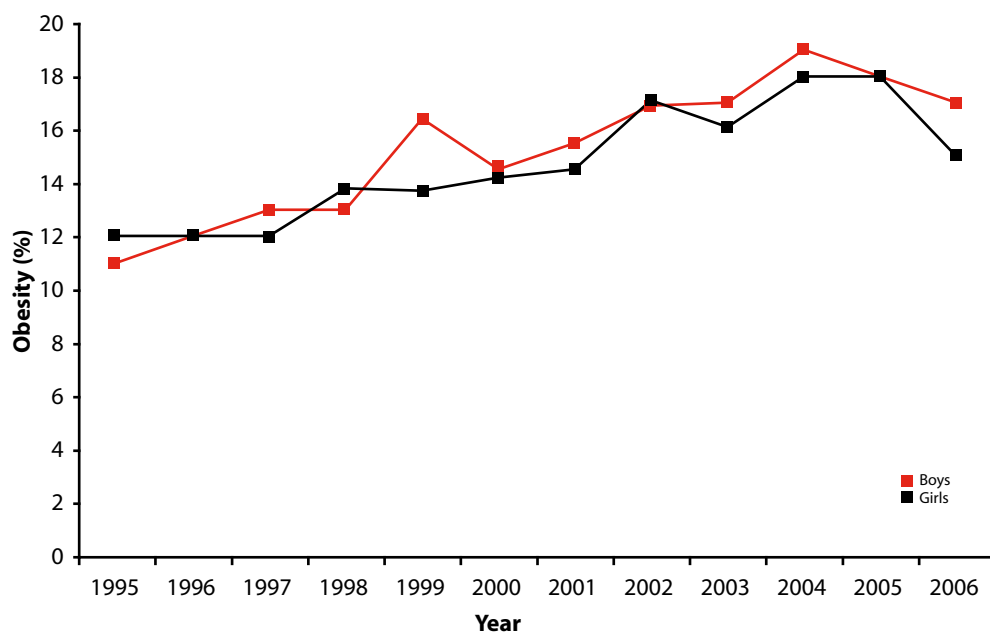


Table 11.7 *Body mass index by sex and Government Office Region, 2006, England*

Government Office Region	% BMI <25 Normal	% BMI ≥25 < 30 Overweight	% BMI ≥30 Obese	% BMI ≥25 Overweight including obese	Weighted bases	Unweighted bases
MEN						
North East	37	35	28	62	297	286
North West	34	43	23	66	811	832
Yorkshire and the Humber	33	41	26	67	608	577
East Midlands	32	42	26	68	547	553
West Midlands	24	47	28	76	648	597
East of England	31	48	22	69	696	646
London	39	42	19	61	861	607
South East	34	46	20	66	953	901
South West	32	41	27	68	594	524
WOMEN						
North East	39	32	28	61	326	360
North West	46	33	21	54	840	967
Yorkshire and the Humber	42	32	25	57	619	681
East Midlands	41	34	26	59	539	661
West Midlands	38	33	30	62	677	741
East of England	41	36	23	59	683	724
London	51	28	21	49	762	651
South East	45	30	24	54	969	1,048
South West	43	34	23	57	659	671

Source: Joint Health Surveys Unit (2008) *Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Table 11.8 *Body mass index by sex and equivalised household income quintile, 2006, England*

Body mass index (kg/m ²)	Equivalised household income quintile				
	Highest %	2nd %	3rd %	4th %	Lowest %
MEN					
BMI < 25: Normal	32	32	32	34	34
BMI ≥ 25 < 30: Overweight	47	45	44	39	41
BMI ≥ 30: Obese	21	24	23	27	24
BMI ≥ 25: Overweight including obese	68	68	68	66	65
Weighted bases	1,193	1,165	998	809	699
Unweighted bases	1,079	1,052	949	806	655
WOMEN					
BMI < 25: Normal	50	44	43	39	36
BMI ≥ 25 < 30: Overweight	31	34	33	31	32
BMI ≥ 30: Obese	19	23	24	29	32
BMI ≥ 25: Overweight including obese	50	57	57	60	64
Weighted bases	979	1,061	1,047	1,035	813
Unweighted bases	1,036	1,117	1,135	1,152	886

Source: Joint Health Surveys Unit (2008) *Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Table 11.9 Raised waist circumference by sex and equivalised household income quintile, 2006, England

	<i>Equivalised household income quintile</i>				
	Highest %	2nd %	3rd %	4th %	Lowest %
<i>Raised waist circumference</i>					
MEN	31	32	31	35	35
<i>Weighted bases</i>	985	983	822	695	603
<i>Unweighted bases</i>	906	888	812	699	551
WOMEN	36	41	41	45	47
<i>Weighted bases</i>	826	904	908	912	716
<i>Unweighted bases</i>	894	971	994	999	763

Source: Joint Health Surveys Unit (2008) *Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.*

Table 11.10 Prevalence of obesity by sex and ethnic group, adults aged 16 and over, 2004, England

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN	23	25	17	14	15	6	6	25
<i>Unweighted base</i>	2,444	317	297	482	346	330	307	420
WOMEN	23	32	39	20	28	17	8	21
<i>Unweighted base</i>	3,135	459	332	546	391	353	308	555

Notes: Obesity is defined as a BMI of over 30; age-standardised percentages; see source for method of age-standardisation.

Source: Department of Health (2005) Health Survey for England 2004. See <http://www.ic.nhs.uk/pubs/blthsvyeng2004upd>

Figure 11.10 Prevalence of obesity by sex and ethnic group, adults aged 16 and over, 2004, England

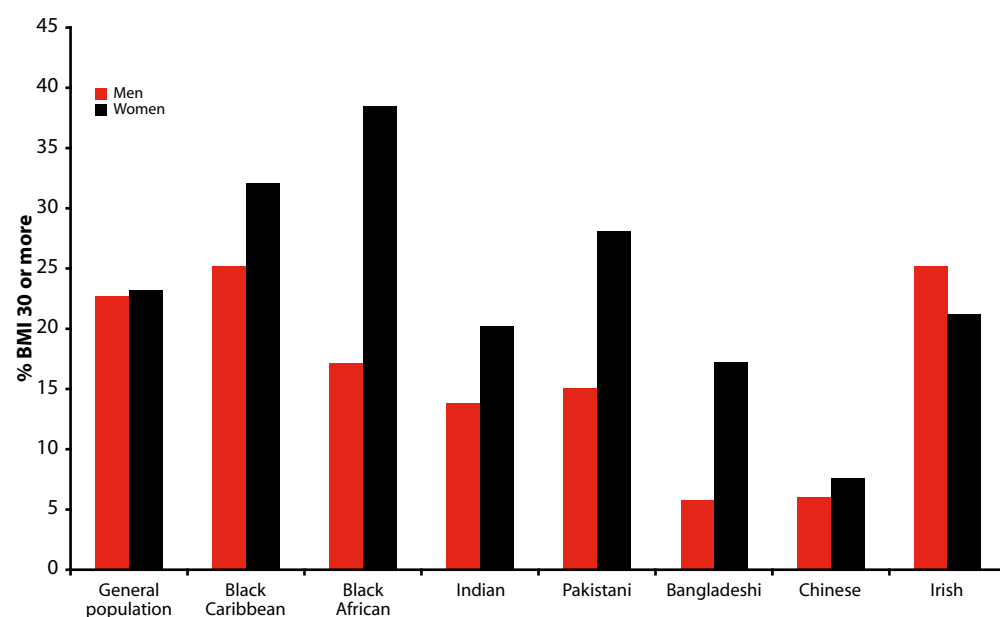


Table 11.11 Prevalence of a raised waist to hip ratio by sex and ethnic group, adults aged 16 and over, 2004, England

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
	%	%	%	%	%	%	%	%
MEN	33	25	16	36	37	32	17	36
<i>Unweighted base</i>	4,692	209	156	310	197	138	182	311
WOMEN	30	37	32	30	39	50	22	37
<i>Unweighted base</i>	5,995	314	200	345	224	171	185	405

Notes: A raised waist to hip ratio for men is 0.95 and over and for women is 0.85 and over; age-standardised percentages; see source for method of age-standardisation. General population figures taken from 2003 Health Survey for England.

Source: Department of Health (2005) Health Survey for England 2004. See <http://www.ic.nhs.uk/pubs/hlthsvyeng2004upd>

Table 11.12 Prevalence estimates of overweight and obesity for 2002, and projections for 2005 and 2010, by sex, adults aged 15 and over, the World

	Prevalence of overweight Male			Prevalence of overweight Female			Prevalence of obesity Male			Prevalence of obesity Female		
	2002	2005	2010	2002	2005	2010	2002	2005	2010	2002	2005	2010
WHO Africa Region												
Angola	19.9	21.3	23.8	31.4	33.6	37.2	1.6	1.9	2.4	5.9	6.9	8.7
Benin	15.8	17.9	21.9	32.8	39.1	43.8	0.7	1.0	1.5	6.2	9.3	12.1
Botswana	35.5	37.8	41.6	46.9	49.4	53.5	4.6	5.4	6.9	12.9	14.6	17.7
Burkina Faso	10.6	12.1	15.1	15.8	16.0	19.4	0.3	0.4	0.6	1.1	1.1	1.7
Burundi	7.0	7.8	9.1	16.3	18.1	21.1	0.1	0.1	0.2	1.2	1.5	2.2
Cameroon	35.7	38.7	43.9	38.3	41.1	45.8	6.3	7.5	10.1	9.2	10.8	13.8
Cape Verde	30.5	32.4	35.6	41.8	44.1	48.0	4.0	4.6	5.8	11.0	12.5	15.1
Central African Republic	6.7	7.2	8.0	17.7	18.5	20.0	0.1	0.1	0.1	1.1	1.3	1.5
Chad	10.4	12.0	15.0	17.1	19.2	22.9	0.3	0.4	0.6	1.3	1.7	2.6
Comoros	17.7	20.0	24.3	33.1	35.9	40.7	0.9	1.2	1.9	5.8	7.1	9.6
Congo, Democratic Republic of	4.3	4.8	5.7	11.9	13.3	15.8	0.0	0.0	0.1	0.6	0.8	1.1
Congo, Republic of	12.0	12.7	13.8	24.2	25.2	26.8	0.4	0.4	0.5	2.7	3.0	3.5
Côte d'Ivoire	10.9	11.6	12.7	32.5	34.2	36.0	0.2	0.2	0.3	4.8	5.4	6.2
Djibouti	17.6	18.9	21.2	28.8	31.0	34.5	1.2	1.4	1.8	5.0	5.8	7.4
Equatorial Guinea	35.4	37.5	41.0	46.1	48.5	52.3	5.6	6.4	7.9	13.8	15.4	18.4
Eritrea	2.9	3.1	3.5	5.9	5.7	6.3	0.0	0.0	0.0	0.1	0.1	0.1
Ethiopia	7.4	7.8	8.6	3.1	3.3	3.7	0.1	0.2	0.2	0.0	0.0	0.0
Gabon	22.7	25.4	30.2	45.0	47.7	52.2	1.8	2.3	3.4	13.5	15.5	19.2
Gambia	9.0	10.3	12.8	20.5	22.8	27.0	0.2	0.3	0.5	1.9	2.5	3.6
Ghana	27.3	30.3	35.6	26.2	28.1	32.5	2.6	3.3	4.8	3.5	4.2	5.9
Guinea	14.5	16.5	20.3	27.8	30.4	34.9	0.6	0.8	1.3	4.2	5.2	7.1
Guinea-Bissau	10.5	11.4	12.9	20.3	22.1	25.1	0.4	0.5	0.6	2.4	2.8	3.7
Kenya	6.5	6.9	7.7	21.3	21.7	23.3	0.1	0.1	0.1	1.8	1.9	2.2
Lesotho	26.3	27.5	29.5	68.7	69.5	70.8	1.7	1.9	2.3	33.2	34.3	36.1
Liberia	27.8	29.6	32.7	39.2	41.6	45.4	3.3	3.8	4.8	9.6	11.0	13.4
Madagascar	12.9	14.5	17.5	18.1	20.2	24.1	0.7	1.0	1.5	1.5	1.9	2.9
Malawi	14.3	15.1	16.4	21.6	23.5	25.2	0.6	0.7	0.8	1.6	2.0	2.4
Mali	12.8	14.6	18.1	26.1	33.6	38.4	0.4	0.6	1.0	3.4	6.2	8.4
Mauritania	27.5	30.4	35.4	52.2	54.6	58.6	2.9	3.7	5.3	20.6	22.9	26.9
Mozambique	8.7	9.3	10.3	24.3	25.3	26.9	0.1	0.2	0.2	2.7	3.0	3.4
Namibia	11.6	12.3	13.5	31.5	32.6	34.4	0.2	0.3	0.4	4.9	5.3	6.1
Niger	12.1	13.9	17.2	19.6	21.3	25.1	0.4	0.6	0.9	1.9	2.3	3.4
Nigeria	19.6	21.9	26.0	29.6	32.2	36.8	1.6	2.0	3.0	4.9	6.0	8.1
Rwanda	6.8	7.3	8.1	19.2	20.1	21.7	0.1	0.1	0.1	1.2	1.3	1.6
Sao Tome and Principe	14.4	15.5	17.5	25.2	27.2	30.5	0.8	0.9	1.2	3.7	4.4	5.7
Senegal	14.4	16.1	19.2	34.1	36.7	41.0	1.0	1.3	2.0	7.8	9.2	11.8
Seychelles	55.1	58.5	63.8	68.6	70.7	73.8	14.2	16.7	21.3	35.8	38.6	43.2
Sierra Leone	20.2	22.4	26.3	41.6	44.5	49.1	1.9	2.4	3.5	10.9	12.7	16.0
Somalia	9.8	10.6	12.1	19.3	21.1	24.0	0.3	0.4	0.6	2.1	2.6	3.4
South Africa	38.2	39.3	41.3	66.4	67.2	68.5	6.2	6.7	7.6	34.3	35.2	36.8
Sudan	16.0	17.2	19.3	27.0	29.1	32.5	1.0	1.2	1.5	4.3	5.1	6.5
Swaziland	33.6	35.8	39.5	45.2	47.8	51.9	4.0	4.7	6.1	11.8	13.5	16.5
Tanzania, United Republic of	14.7	15.4	16.8	27.0	27.0	28.7	0.6	0.7	0.8	2.8	3.1	3.6
Togo	15.0	17.1	20.9	28.3	30.9	35.5	0.6	0.9	1.4	4.3	5.3	7.3
Uganda	6.9	7.4	8.2	20.1	22.2	23.9	0.1	0.1	0.1	1.3	1.6	1.9
Zambia	7.0	7.5	8.3	20.2	18.6	20.0	0.1	0.1	0.1	1.6	1.3	1.5
Zimbabwe	14.5	15.3	16.7	47.2	48.9	50.6	0.5	0.6	0.8	14.1	15.3	16.7
WHO Eastern Mediterranean and Middle East Region												
Afghanistan	11.2	12.7	15.6	15.6	17.4	20.8	0.3	0.5	0.7	1.1	1.4	2.1
Algeria	32.1	34.1	37.4	43.2	45.6	49.4	4.5	5.2	6.4	11.9	13.4	16.2
Armenia	53.9	53.9	53.9	52.8	52.8	52.8	12.1	12.1	12.1	19.8	19.8	19.8
Bahrain	60.9	60.9	60.9	66.0	67.3	69.5	21.2	21.2	21.2	33.5	35.2	37.9
Brunei Darussalam	55.3	56.4	58.1	61.9	63.2	65.2	14.4	15.2	16.6	25.9	27.4	29.7
Egypt	64.5	64.5	64.5	69.7	74.2	76.0	22.0	22.0	22.0	39.3	45.5	48.0
Iran, Islamic Republic of	47.3	48.5	48.5	55.7	57.8	60.2	9.4	10.0	10.0	25.0	27.0	29.5
Iraq	38.7	40.1	42.4	49.0	50.8	53.6	6.6	7.2	8.3	15.5	16.8	19.1
Jordan	57.5	57.5	57.5	67.3	63.4	65.4	19.6	19.6	19.6	40.2	35.6	37.9
Kuwait	69.5	69.5	69.5	76.6	79.0	80.4	29.6	29.6	29.6	49.2	52.9	55.2
Lebanon	51.7	51.7	51.7	52.9	54.3	56.7	14.9	14.9	14.9	23.9	25.2	27.4
Libyan Arab Jamahiriya	47.6	48.8	50.8	56.0	57.5	59.8	10.7	11.4	12.7	21.1	22.5	24.9
Morocco	31.1	31.1	31.1	53.0	54.7	57.5	3.7	3.7	3.7	19.0	20.5	23.1
Oman	43.4	43.4	43.4	46.0	47.8	50.8	7.7	7.7	7.7	13.5	14.8	17.0
Pakistan	16.7	18.8	22.8	23.2	25.5	29.5	0.8	1.0	1.6	2.9	3.6	5.0
Qatar	56.9	57.9	59.5	62.9	64.1	65.9	16.6	17.4	18.7	27.9	29.3	31.6
Saudi Arabia	62.4	63.1	63.1	63.0	63.8	65.9	22.3	23.0	23.0	32.8	33.8	36.4
Syrian Arab Republic	47.2	48.4	50.4	55.7	57.2	59.6	10.5	11.2	12.4	20.8	22.2	24.6
Tunisia	42.8	42.8	42.8	57.9	59.2	61.4	7.7	7.7	7.7	28.8	30.2	32.6
United Arab Emirates	66.9	66.9	66.9	68.4	69.6	71.6	24.5	24.5	24.5	37.9	39.4	42.0
Yemen	24.6	24.6	24.6	27.8	29.4	32.2	2.0	2.0	2.0	4.4	5.1	6.2
WHO European Region												
Albania	57.2	57.2	57.2	52.5	52.5	52.5	18.6	18.6	18.6	23.8	23.8	23.8
Andorra	59.8	60.9	62.5	65.5	66.8	68.7	14.9	15.8	17.1	27.3	28.8	31.2
Austria	59.0	61.0	62.9	53.4	53.2	55.2	19.5	21.3	23.1	20.4	20.3	21.8
Azerbaijan	57.4	57.4	57.4	56.8	56.8	56.8	15.4	15.4	15.4	24.9	24.9	24.9
Belarus	63.7	63.7	63.7	69.9	69.9	69.9	16.2	16.2	16.2	32.2	32.2	32.2
Belgium	49.0	51.9	54.1	40.7	40.7	42.9	11.4	13.3	14.8	9.5	9.5	10.7
Bosnia and Herzegovina	56.6	56.6	56.6	51.0	51.0	51.0	13.8	13.8	13.8	21.5	21.5	21.5
Bulgaria	62.8	62.8	62.8	45.5	45.5	45.5	17.0	17.0	17.0	19.0	19.0	19.0
Croatia	60.0	61.3	63.5	45.3	46.4	48.3	17.1	18.2	20.1	15.4	16.2	17.6
Cyprus	50.4	51.7	53.9	50.0	60.6	63.0	9.4	10.1	11.4	20.7	22.2	24.7
Czech Republic	56.7	58.1	60.1	47.0	47.8	49.3	17.4	18.5	20.2	20.0	20.7	22.1
Denmark	50.7	52.5	55.0	37.5	39.1	41.4	9.6	10.6	12.0	6.4	7.1	8.3
Estonia	50.7	50.7	50.7	33.8	33.8	33.8	8.6	8.6	8.6	8.4	8.4	8.4
Finland	63.8	64.9	67.1	52.0	52.4	54.5	18.0	18.9	20.9	17.5	17.8	19.4
France	44.1	45.6	48.0	33.4	34.7	36.9	7.2	7.8	9.0	6.1	6.6	7.6
Georgia	37.4	38.9	41.5	48.9	50.8	53.8	4.7	5.2	6.1	13.4	14.7	17.1
Germany	63.7	65.1	67.2	53.6	55.1	57.1	19.7	20.9	22.9	19.2	20.4	22.1
Greece	74.6	75.7	77.5	60.1	61.3	63.2	26.2	27.7	30.3	23.4	24.5	26.4
Hungary	55.9	55.9	55.9	47.4	47.4	47.4	15.8	15.8	15.8	16.1	16.1	16.1
Iceland	57.7	59.0	61.2	60.5	61.7	63.7	15.7	16.7	18.5	22.0	23.2	25.3
Ireland	50.0	51.5	53.9	40.3	41.7	43.9	9.5	10.3	11.7	8.4	9.1	10.4
Israel	55.9	57.2	59.4	56.3	57.5	59.3	15.2	16.2	17.9	23.3	24.3	25.9
Italy	51.9	52.7	55.0	37.8	38.3	40.0	12.2	12.9	14.4	12.2	12.6	13.7
Kazakhstan	43.9	43.9	43.9	41.9	38.9	38.9	7.9	7.9	7.9	13.1	11.0	11.0
Kyrgyzstan	34.5	34.5	34.5	43.9	43.9	43.9	5.0	5.0	5.0	14.2	14.2	14.2
Latvia	49.9	49.9	49.9	44.7	44.7	44.7	9.7	9.7	9.7	15.0	15.0	15.0
Lithuania	62.3	62.3	62.3	43.9	43.9	43.9	16.8	16.8	16.8	13.9	13.9	13.9
Luxembourg	53.0	54.4	56.9	52.6	54.0	56.2	11.2	12.1	13.6	15.0	16.0	17.8

	Prevalence of overweight			Prevalence of overweight			Prevalence of obesity			Prevalence of obesity		
	Male			Female			Male			Female		
	2002	2005	2010	2002	2005	2010	2002	2005	2010	2002	2005	2010
Macedonia, FYR	37.1	37.1	37.1	57.4	57.4	57.4	5.9	5.9	5.9	24.3	24.3	24.3
Malta	70.2	71.4	73.3	65.1	66.1	67.6	24.6	25.9	28.1	33.8	34.8	36.5
Moldova, Republic of	33.3	34.8	37.5	45.4	47.4	50.7	3.5	4.0	4.8	11.2	12.5	14.8
Monaco	58.0	59.1	60.9	64.3	65.6	67.6	13.7	14.5	15.9	26.0	27.5	29.9
Netherlands	46.7	48.0	50.2	42.6	44.0	46.1	9.6	10.4	11.7	10.7	11.5	12.9
Norway	53.3	54.8	57.2	42.0	43.4	45.8	10.4	11.3	12.8	8.6	9.3	10.7
Poland	50.7	50.7	50.7	44.3	44.3	44.3	12.9	12.9	12.9	18.0	18.0	18.0
Portugal	55.5	58.5	60.9	47.6	49.2	51.2	13.1	13.7	15.5	14.6	16.1	17.7
Romania	37.7	37.7	37.7	40.6	40.6	40.6	5.5	5.5	5.5	12.0	12.0	12.0
Russian Federation	46.5	46.5	46.5	51.7	51.7	51.7	9.6	9.6	9.6	23.6	23.6	23.6
San Marino	57.6	58.8	60.5	64.1	65.4	67.4	13.5	14.3	15.7	25.7	27.2	29.7
Serbia and Montenegro	61.2	61.2	61.2	48.5	48.5	48.5	17.7	17.7	17.7	20.6	20.6	20.6
Slovakia	50.7	52.0	54.0	59.1	60.6	62.9	10.1	10.8	12.0	21.3	22.8	25.3
Slovenia	54.8	56.0	57.9	62.1	63.5	65.7	11.8	12.5	13.9	23.7	25.2	27.6
Spain	55.7	55.8	57.9	45.7	47.7	49.8	15.6	15.6	17.3	14.5	15.8	17.3
Sweden	51.7	54.5	57.0	43.3	44.9	47.2	10.1	11.8	13.3	10.0	10.9	12.4
Switzerland	52.4	54.1	56.5	53.8	56.7	58.9	11.4	12.4	13.9	16.4	18.7	20.6
Tajikistan	29.2	30.8	33.5	41.8	43.9	47.4	2.5	2.9	3.6	9.2	10.4	12.6
Turkey	47.9	47.9	47.9	65.4	65.7	65.7	10.8	10.8	10.8	32.1	32.5	32.5
Turkmenistan	48.1	48.1	48.1	45.5	45.5	45.5	9.3	9.3	9.3	15.0	15.0	15.0
Ukraine	41.2	41.2	41.2	48.5	48.5	48.5	7.4	7.4	7.4	19.4	19.4	19.4
United Kingdom	62.5	65.7	67.8	58.8	61.9	63.8	18.7	21.6	23.7	21.3	24.2	26.3
Uzbekistan	42.0	42.0	42.0	44.3	49.9	49.9	7.1	7.1	7.1	13.5	17.6	17.6
WHO North American Region												
Antigua and Barbuda	50.0	51.2	53.2	58.3	59.8	62.1	10.4	11.2	12.4	21.5	22.9	25.3
Bahamas	55.9	57.0	58.7	62.5	63.8	65.9	13.9	14.7	16.0	25.6	27.1	29.5
Barbados	55.5	59.2	65.1	77.8	80.1	83.3	14.1	16.8	22.0	46.7	50.8	57.2
Belize	43.3	44.7	47.0	53.3	54.9	57.6	7.3	7.9	9.0	17.2	18.6	21.0
Canada	64.5	65.1	66.9	55.9	57.1	59.5	23.1	23.7	25.5	22.2	23.2	25.7
Dominica	61.5	65.1	70.8	74.4	77.1	80.8	16.9	20.0	25.8	41.8	46.0	52.6
Grenada	47.4	48.7	50.8	56.4	58.0	60.4	9.1	9.8	11.0	19.8	21.2	23.6
Guyana	40.6	42.1	44.4	51.2	52.9	55.8	6.3	6.8	7.9	15.6	17.0	19.4
Haiti	13.0	15.1	19.0	39.8	50.6	57.7	0.5	0.7	1.3	8.2	15.0	21.1
Jamaica	36.0	40.0	46.8	71.8	74.7	79.0	3.8	5.1	7.7	36.4	41.0	48.3
Mexico	64.6	68.4	73.6	65.6	67.9	73.0	20.3	24.0	30.1	31.6	34.3	41.0
Saint Kitts and Nevis	50.7	52.0	53.9	58.9	60.3	62.6	10.8	11.6	12.8	22.0	23.4	25.8
Saint Lucia	41.3	45.5	52.5	65.7	69.1	74.1	5.0	6.6	9.8	30.5	34.7	41.7
Saint Vincent and the Grenadines	44.3	45.6	47.9	54.0	55.7	58.3	7.7	8.4	9.5	17.8	19.2	21.6
Trinidad and Tobago	54.8	58.9	65.2	74.4	77.0	80.8	11.3	14.0	19.1	41.9	46.1	52.7
United States of America	72.2	75.6	80.5	69.8	72.6	76.7	32.0	36.5	44.2	37.8	41.8	48.3
WHO South and Central American Region												
Argentina	70.1	73.1	77.7	62.1	65.7	71.2	28.0	31.4	37.4	27.1	31.0	37.8
Bolivia	52.5	56.3	62.4	64.4	68.0	73.2	12.2	14.7	19.4	28.8	33.1	40.2
Brazil	43.4	47.4	54.0	49.2	53.5	60.3	6.9	8.7	12.4	15.0	18.3	24.5
Chile	58.9	62.6	68.4	64.4	68.0	73.3	16.1	19.0	24.3	27.2	31.6	39.1
Colombia	52.7	56.5	62.6	55.1	54.6	61.1	12.4	14.9	19.6	20.3	19.9	26.1
Costa Rica	49.8	53.9	60.1	56.2	57.8	63.8	10.6	13.0	17.5	22.7	24.2	30.5
Cuba	55.2	59.2	65.4	57.0	61.1	67.2	12.3	14.9	20.1	20.7	24.6	31.5
Dominican Republic	42.5	46.6	53.4	62.8	66.4	71.7	6.0	7.7	11.2	27.8	31.8	38.7
Ecuador	40.2	41.7	44.0	50.9	52.6	55.5	6.1	6.7	7.7	15.4	16.7	19.1
El Salvador	42.1	43.5	45.8	52.3	54.0	56.8	6.8	7.4	8.5	16.5	17.8	20.2
Guatemala	53.2	56.9	62.9	61.1	65.4	70.9	13.1	15.7	20.5	25.0	29.7	36.8
Honduras	36.2	37.6	40.1	47.5	49.4	52.5	4.7	5.2	6.2	13.1	14.4	16.7
Nicaragua	48.9	52.9	59.4	62.9	68.1	73.1	9.3	11.5	15.9	28.3	34.3	41.1
Panama	45.2	46.5	48.7	54.7	56.3	58.9	8.1	8.8	9.9	18.3	19.8	22.2
Paraguay	40.9	42.3	44.7	51.4	53.2	56.0	6.4	7.0	8.0	15.8	17.2	19.6
Peru	50.8	54.6	60.9	62.7	64.7	70.1	10.8	13.2	17.7	28.9	31.1	37.7
Suriname	41.0	42.4	44.8	51.5	53.2	56.1	6.4	7.0	8.1	15.8	17.2	19.6
Uruguay	60.0	63.6	69.3	54.1	58.1	64.4	17.1	20.1	25.7	19.6	23.3	29.8
Venezuela	65.6	69.1	74.4	57.5	61.4	67.3	19.7	23.2	29.5	22.4	26.2	33.0
WHO South-East Asian Region												
Bangladesh	5.9	6.7	8.4	4.3	5.4	6.7	0.1	0.1	0.2	0.1	0.2	0.2
Bhutan	34.0	35.3	37.7	44.7	46.5	49.6	5.3	5.8	6.7	13.1	14.3	16.5
India	15.0	16.8	20.1	13.7	15.2	18.1	0.9	1.1	1.7	1.1	1.4	2.0
Maldives	29.7	32.3	36.6	45.7	47.6	50.8	4.7	5.7	7.7	20.2	22.0	25.0
Mauritius	35.6	39.0	44.8	49.5	52.3	56.8	4.5	5.6	8.0	16.1	18.3	22.3
Nepal	7.7	8.8	11.0	8.0	8.0	9.9	0.1	0.2	0.3	0.2	0.2	0.3
Sri Lanka	8.8	8.9	9.1	5.0	5.9	7.9	0.2	0.2	0.2	0.1	0.1	0.2
WHO Western Pacific Region												
Australia	69.7	72.1	75.7	60.2	62.7	66.5	21.2	23.8	28.4	22.5	24.9	29.1
Cambodia	9.6	13.3	21.4	7.1	9.3	13.8	0.1	0.2	0.5	0.1	0.1	0.4
China	27.5	33.1	45.0	22.7	24.7	32.0	1.0	1.6	4.1	1.5	1.9	3.6
Cook Islands	92.0	92.6	93.4	88.5	89.2	90.3	67.9	69.5	72.1	69.0	70.8	73.4
Fiji	42.7	43.9	47.5	63.4	65.6	69.5	7.8	8.7	10.7	29.8	32.5	37.1
Indonesia	9.6	9.7	9.9	20.3	22.7	27.1	0.2	0.2	0.2	2.0	2.6	3.9
Japan	25.3	27.0	29.8	18.6	18.1	16.2	1.5	1.8	2.3	1.5	1.5	1.1
Kiribati	71.4	73.2	76.1	71.9	73.9	77.1	27.6	29.8	33.6	37.9	41.0	46.1
Korea, Democratic People's Republic of	31.0	32.7	35.5	44.0	46.2	49.7	2.4	2.7	3.4	9.5	10.7	12.9
Korea, Republic of	32.8	40.2	51.5	38.2	43.8	51.0	2.3	4.1	8.3	7.2	10.1	14.6
Lao People's Democratic Republic	30.4	32.1	34.9	43.5	45.6	49.2	2.3	2.6	3.3	9.2	10.4	12.6
Malaysia	22.5	22.7	23.0	34.2	37.2	42.2	1.6	1.6	1.7	6.8	8.2	11.0
Marshall Islands	39.1	40.6	43.0	50.0	51.8	54.7	5.7	6.3	7.3	14.8	16.1	18.5
Micronesia, Federated States of	91.5	92.1	93.1	89.5	90.1	91.1	64.3	66.2	69.1	71.3	72.9	75.3
Mongolia	46.0	53.0	64.1	65.8	69.3	74.4	5.2	7.9	14.5	24.6	29.0	36.6
Myanmar	27.8	29.4	32.3	41.1	43.3	47.0	1.8	2.1	2.7	8.0	9.1	11.3
Nauru	96.3	96.5	96.9	92.0	92.4	93.0	82.3	83.2	84.6	77.7	78.8	80.5
New Zealand	65.2	68.7	73.9	64.0	68.2	74.2	19.7	23.0	28.9	26.7	31.5	39.9
Niue	76.9	78.5	80.9	83.8	85.0	86.7	34.4	36.8	40.7	58.6	61.0	64.7
Palau	72.7	74.5	77.2	81.0	82.4	84.5	29.0	31.2	35.0	52.2	55.0	59.4
Papua New Guinea	29.2	31.5	35.3	26.1	29.0	34.0	2.0	2.5	3.4	3.2	4.2	6.1
Philippines	21.7	21.9	22.2	25.4	28.5	33.6	1.1	1.1	1.1	2.8	3.7	5.5
Samoa	77.2	78.7	81.1	80.7	82.1	84.1	36.2	38.4	42.2			

Figure 11.12a Prevalence of obesity by sex, 2002, WHO European Region

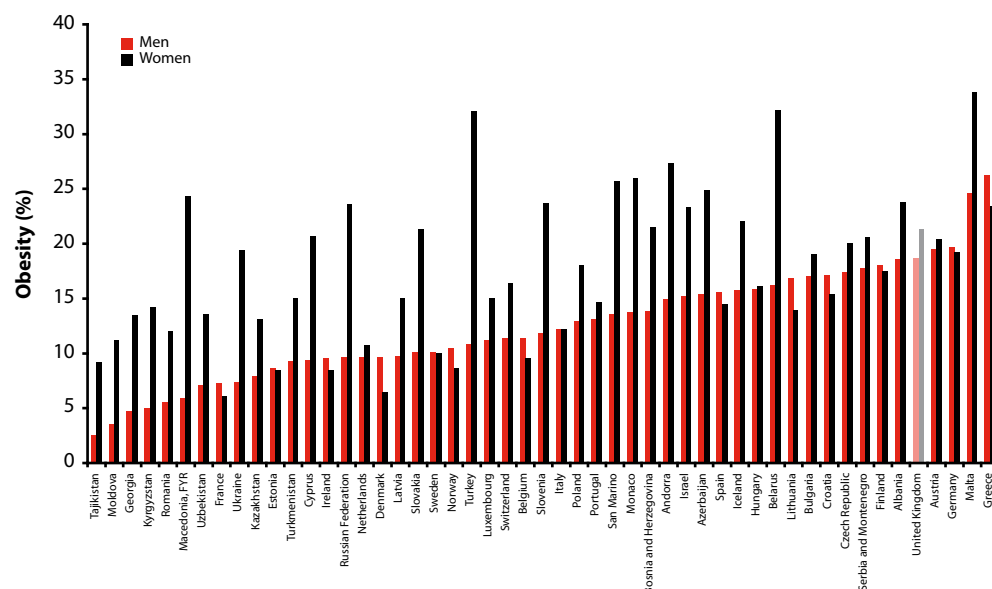


Figure 11.12b Prevalence of obesity by sex, 2002, selected countries, the World

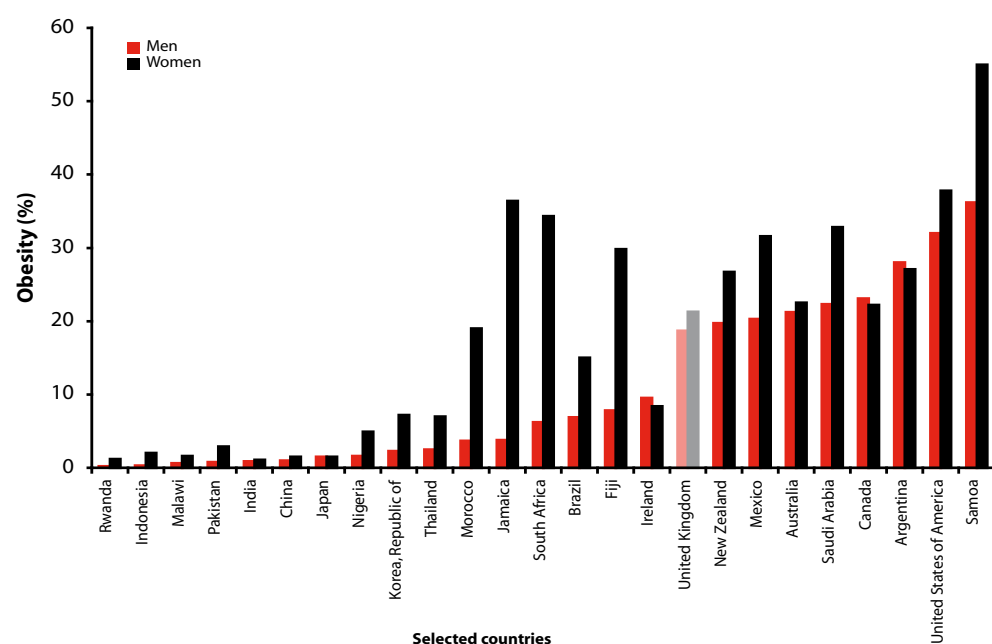


Table 11.13 Prevalence of overweight and obese children by sex, WHO Region and country, latest available year, the World

	Year of Survey	Age Range Years (inclusive)	Overweight (including obesity)		Cut Off
			Boys	Girls	
WHO Africa Region					
Algeria	2003	7-17	6.0	5.6	IOTF
Ethiopia	1987-1995	5-17	0.1	0.4	IOTF
Mali	1993	5-17	0.2	0.5	IOTF
Senegal	1992	5-17	0.1	0.5	IOTF
Seychelles	1999	5,9,12 & 16	9.2	15.8	IOTF
Zimbabwe	1990-4	5-17	1.7	2.4	IOTF
WHO Americas Region					
Bolivia (urban)	2003	14-17	15.6	27.5	IOTF
Brazil	2002	7-10	23.0	21.1	IOTF
Canada	1996	7-13	33.0	27.0	IOTF
Chile	2000	6	26.0	27.1	IOTF
Mexico	1995	5-17	32.3	31.1	IOTF
Trinidad & Tobago	1999	5,6,9 & 10	8.1	8.8	IOTF
USA	1988-94	5-17	26.8	28.1	IOTF
Venezuela	1976-82	10 & 15	21.1	17.2	IOTF
WHO Eastern Mediterranean Region					
Bahrain	2000	12-17	29.9	38.5	IOTF
Iran	1995	6	24.7	26.8	IOTF
Kuwait	1999-2000	10-14	30.0	31.8	85/95th centile
Lebanon	1996	5-17	23.4	19.7	IOTF
Saudi Arabia	2002	5-17	16.7	19.4	IOTF
WHO European Region					
Austria	2003	8-12	22.5	16.7	90/97th centile
Belgium	1998-9	5-15	27.7	26.8	85/95th centile
Bulgaria	1998	7-17	18.9	16.1	IOTF
Cyprus	1999-2000	6-17	25.4	22.6	IOTF
Czech Republic	2001	5-17	14.7	13.4	IOTF
Denmark	1996/7	6-16	14.1	15.3	IOTF
Finland (self report)	1999	12-17	19.4	11.2	IOTF
France	2000 (12yrs 2001)	7,8,9&12	19.1	19.3	IOTF
Germany	1995	5-17	14.1	14.0	IOTF
Greece	2003	13-17	29.6	16.1	IOTF
Hungary	1993-4	10 & 15	17.8	15.9	IOTF
Iceland	1998	9	22.0	25.5	IOTF
Italy	1993-2001	5-17	26.6	24.8	IOTF
Macedonia, FYR	1995-2002	6-17	18.6	16.7	85/95th centile
Malta	1992	10	32.7	38.5	IOTF
Netherlands	1997	5-17	8.8	11.8	IOTF
Poland	1996	5-17	16.7	13.6	IOTF
Portugal	2002/3	7-9	29.5	34.3	IOTF
Russian Federation	1992	5-17	24.2	19.7	IOTF
Slovakia	1995-99	11-17	9.8	8.2	IOTF
Spain	1998-2000	5-16	31.0	19.5	IOTF
Sweden	2001	6-11	17.6	27.4	IOTF
Switzerland	2002	6-12	21.0	23.2	IOTF
Turkey	2001	12-17	11.4	10.3	IOTF
United Kingdom (England)	2001	5-17	21.8	27.1	IOTF
WHO South East Asia Region					
India	2002 approx	5-17boys, 5-15 girls	12.9	8.2	IOTF
Nepal	1997	5-17	0.0	0.0	IOTF
Thailand	1997	5-15	21.1	12.6	IOTF
WHO Western Pacific Region					
Australia	1995	7-17	21.1	21.3	IOTF
Japan	1996-2000	6-14	16.2	14.3	IOTF
Singapore	1993	10 & 15	20.4	14.6	IOTF
China	1999-2000	11 & 15	14.9	8.0	IOTF
New Zealand	2000	11 & 12	30.0	30.0	IOTF

Source: International Obesity TaskForce (2006). <http://www.ionf.org/database/ChildhoodTablebyRegionFeb06.htm>

Figure 11.13a Percentage of boys who are overweight (including obesity), latest available year, Europe

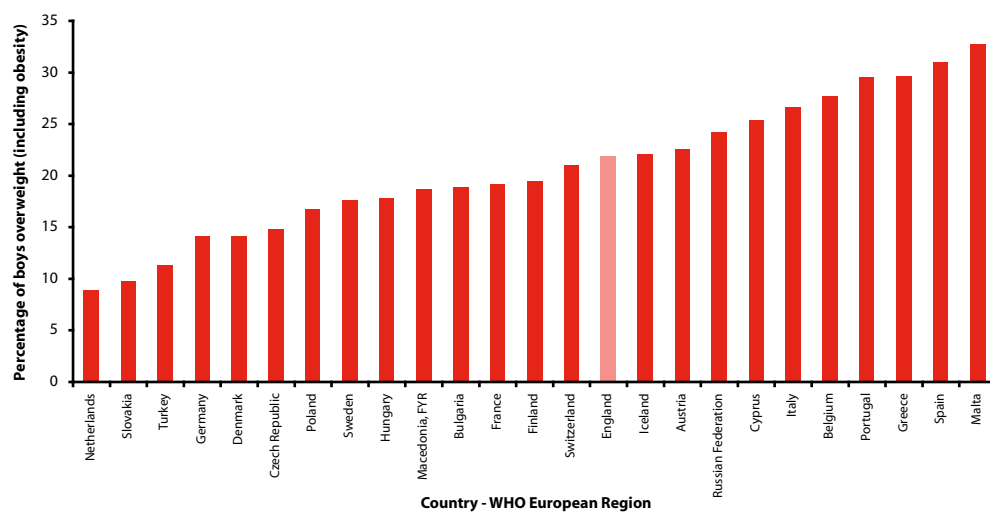
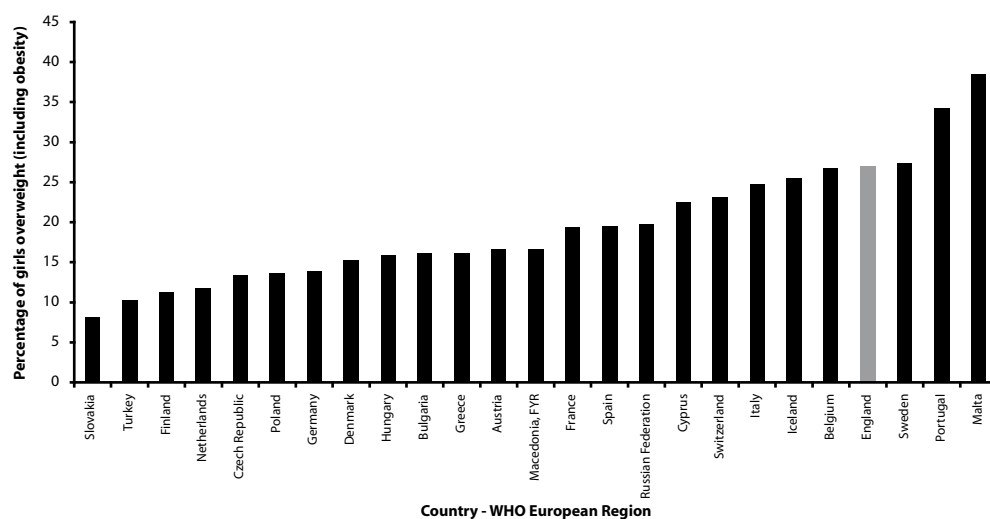


Figure 11.13b Percentage of girls who are overweight (including obesity), latest available year, Europe



12. Diabetes

Diabetes substantially increases the risk of CHD. Men with non-insulin dependent (Type 2) diabetes have a two to fourfold greater annual risk of CHD, with an even higher (three to fivefold) risk in women with Type 2 diabetes¹.

Diabetes not only increases the risk of CHD but also magnifies the effect of other risk factors for CHD such as raised cholesterol levels, raised blood pressure, smoking and obesity. There are two main types of diabetes: Type 1 and Type 2 diabetes².

The recent INTERHEART case-control study estimated that 15% of heart attacks in Western Europe and 9% of heart attacks in Central and Eastern Europe are due to diagnosed diabetes, and that people with diagnosed diabetes are at three times the risk of a heart attack compared to those without³.

Overall prevalence of diabetes

Over 5% of men and 4% of women in England have diagnosed diabetes (Table 12.1)⁴. The Quality and Outcomes Framework (QOF) provides information on the registrations for diabetes. In 2006, the overall prevalence of diabetes in Great Britain was estimated to be 4% (see Table 2.10).

Not all diabetes is diagnosed. The Health Survey for England 2003 suggests that 3.1% of men and 1.5% of women aged 35 and over have undiagnosed diabetes (Table 12.2).

Age and sex differences

For both men and women, the proportion of people with diabetes increases with age. The Health Survey for England 2006 suggests that around 1% of men aged 16 to 34 years have diagnosed diabetes compared with 13.5% of those aged 75 and over (Table 12.1 and Figure 12.1). This pattern is similar in women, although rates are slightly lower at most ages than for men.

Temporal trends

The prevalence of diabetes is increasing. Since 1991, the prevalence of diagnosed diabetes has more than doubled in men and women (Table 12.3 and Figure 12.3).

National and regional differences

The prevalence of diagnosed diabetes varies by Government Office Region in England for both men and women (Table 12.4). The age-standardised prevalence is highest for men (6.5%) in the North West and for women (5.4%) in Yorkshire and the Humber and the West Midlands. Rates are lowest for men in the East Midlands (4.6%) and for women in the South West (2.6%).

Socio-economic differences

Diabetes prevalence is also related to socio-economic position (Table 12.5). In the Health Survey for England 2003, men and women in managerial and professional and intermediate households had a lower prevalence of diagnosed diabetes than those from other households. In women,

for example, the prevalence was around twice as high in those living in manual compared to non-manual households (Table 12.5). Data from the 2006 Health Survey for England show that women living in households with the highest incomes had the lowest prevalence of diagnosed diabetes. There was no similar pattern among men (Table 12.6).

Ethnic differences

The prevalence of diabetes in 2004 was much higher among some ethnic minority communities than in the general population. In Black Caribbean and Indian men, the prevalence of diagnosed diabetes was more than twice that found in the general population. The prevalence for Black Caribbean and Pakistani women was two and a half times that of the general population. However, the prevalence for Black African and Irish women was substantially lower than for the general population (Table 12.7 and Figure 12.7).

International differences

Diabetes is now one of the most common non-communicable diseases globally. The International Diabetes Federation estimates that there are currently about 194 million people aged 20 to 79 with diabetes worldwide and that this will increase to 333 million by 2025 (Table 12.8).

Prevalence rates in the UK are average for developed countries (Table 12.8 and Figure 12.8). In general developed countries currently have higher rates than developing countries (Figure 12.8).

1. Garcia MJ, McNamara PM, Gordon T, Kannell WB (1974). Morbidity and mortality in the Framingham population. Sixteen year follow-up. *Diabetes*; 23:105-111.
2. Diabetes is characterised by high blood glucose levels. It arises when the pancreas fails to make enough insulin or when the body cannot effectively make use of the insulin produced or both. The chronic high blood glucose levels (hyperglycaemia) that result are associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels. Type 1 diabetes results from an autoimmune destruction of the cells in the pancreas which produce insulin. People with Type 1 diabetes must take daily injections of insulin for survival. Type 2 diabetes, which accounts for about 90% of all diabetes, is characterised by an inability on the part of the body to respond to insulin (insulin resistance) and/or abnormal insulin secretion. People with Type 2 diabetes are not usually treated with insulin. There are a number of other less common types of diabetes including gestational diabetes. This occasionally occurs during pregnancy in women not previously diagnosed with diabetes and is a marker of greater risk of developing Type 2 diabetes in later life.
3. Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigo J, Lisheng A, on behalf of the INTERHEART Study Investigators (2004) Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART Study): case-control study. *The Lancet*; 364: 937-952.
4. Determining the prevalence of diabetes in the population is difficult. The best source of data on the prevalence of diabetes is the Health Survey for England and this relies on self reports of doctor diagnosed diabetes (Type 1 and Type 2 combined). These national survey data are likely to underestimate the true prevalence of diabetes, as those people who have the disease but have not yet been diagnosed will be omitted from the figures. For further data on overall prevalence, together with data on mortality from diabetes, morbidity from diabetes, prevalence of risk factors for CVD in people with diabetes, and the treatment and prevention of CVD in people with diabetes, see the British Heart Foundation's Diabetes supplement. Rayner M, Petersen S, Buckley C and Press V (2001) Coronary heart disease statistics: diabetes supplement, BHF: London. See www.heartstats.org

Table 12.1 *Prevalence of diagnosed diabetes by sex and age, 2006, England*

	All ages %	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %
MEN								
Type 1 Diabetes	0.5	0.6	0.9	0.6	0.2	0.4	0.2	-
Type 2 Diabetes	5.1	0.2	0.3	1.8	5.8	8.1	15.4	13.5
Types 1 and 2 combined	5.6	0.8	1.2	2.4	6.0	8.5	15.7	13.5
Unweighted base	5,625	650	862	1,183	1,050	1,126	437	317
Weighted base	6,854	1,041	1,129	1,356	1,123	1,015	694	496
WOMEN								
Type 1 Diabetes	0.5	0.6	0.6	0.4	1.3	0.2	-	0.4
Type 2 Diabetes	3.7	0.3	0.5	0.8	2.3	5.9	10.4	10.4
Types 1 and 2 combined	4.2	0.9	1.2	1.2	3.6	6.0	10.4	10.6
Unweighted base	6,923	794	1,148	1,494	1,279	1,268	470	470
Weighted base	7,307	1,014	1,160	1,379	1,141	1,049	768	796

Notes: Self-reported diagnosis of either Type 1 or Type 2 diabetes.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Figure 12.1 *Prevalence of diagnosed diabetes by sex and age, 2006, England*

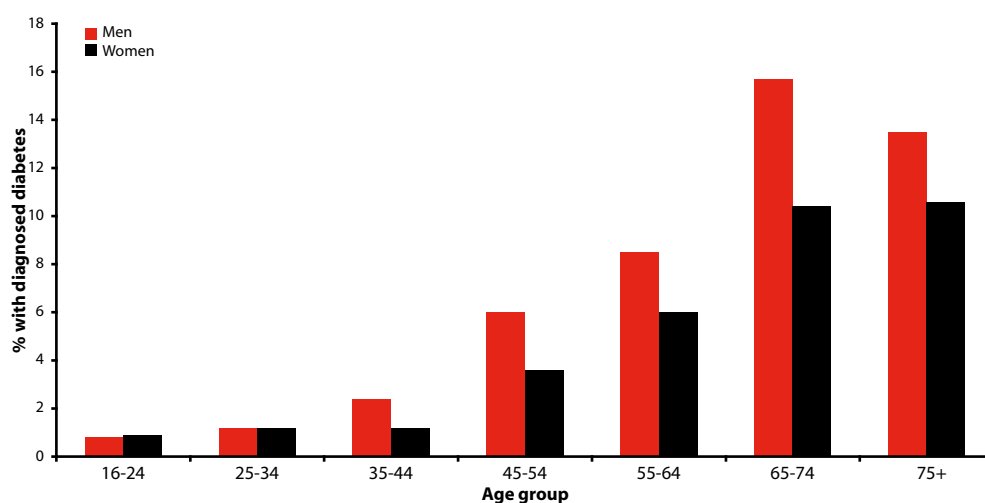


Table 12.2 *Prevalence of undiagnosed diabetes by sex and age, adults aged 35 and over, 2003, England*

	All ages %	35-44 %	45-64 %	65+ %
MEN				
Base	3.0	0.0	2.3	6.9
Base	334	97	146	91
WOMEN				
Base	0.7	0.8	0.0	1.9
Base	367	100	163	104

Notes: Undiagnosed diabetes defined as prevalence of glucose $\geq 7\text{mmol/l}$ without doctor-diagnosed diabetes.

Source: Department of Health (2004) Health Survey for England 2003. The Stationery Office: London.

Table 12.3 *Prevalence of diagnosed diabetes by sex and age, 1991 to 2006, England*

	All ages %	16-24 %	25-34 %	35-44 %	45-54 %	55-64 %	65-74 %	75+ %
MEN								
1991	2.0	0.0	0.0	0.0	1.0	4.0	6.0	7.0
1993	3.0	0.0	1.0	1.0	3.0	6.0	7.0	8.0
1994	2.9	0.8	0.8	1.0	2.5	6.4	5.8	7.5
1998	3.3	0.1	0.7	1.6	2.9	5.8	7.0	8.7
2003	4.3	0.4	0.3	2.8	3.6	8.1	11.9	10.0
2006	5.6	0.8	1.2	2.4	6.0	8.5	15.7	13.5
WOMEN								
1991	2.0	0.0	1.0	1.0	2.0	4.0	6.0	5.0
1993	2.0	0.0	1.0	1.0	2.0	4.0	5.0	5.0
1994	1.9	0.6	0.3	0.9	1.5	2.5	4.8	5.2
1998	2.5	0.8	0.7	0.9	1.6	3.1	6.6	6.6
2003	3.4	0.9	0.9	1.5	2.6	4.7	8.4	8.9
2006	4.2	0.9	1.2	1.2	3.6	6.0	10.4	10.6
<i>Weighted base 2006</i>								
Men	6,854	1,041	1,129	1,356	1,123	1,015	694	496
Women	7,307	1,014	1,160	1,379	1,141	1,049	768	796

Notes: Self-reported diagnosis of either Type 1 or Type 2 diabetes.

Weighted data are provided from 2003.

See source for more details.

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors.
The Information Centre: Leeds.

Figure 12.3 *Prevalence of diagnosed diabetes in adults, 1991 to 2006, England*

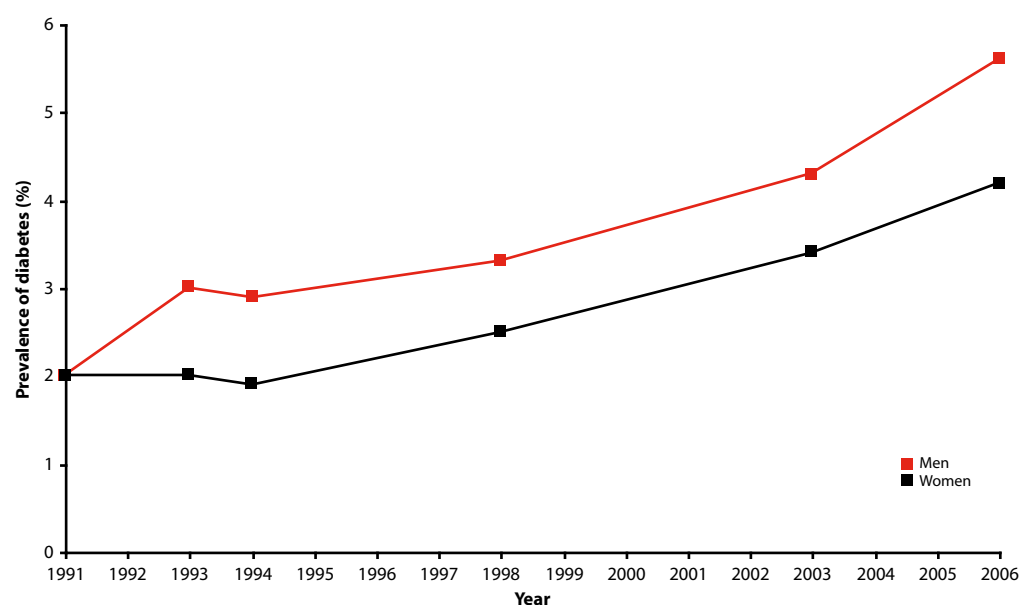


Table 12.4 Age-standardised prevalence of diagnosed diabetes by sex and Government Office Region, 2006, adults aged 16 and over, England

Doctor-diagnosed diabetes	Government Office Region								
	North East	North West	Yorkshire and the Humber	East Midlands	West Midlands	East England	London	South East	South West
	%	%	%	%	%	%	%	%	%
MEN									
Weighted base	5.2	6.5	6.3	4.6	5.8	5.4	6.0	4.7	4.9
	352	929	660	607	699	787	1,031	1,103	687
WOMEN									
Weighted base	4.8	4.3	5.4	4.1	5.4	4.2	4.3	3.9	2.6
	398	1,012	751	653	786	790	966	1,175	780

Source: Joint Health Surveys Unit (2008) Health Survey for England 2006. Cardiovascular disease and risk factors. The Information Centre: Leeds.

Table 12.5 *Age-standardised prevalence of diagnosed diabetes by sex and socio-economic classification, 2003, adults aged 16 and over, England*

<i>Doctor-diagnosed diabetes</i>	<i>NS-SEC of household reference person</i>				
	<i>Managerial & professional</i>	<i>Intermediate</i>	<i>Small employers & own account workers</i>	<i>Lower supervisory & technical</i>	<i>Semi-routine & routine</i>
	%	%	%	%	%
MEN	3.6	2.6	4.1	3.5	4.1
<i>Weighted base</i>	2,932	507	829	971	1,822
WOMEN	2.6	1.6	4.2	4.3	4.0
<i>Weighted base</i>	2,900	716	755	876	2,160

Source: Department of Health (2004) *Health Survey for England 2003*. The Stationery Office: London.

Table 12.6 *Age-standardised prevalence of diagnosed diabetes by sex and household income, 2006, adults aged 16 and over, England*

	<i>Equivalised household income quintile</i>				
	<i>Highest</i>	<i>2nd</i>	<i>3rd</i>	<i>4th</i>	<i>Lowest</i>
	%	%	%	%	%
MEN	6.8	4.2	5.6	6.1	7.0
<i>Weighted base</i>	1,325	1,263	1,102	948	823
WOMEN	1.3	3.3	3.0	5.8	6.3
<i>Weighted base</i>	1,166	1,196	1,185	1,279	996

Source: Joint Health Surveys Unit (2008) *Health Survey for England 2006. Cardiovascular disease and risk factors*. The Information Centre: Leeds.

Table 12.7 Prevalence of diagnosed diabetes by sex and ethnic group, adults aged 16 and over, 2004, England

	General population	Black Caribbean	Black African	Indian	Pakistani	Bangladeshi	Chinese	Irish
MEN	%	%	%	%	%	%	%	%
Type 1	0.6	0.5	0.7	0.9	n/a	0.2	0.3	n/a
Type 2	3.8	9.5	4.3	9.2	7.3	8.0	3.4	3.6
Types 1 and 2 combined	4.3	10.0	5.0	10.1	7.3	8.2	3.8	3.6
Unweighted base	6,602	414	390	550	433	411	348	497
WOMEN								
Type 1	0.3	0.8	0.1	n/a	0.2	0.6	n/a	0.3
Type 2	3.1	7.6	2.0	5.9	8.4	4.5	3.3	2.0
Types 1 and 2 combined	3.4	8.4	2.1	5.9	8.6	5.2	3.3	2.3
Unweighted base	8,234	653	469	634	508	478	375	656

Notes: Numbers may not add exactly due to rounding. Type 1 diabetes defined as doctor-diagnosed diabetes with diagnosis age <35 and currently on insulin.

General Population data taken from Health Survey for England 2003.

Source: Department of Health (2005) Health Survey for England 2004. See <http://www.ic.nhs.uk/pubs/hlthsvyeng2004upd>

Figure 12.7 Prevalence of diagnosed diabetes by ethnic group, 2004, adults aged 16 and over, England

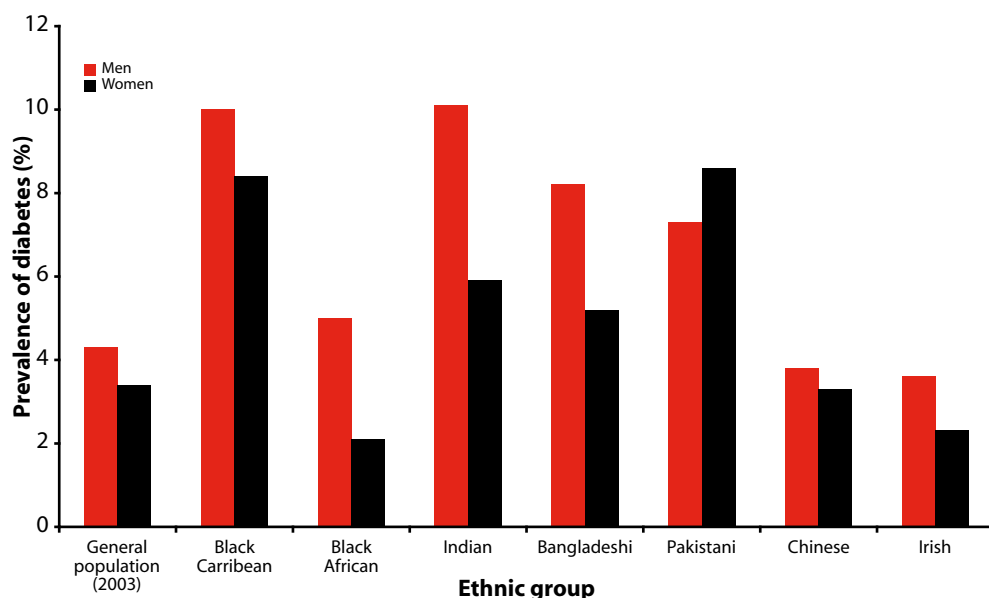


Table 12.8 *Estimated prevalence of diabetes and numbers of adults aged 20 to 79 with diabetes, 2003 and 2025, selected countries, the World*

	2003 Population Aged 20-79 (000s)	Men (000s)	Women (000s)	Numbers with diabetes Total (000s)	Crude prevalence %	2025 Population Aged 20-79 (000s)	Men (000s)	Women (000s)	Numbers with diabetes Total (000s)	Crude prevalence %
World	3,822,720	92,455	101,646	194,195	5.1	5,250,955	158,117	174,552	332,749	6.3
WHO Africa Region	295,065	3,580	3,491	7,072	2.4	541,140	7,870	7,171	15,041	2.8
Angola	5,846	84	73	157	2.7	11,873	206	177	383	3.2
Benin	2,911	33	30	63	2.1	5,851	74	69	143	2.4
Botswana	716	9	17	26	3.6	1,011	15	21	36	3.5
Burkina Faso	4,969	68	67	135	2.7	10,920	106	99	205	1.9
Burundi	2,860	19	19	38	1.3	5,534	53	45	98	1.8
Cameroon	7,278	24	35	58	0.8	12,625	65	83	148	1.2
Cape Verde	228	2	3	5	2.3	412	6	7	13	3.2
Central African Republic	1,780	21	20	41	2.3	2,988	37	35	72	2.4
Chad	3,674	39	62	101	2.7	7,349	82	126	208	2.8
Comoros	355	5	9	14	2.5	715	14	11	25	3.5
Congo, Democratic Republic of	22,436	295	257	552	2.5	49,259	799	673	1,472	3.0
Congo, Republic of	1,403	18	18	36	2.6	2,823	38	36	74	2.6
Cote d'Ivoire	7,959	107	79	186	2.3	13,673	182	138	320	2.3
Djibouti	300	5	10	15	4.9	378	4	10	13	3.5
Equatorial Guinea	226	3	3	6	2.5	430	6	6	11	2.7
Eritrea	1,906	20	17	36	1.9	3,628	51	43	94	2.6
Ethiopia	29,562	299	251	550	1.9	52,442	693	568	1,260	2.4
Gabon	647	10	9	19	2.9	1,095	16	15	31	2.8
Gambia	703	8	7	15	2.2	1,167	16	14	30	2.6
Ghana	9,986	185	149	334	3.3	17,839	408	316	724	4.1
Guinea	3,855	43	36	79	2.0	7,131	93	78	171	2.4
Guinea-Bissau	588	6	6	12	2.0	1,036	12	11	22	2.2
Kenya	14,604	194	166	360	2.5	25,033	473	388	861	3.4
Lesotho	1,040	12	20	32	3.1	1,195	14	21	35	2.9
Liberia	1,573	17	15	32	2.0	3,300	44	36	80	2.4
Madagascar	7,782	104	88	192	2.5	15,397	277	230	507	3.3
Malawi	5,131	47	41	87	1.7	8,961	109	87	196	2.2
Mali	5,231	56	51	107	2.0	10,339	124	107	231	2.2
Mauritania	1,309	18	28	46	3.5	2,590	41	61	101	3.9
Mozambique	8,681	142	124	267	3.1	13,773	270	227	497	3.6
Namibia	831	10	16	26	3.1	1,463	19	28	47	3.2
Niger	4,728	58	89	147	3.1	10,662	115	167	282	2.6
Nigeria	54,248	655	563	1,219	2.2	103,872	1,412	1,191	2,603	2.5
Reunion	474	29	33	62	13.1	640	49	55	105	16.4
Rwanda	3,645	23	19	41	1.1	6,305	50	41	91	1.4
Sao Tome and Principe	107	2	1	3	2.8	146	3	2	5	3.4
Senegal	4,607	55	49	104	2.3	8,798	120	108	228	2.6
Seychelles	49	3	3	6	12.3	67	5	5	10	14.9
Sierra Leone	2,268	26	23	49	2.2	4,181	52	47	98	2.3
Somalia	4,086	50	42	92	2.3	9,053	143	122	264	2.9
South Africa	24,741	323	519	841	3.4	26,816	417	638	1,055	3.9
Swaziland	450	5	8	13	3.0	589	7	10	17	2.9
Tanzania	16,616	203	176	379	2.3	31,855	545	457	1,002	3.1
Togo	2,196	24	21	45	2.1	4,178	52	45	98	2.3
Uganda	10,018	85	70	155	1.5	22,514	253	207	460	2.0
Western Sahara	149	3	4	7	4.9	269	6	8	14	5.2
Zambia	4,625	76	64	140	3.0	8,922	177	140	317	3.6
Zimbabwe	5,686	59	90	149	2.6	10,041	120	165	284	2.8
WHO Eastern Mediterranean and Middle East Region	276,025	9,713	9,524	19,237	7.0	493,560	19,257	20,153	39,410	8.0
Afghanistan	11,130	502	416	917	8.2	21,973	973	846	1,819	8.3
Algeria	17,737	321	407	728	4.1	28,950	693	898	1,591	5.5
Armenia	2,607	82	129	211	8.1	2,968	125	191	316	10.7
Bahrain	439	42	23	66	14.9	645	67	51	118	18.3
Egypt	39,299	1,730	2,140	3,869	9.8	63,676	3,441	4,362	7,803	12.3
Iran	38,506	706	685	1,391	3.6	65,757	1,439	1,458	2,896	4.4
Iraq	11,962	456	460	916	7.7	23,293	1,061	1,065	2,126	9.1
Jordan	2,648	96	89	185	7.0	5,054	245	227	472	9.3
Kuwait	1,240	107	51	158	12.8	2,178	220	138	358	16.4
Lebanon	2,202	67	73	140	6.4	3,214	140	153	293	9.1
Libya	3,128	48	67	115	3.7	5,215	95	148	243	4.7
Morocco	17,598	312	419	732	4.2	28,128	646	870	1,515	5.4
Occupied Palestinian Territories	1,525	55	58	113	7.4	3,543	148	144	291	8.2
Oman	1,274	85	60	145	11.4	2,710	173	150	323	11.9
Pakistan	72,760	3,311	2,870	6,180	8.5	136,909	5,891	5,716	11,607	8.5
Qatar	393	47	16	63	16.0	537	63	35	98	18.2
Saudi Arabia	10,544	597	395	992	9.4	21,851	1,146	955	2,101	9.6
Sudan	16,584	210	312	522	3.1	29,070	473	672	1,145	3.9
Syria	8,516	260	268	528	6.2	16,711	721	720	1,441	8.6
Tunisia	5,966	118	156	274	4.6	8,442	214	292	506	6.0
United Arab Emirates	1,829	273	95	367	20.1	2,482	410	197	607	24.5
Yemen	8,137	290	335	626	7.7	20,253	875	866	1,741	8.6
WHO European Region	621,235	22,337	26,041	48,378	7.8	646,334	27,842	30,796	58,638	9.1
Albania	1,966	35	40	75	3.8	2,559	61	70	131	5.1
Andorra	50	2	2	4	7.7	52	3	3	5	9.5
Austria	5,991	259	318	576	9.6	5,887	338	365	703	11.9
Azerbaijan	5,154	144	214	358	6.9	6,793	259	377	636	9.4
Belarus	7,336	309	374	683	6.9	7,233	357	417	773	10.7
Belgium	7,531	141	175	315	4.2	7,658	180	214	395	5.2
Bosnia and Herzegovina	3,074	117	178	295	9.6	3,270	166	237	402	12.3
Bulgaria	5,894	236	356	591	10.0	4,871	223	342	565	11.6
Croatia	3,412	82	117	199	5.8	3,304	97	124	221	6.7
Cyprus	541	12	15	28	5.1	637	18	22	40	6.3
Czech Republic	7,734	365	370	735	9.5	7,599	442	446	887	11.7
Denmark	3,863	121	144	265	6.9	3,988	148	182	330	8.3
Estonia	991	43	53	96	9.7	814	42	48	89	11.0
Finland	3,775	130	143	274	7.2	3,822	186	198	384	10.0
France	42,546	1,306	1,347	2,654	6.2	45,141	1,610	1,676	3,285	7.3
Georgia	3,681	129	203	332	9.0	3,341	143	215	358	10.7
Germany	61,895	2,879	3,415	6,294	10.2	60,030	3,459	3,685	7,144	11.9
Greece	8,069	217	276	493	6.1	7,767	254	312	566	7.3
Hungary	7,350	336	375	711	9.7	6,807	365	397	762	11.2
Iceland	192	2	2	4	2.0	229	3	3	6	2.5
Ireland	2,674	44	46	90	3.4	3,290	66	69	135	4.1
Israel	3,959	141	141	282	7.1	5,776	243	225	468	8.1
Italy	43,925	1,400	1,480	2,880	6.6	40,482	1,584	1,615	3,198	7.9
Kazakhstan	10,235	305	254	559	5.5	11,358	430	367	797	7.0
Kyrgyzstan	2,896	71	54	125	4.3	4,355	144	108	252	5.8
Latvia	1,758	78	96	174	9.9	1,610	84	94	178	11.1
Lithuania	2,648	115	134	249	9.4	2,626	136	148	284	10.8
Luxembourg	327	6	7	13	3.8	415	8	10	18	4.4
Macedonia	1,428	31	39	70	4.9	1,598	44	53	97	6.1
Malta	280	11	15	26	9.2	304	15	20	35	11.6
Moldova, Republic of	2,915	117	125	242	9.3	3,095	148	154	302	9.8
Monaco	23	1	1	1	6.1	24	1	1	2	7.2
Netherlands	11,678	203	229	432	3.7	12,538	291	344	635	5.1
Norway	3,154	96	116	212	6.7	3,534	129	159	289	8.2
Poland	27,852	1,239	1,268	2,507	9.0	28,567	1,546	1,607	3,153	11.0
Portugal	7,471	279	306	585	7.8	7,456	344	362	706	9.5

	2003				Crude prevalence %	2025				Crude prevalence %
	Population Aged 20-79 (000s)	Men (000s)	Women (000s)	Total (000s)		Population Aged 20-79 (000s)	Men (000s)	Women (000s)	Total (000s)	
Romania	16,392	760	759	1,519	9.3	15,860	834	843	1,677	10.6
Russian Federation	105,244	4,418	5,276	9,694	9.2	98,969	4,909	5,838	10,747	10.9
San Marino	20	1	1	2	6.1	21	1	1	2	7.2
Serbia and Montenegro	7,542	182	240	422	5.6	7,597	215	268	483	6.4
Slovakia	3,903	168	171	339	8.7	4,127	219	224	443	10.7
Slovenia	1,511	72	73	145	9.6	1,451	87	87	174	12.0
Spain	30,329	1,210	1,795	3,004	9.9	29,155	1,479	1,466	2,945	10.1
Sweden	6,290	206	251	457	7.3	6,373	246	303	548	8.6
Switzerland	5,310	235	270	505	9.5	5,114	308	339	647	12.6
Tajikistan	3,174	70	46	117	3.7	5,305	158	110	268	5.1
Turkey	42,411	1,254	1,704	2,959	7.0	59,689	2,285	3,145	5,430	9.1
Turkmenistan	2,648	62	43	105	4.0	4,537	143	105	248	5.5
Ukraine	35,625	1,552	1,901	3,453	9.7	31,102	1,558	1,800	3,358	10.8
United Kingdom*	42,423	814	858	1,672	3.9	45,322	1,080	1,062	2,141	4.7
Uzbekistan	14,144	333	228	561	4.0	22,883	754	544	1,297	5.7
WHO North American Region	289,550	10,947	12,070	23,016	7.9	374,364	16,996	19,179	36,175	9.7
Anguilla	8	0	0	0	5.5	11	0	0	1	6.7
Antigua and Barbuda	41	2	1	2	5.8	57	2	2	5	8.2
Aruba	43	2	2	4	9.7	59	3	3	6	10.9
Bahamas	193	6	11	17	9.0	266	11	20	30	11.4
Barbados	189	7	9	16	8.5	217	14	14	28	12.8
Belize	124	4	4	7	5.7	216	9	9	17	7.8
Bermuda	39	2	2	4	9.7	54	3	3	6	10.9
British Virgin Islands	13	1	1	2	8.3	18	1	1	2	9.6
Canada	22,640	1,099	835	2,034	9.0	27,135	1,651	1,381	3,032	11.2
Cayman Islands	22	1	1	2	9.7	31	2	2	3	10.9
Dominica, Commonwealth of	42	2	2	4	8.4	58	3	3	6	9.8
Grenada	54	2	2	4	6.8	74	3	3	6	8.4
Guadeloupe	289	9	10	19	6.5	345	13	15	28	8.2
Guyana	457	9	18	28	6.0	480	14	31	46	9.5
Haiti	4,113	80	157	236	5.7	6,679	157	308	464	7.0
Jamaica	1,528	39	71	111	7.2	2,197	75	135	210	9.6
Martinique	265	8	9	17	6.5	305	12	13	25	8.2
Mexico	59,336	1,617	2,792	4,409	7.4	87,640	3,235	5,800	9,035	10.3
St Kitts and Nevis	23	1	1	2	6.6	32	1	1	3	8.0
St Lucia	101	3	3	6	6.2	132	5	6	11	8.4
St Vincent and the Grenadines	71	3	3	5	7.7	97	5	5	9	9.4
Trinidad and Tobago	861	11	57	68	7.9	1,042	44	80	123	11.8
USA	199,097	8,041	7,980	16,020	8.0	247,219	11,735	11,345	23,081	9.3
WHO South and Central American Region	251,850	6,021	8,137	14,158	5.6	363,881	11,000	15,156	26,156	7.2
Argentina	23,958	563	742	1,305	5.4	31,775	836	1,006	1,842	5.8
Bolivia	4,480	100	117	217	4.8	7,927	209	241	450	5.7
Brazil	109,901	2,496	3,186	5,682	5.2	150,418	4,556	6,101	10,657	7.1
Chile	9,864	231	326	557	5.6	13,327	356	550	906	6.8
Colombia	25,524	492	607	1,099	4.3	39,178	1,025	1,250	2,274	5.8
Costa Rica	2,493	66	106	172	6.9	3,909	139	228	368	9.4
Cuba	7,980	386	667	1,053	13.2	8,749	541	979	1,512	17.3
Dominican Republic	4,991	191	309	500	10.0	7,081	332	589	920	13.0
Ecuador	7,548	171	190	361	4.8	11,887	357	406	763	6.4
El Salvador	3,620	80	146	225	6.2	5,775	168	306	474	8.2
French Guiana	100	5	6	11	11.1	190	11	15	26	13.7
Guatemala	5,620	117	192	309	5.5	11,171	271	456	728	6.5
Honduras	3,302	71	117	188	5.7	6,123	164	277	441	7.2
Netherlands Antilles	148	7	11	18	12.3	180	11	16	28	15.4
Nicaragua	2,567	58	99	157	6.1	5,124	146	149	395	7.7
Panama	1,779	50	79	129	7.3	2,590	97	163	260	10.0
Paraguay	2,979	52	64	115	3.9	5,533	115	151	265	4.8
Peru	15,397	367	425	793	5.1	23,753	724	864	1,588	6.7
Puerto Rico	2,671	116	236	351	13.2	3,251	168	340	508	15.6
Suriname	251	8	13	22	8.6	315	16	23	39	12.3
Uruguay	2,217	55	96	150	6.8	2,627	72	117	188	7.2
Venezuela	14,460	341	404	746	5.2	22,997	686	837	1,523	6.6
WHO South-East Asian Region	705,292	19,911	19,386	39,296	5.6	1,081,026	41,380	40,187	81,567	7.5
Bangladesh	75,020	1,496	1,419	2,915	3.9	130,288	3,218	3,089	6,307	4.8
Bhutan	1,054	19	20	39	3.7	2,044	44	45	89	4.3
India	603,677	17,970	17,534	35,504	5.9	909,790	37,276	36,200	73,476	8.1
Maldives	144	1	1	3	1.8	304	3	3	7	2.1
Mauritius	786	41	43	85	10.7	986	69	76	145	14.7
Nepal	12,004	245	243	488	4.1	21,644	553	556	1,108	5.1
Sri Lanka	12,607	138	125	263	2.1	15,971	217	218	435	2.7
WHO Western Pacific Region	1,383,705	19,938	23,091	43,029	3.1	1,750,653	33,765	41,997	75,762	4.3
Australia	13,805	476	379	854	6.2	16,950	721	580	1,301	7.7
Brunei Darussalam	209	10	13	22	10.7	332	22	28	50	15.0
Cambodia	6,332	44	81	125	2.0	12,191	98	162	260	2.1
China, Hong Kong	5,424	233	247	480	8.8	6,765	387	477	863	12.8
China, Macau	323	13	14	27	8.2	425	24	31	55	12.9
China, People's Republic of	877,935	10,751	13,059	23,809	2.7	1,079,641	19,913	26,217	46,130	4.3
Cook Islands	13	0	1	1	6.6	17	1	1	2	7.3
East Timor	403	3	3	6	1.4	764	6	6	13	1.6
Fiji	480	18	21	40	8.3	641	31	35	66	10.3
French Polynesia	147	5	6	12	8.0	217	10	13	23	10.8
Guam	93	3	3	6	6.7	148	6	5	11	7.5
Indonesia	132,849	1,195	1,353	2,548	1.9	186,983	2,507	2,703	5,210	2.8
Japan	97,090	3,477	3,252	6,729	6.9	90,130	3,654	3,495	7,149	7.9
Kiribati	60	2	2	4	6.2	82	3	3	7	7.9
Korea, Democratic People's Republic of	14,835	431	343	774	5.2	18,008	635	499	1,135	6.3
Korea, Republic of	34,147	1,210	976	2,186	6.4	39,095	1,820	1,423	3,243	8.3
Lao People's Democratic Republic	2,658	6	22	28	1.1	4,933	12	42	54	1.1
Malaysia	13,280	527	724	1,252	9.4	21,032	1,088	1,514	2,602	12.4
Marshall Islands	46	2	2	4	8.6	64	3	3	7	10.3
Micronesia	82	3	3	6	6.7	113	5	5	10	8.5
Mongolia	1,451	10	10	20	1.4	2,355	23	24	46	2.0
Myanmar	28,474	69	243	312	1.1	41,135	136	416	552	1.3
Nauru	8	1	1	2	30.2	10	2	2	4	33.0
New Caledonia	140	2	3	5	3.8	217	4	6	10	4.7
New Zealand	2,603	97	100	197	7.6	3,106	135	143	278	9.0
Niue	1	0	0	0	6.8	2	0	0	0	7.6
Palau	12	1	1	2	8.7	16	1	1	2	10.3
Papua New Guinea	2,551	20	29	49	1.9	4,546	52	79	131	2.9
Philippines	42,133	399	611	1,010	2.4	69,936	811	1,260	2,071	3.0
Samoa	74	2	3	4	5.9	109	3	3	7	6.1
Singapore, Republic of	3,032	172	201	374	12.3	3,884	331	427	758	19.5
Solomon Islands	221	2	3	5	2.1	480	5	9	14	2.9
Taiwan	13,767	307	459	766	5.6	18,911	481	759	1,240	6.6
Thailand	42,236	348	533	882	2.1	55,716	570	888	1,458	2.6
Tokelau	1	0	0	0	6.4	1	0	0	0	7.6
Tonga	65	4	5	8	12.4	90	6	8	14	15.9
Tuvalu	7	0	0	1	8.6	9	0	1	1	10.8
Vanuatu	101	1	1	2	2.2	195	2	4	6	3.2
Vietnam	46,620	95	386	481	1.0	71,403	256	726	982	1.4

Notes: * Note that the Health Survey for England 2003 verifies this estimate for diagnosed diabetes (types 1 and 2), but estimates that a further 3% of men and 0.7% of women aged over 35 may suffer from undiagnosed diabetes.

Source: International Diabetes Federation (2003) *The Diabetes Atlas (Second edition)* International Diabetes Federation:Brussels.

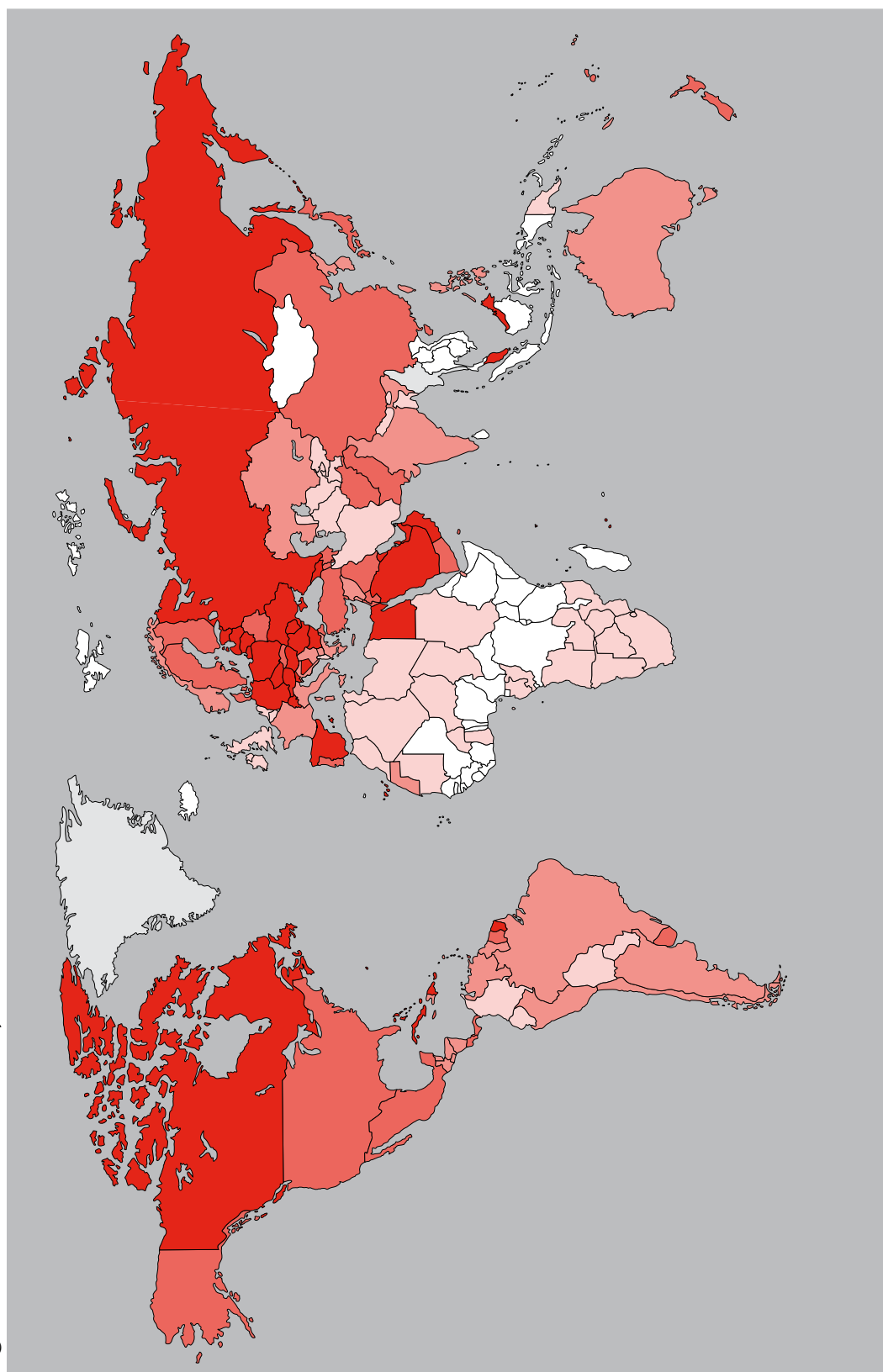
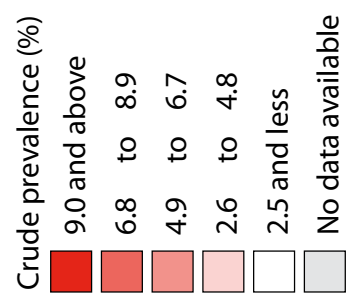


Figure 12.8 Prevalence of diabetes, 2003, the World

13. Economic Costs

As well as human costs, both CVD and CHD have major economic consequences for the UK.

Health care costs

CVD cost the health care system in the UK around £14.4 billion in 2006^{1,2} (Table 13.1). This represents a cost per capita of just under £250. The cost of hospital care for people who have CVD accounts for about 72% of these costs, whereas 20% of the cost is due to drugs (Figure 13.1a).

CHD cost the health care system in the UK around £3.2 billion in 2006^{1,2} and stroke cost approximately the same amount. This represents a cost per capita of just over £50 for each condition. The cost of hospital care for people who have CHD accounts for about 73% of these costs. The hospital costs for stroke account for 94% of the total health care costs (Table 13.1 and Figure 13.1b).

Non-health care costs

Looking only at the health care costs of CVD grossly underestimates the total cost of CVD in the UK. Production losses from death and illness in those of working age and from the informal care of people with the disease contribute greatly to the overall financial burden.

In 2006, production losses due to mortality and morbidity associated with CVD cost the UK over £8.2 billion, with around 55% of this cost due to death and 45% due to illness in those of working age. The cost of informal care for people with CVD in the UK was over £8.0 billion³ in 2006 (Table 13.2).

In 2006, production losses due to mortality and morbidity associated with CHD cost the UK over £3.9 billion, with around 65% of this cost due to death and 35% due to illness in those of working age. The cost of informal care for people with CHD in the UK was around £1.8 billion³ in 2006. In contrast two thirds of the production losses for stroke were due to illnesses in those of working age, and the cost of informal care (£2.9 billion) was far higher than for CHD (Table 13.2).

Total costs

Overall CVD is estimated to cost the UK economy £30.7 billion a year. Of the total cost of CVD to the UK, around 47% is due to direct health care costs, 27% to productivity losses, and 26% to the informal care of people with CVD (Table 13.2).

Overall CHD is estimated to cost the UK economy nearly £9.0 billion a year. Of the total cost

of CHD to the UK, around 36% is due to direct health care costs, 43% to productivity losses, and 21% to the informal care of people with CHD (Table 13.2).

International differences

Table 13.3 shows the relative costs of cardiovascular related diseases for countries in the EU for 2006. The cost per capita of CVD is highest in Germany (€413) and lowest in Romania (€34) (Table 13.3 and Figure 13.3).

1. The figures for this section are from a cost of illness study by researchers at the Health Economics Research Centre, Department of Public Health, University of Oxford. Details of the methods and data used can be found at www.heartstats.org/eucosts.
2. This figure does not include the money spent on non-clinical activities concerned with the primary prevention of CVD and CHD, for example, public anti-smoking campaigns, nutrition education etc. However, the cost of drugs prescribed in primary care for both primary and secondary prevention is included.
3. The cost of informal care is equivalent to the opportunity costs of unpaid care. It is a measure of the amount of money that carers forgo to provide unpaid care for their spouse, friend or relative living with CVD. For more details on the methods used see www.heartstats.org/eucosts

Table 13.1 Health care costs of CVD, CHD and stroke, 2006, United Kingdom

	CVD		CHD		Stroke	
	£ million	% of total	£ million	% of total	£ million	% of total
Primary care	835	5.8	135	4.1	57	1.8
Outpatient care	297	2.1	104	3.2	37	1.2
Accident and emergency care	67	0.5	23	0.7	11	0.3
Inpatient care	10,363	72.1	2,369	72.9	2,967	93.5
Medications	2,811	19.6	618	19.0	100	3.2
Total health care costs	14,373	100.0	3,248	100.0	3,172	100.0
Cost per capita	£238		£54		£52	

Notes: Original estimates were made in Euros, and have been converted using: €1 = 76p.

Source: Allender S, Scarborough P, Peto V, Rayner M, Leal J, Luengo-Fernandez R and Gray A (2008) European cardiovascular disease statistics. European Heart Network: Brussels.

Figure 13.1a Health care costs of CVD, 2006, United Kingdom

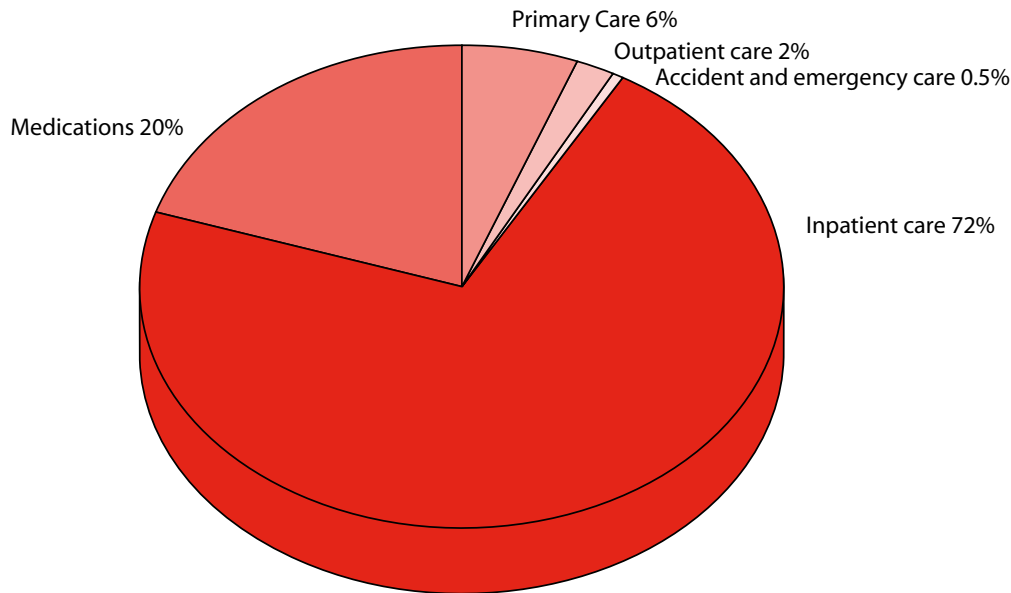


Figure 13.1b Health care costs of CHD, 2006, United Kingdom

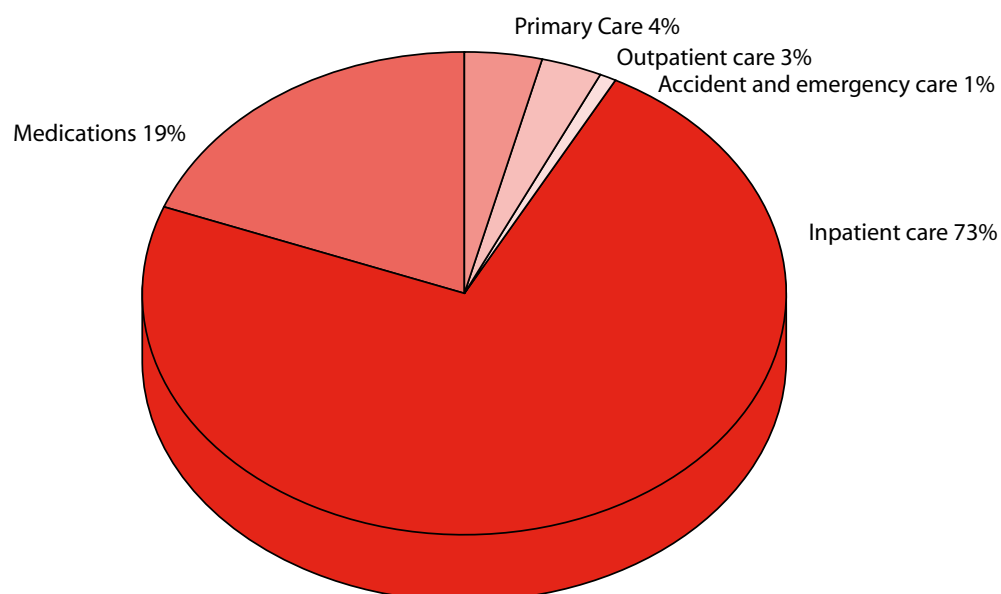


Figure 13.1c Health care costs of stroke, 2006, United Kingdom

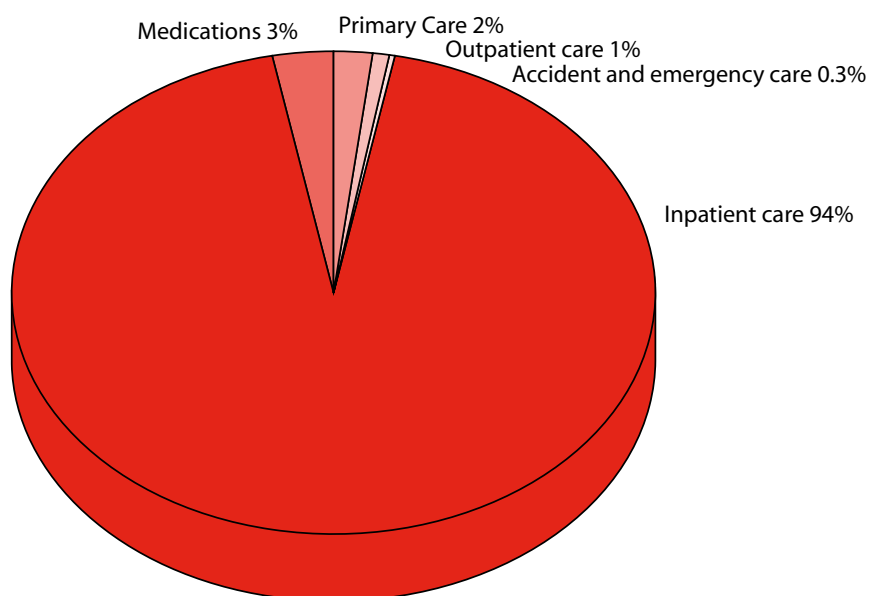


Table 13.2 Total costs of CVD, CHD and stroke, 2006, United Kingdom

	CVD		CHD		Stroke	
	£ million	% of total	£ million	% of total	£ million	% of total
Health care costs	14,373	46.9	3,248	36.1	3,172	38.2
Production losses due to mortality	4,417	14.4	2,454	27.3	771	8.6
Production losses due to morbidity	3,839	12.5	1,443	16.0	1,443	16.0
Informal care	8,041	26.2	1,852	20.6	2,908	32.3
Total	30,669	100.0	8,998	100.0	8,295	100.0

Notes: Original estimates were made in Euros, and have been converted using: €1 = 76p.

Source: Allender S, Scarborough P, Peto V, Rayner M, Leal J, Luengo-Fernandez R and Gray A (2008) *European cardiovascular disease statistics. European Heart Network: Brussels.*

Table 13.3 *Health care costs of CVD, CHD and stroke by EU country, 2006, Europe*

Country	CVD		CHD		Stroke	
	Cost per capita (€)	% of total health expenditure	Cost per capita (€)	% of total health expenditure	Cost per capita (€)	% of total health expenditure
Austria	198	6	43	1	35	1
Belgium	193	6	46	1	27	1
Bulgaria	35	14	6	2	7	3
Cyprus	59	5	18	2	7	1
Czech Republic	107	13	25	3	16	2
Denmark	182	5	44	1	37	1
Estonia	77	15	22	4	14	3
Finland	237	10	52	2	65	3
France	207	7	32	1	23	1
Germany	413	14	96	3	58	2
Greece	173	10	46	3	44	2
Hungary	75	10	15	2	10	1
Ireland	183	6	46	1	26	1
Italy	235	10	45	2	45	2
Latvia	47	9	13	3	8	2
Lithuania	59	13	14	3	14	3
Luxembourg	252	5	60	1	24	0
Malta	72	6	18	2	5	0
Netherlands	271	9	73	2	78	3
Poland	74	17	18	4	10	2
Portugal	151	10	33	2	27	2
Romania	34	15	6	3	6	2
Slovakia	74	13	21	4	11	2
Slovenia	91	7	19	1	12	1
Spain	130	7	31	2	17	1
Sweden	308	10	62	2	52	2
UK	313	12	71	3	69	3
Total EU	223	10	49	2	38	2

Source: Allender S, Scarborough P, Peto V, Rayner M, Leal J, Luengo-Fernandez R and Gray A (2008) European cardiovascular disease statistics. European Heart Network: Brussels.

Figure 13.3 *Health care costs of CVD, CHD and stroke as a proportion of total health care expenditure, by EU country, 2006, Europe*

